

## FTA Method: Analyzing Factors That Influence the Development of OAP SMEs

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**Abstract**

The poverty level in Southwest Papua, especially in the city and district of Sorong, is much higher than other areas in Southwest Papua, so small and medium enterprises (SMEs) owned by indigenous Papuans play an essential role as economic drivers. The urgency of this research is to develop indigenous Papuan businesses, which have been challenging to grow, so they must know what factors are needed to create. Several factors influence business development: capital, skills and knowledge, market access, and government support. To compete with developing Orang Asli Papua (OAP) businesses, they will be able to compete with non-OAP businesses and overcome poverty in Southwest Papua Province. This research uses the Fault Tree Analysis method to analyze the factors that influence the development of OAP SMEs. The research results show that six priorities are the main factors for developing SMEs: Education and Training, Networks and Connections, Capital Assistance, Marketing Skills, infrastructure and the role of government.

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## INTRODUCTION

Southwest Papua (PBD) is a province in Indonesia that was developed from West Papua. The areas included in this region include the Greater Sorong region, which consists of Sorong City, Sorong Regency, South Sorong Regency, Maybrat Regency, Tambrauw Regency, and Raja Ampat Regency, Southwest Papua, the 38th province in Indonesia.

Southwest Papua has abundant forestry, mining, fisheries, tourism and agriculture resources. Maximizing the use of local resources and highlighting indications that they have not been used to their full potential are two ways to promote regional economic development (Kayatun et al., 2023). With abundant resources, this contrasts with the large number of poverties, especially in Orang Asli Papua (OAP) and is a challenge for the government of Southwest Papua (PBD). According to the Badan Pusat Statistik (BPS), poverty data in Sorong City and Regency is sufficient from 2020 - 2022. This data covers 27% of the city in Sorong and 15% of Sorong district, where native Papuans dominate this data. Meanwhile, SME development in West Papua is dominated by Sorong City and Sorong Regency, with 1,471 businesses or 21.82% and Sorong Regency with 916 businesses or 13.58%.

According to the data, the PBD government carries out six priority programs, one of which is Giving Help Giving Business Capital Assistance for OAP Communities. With this program, OAP SMEs can be developed to compete and become necessary economic drivers (Rosmadi, 2018), especially in Sorong City and Sorong District.

Local government intervention is necessary to improve OAP SMEs because the development process cannot run independently (Wamafma & Ratang, 2020). In developing SMEs, there are several influencing factors, such as limited capital, lack of skills and knowledge, lack of market access, economic uncertainty, and lack of government support (Purnamasari et al., 2015). From these factors, the causes and solutions will search so that OAP SMEs can develop in the future and reduce the poverty level in PBD.

To compete with non-OAP SMEs and grow in number and quality, it is hoped that OAP SMEs will be able to grow (Supriyanto, 2012; Putriana, 2014), which will boost the local economy and lessen poverty. To measure these factors so that OAP SMEs have quality and quantity using the Fault Tree Analysis (FTA) method, where

the FTA method is an analysis used to find out the root causes of potential failures (Kartika et al., 2019; Salamuk et al., 2023) that occur in OAP SMEs. So that it can reduce the impact (Wahyudien & Kusri, 2020). This research aims to provide a reference and recommendation for the government on what factors are the primary keys for OAP SMEs to develop and compete so that the PBD government's priority program can run according to the main objective of increasing OAP resources.

What factors influence the development of Indigenous Papuan (OAP) SMEs and how to control them based on the Fault Tree Analysis (FTA) method.

## RESEARCH METHODS

This research was conducted in Sorong, specifically for Indigenous Papuan Small and Medium Enterprises (UKM OAP) in 2023. The data collection method uses quantitative methods through direct interviews with OAP UKM based on questionnaires created and references regarding factors that influence the development of UKM, as in Table 1.

*Table 1. Factors Influencing SME Development*

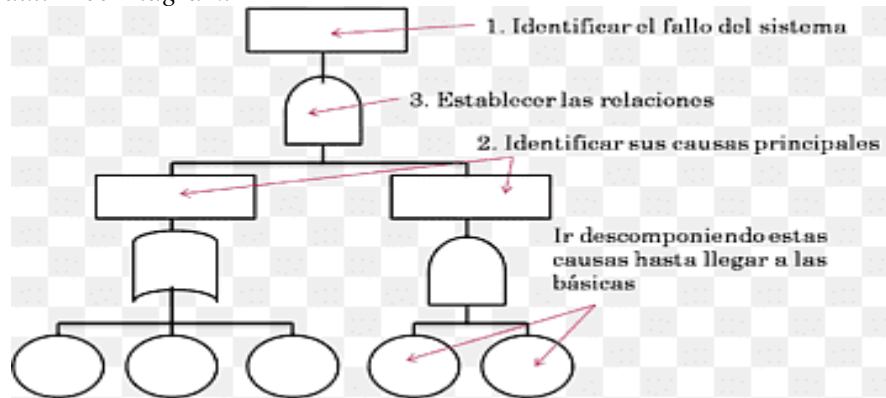
No	Main factor	Sub Factors	Influence of Variables
1	Capital (Zulfah et al., 2018) & (Rahayu et al., 2022)	Capital Sources	Capital that influences the future business cycle, whether from your capital or other parties
2	Knowledge and Skills (Subaktilah et al., 2018) & (Putra & Ridwan, 2023)	education and training  Family and Social Environment Motivation and Self-confidence	Attend training (profit and loss calculations, marketing, and product manufacturing (food/drinks) Supportive family Own motivation to develop the business
3	Market Access (Satar & Buraerah, 2020) & (Cahyanto, 2016)	Lack of Marketing Knowledge and Skills Limited Infrastructure Networks and Connections	Understand marketing knowledge and skills Own an adequate and strategic place Own network/connections for marketing
4	Support the Government (Nurdiyanto Suranto, 2020)	Infrastructure And Access & Financing and Credit Education and training Assistance and Consultation  Access to Markets and Promotions Collaboration and Networking	The government provides adequate access and space The government helps provide capital sources The government provides education/training The government assists in developing business  The government provides promotional training and looks at market access Government networking and collaboration in business marketing

*Source: Research*

**The data analysis technique for this research uses the *Fault Tree Analysis method (FTA)***

The steps for the analysis are as follows:

1. Identify Failure Events (*Top Events*).
2. Identify the Main Cause (*Basic Event*).
3. Calculation of the Main Factors that Influence the Development of OAP SMEs
4. Creating a *Fault Tree Diagram*.



5. Risk Mitigation.

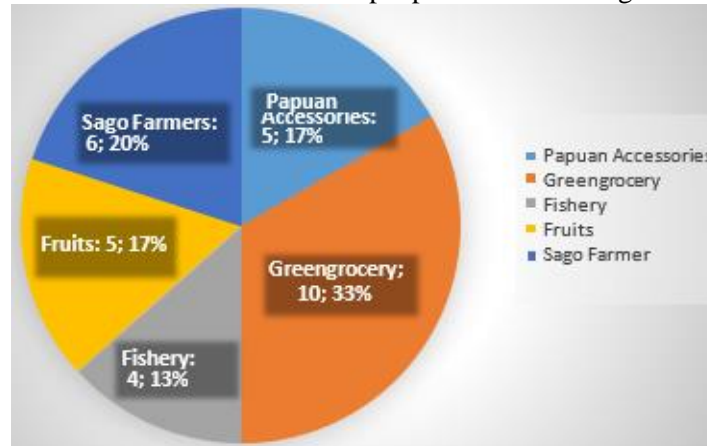
**RESULTS AND DISCUSSION**

***Fault Tree Analysis (FTA) Method Analysis***

Data analysis using the FTA Method for Determining Factors and Sub Factors. In business process development, failure tree analysis (FTA) identifies possible failures or undesirable incidents in a system and analyses their causes (Salamuk et al., 2023). A questionnaire was distributed to OAP UKM to obtain data for this research.

**Data Questionnaire**

Research questionnaires were distributed to 30 OAP people around Sorong who own businesses. From data



*Figure 1. OAP SME data*

obtained by the business world, almost all sectors are recorded: vegetables, Papuan accessories, fisheries, fruit and sago farmers.

**Identify Failure Events (*Top Events*)**

Based on the results of data collection, the Top Event in determining the development factors for OAP SMEs based on the theory used as a reference is:

### **1. Capital Factor**

What influences SME development factors is capital, which consists of:

The sources of capital available for a business can influence capital limitations. If the business only depends on capital or capital from family or friends, the available capital will likely be limited (Sinen et al., 2022).

Access to Financing (Government): The ability to obtain additional financing from institutions, finance, or investors may also impact limited capital. Available capital will remain fixed if the business has limited access to external funding (Putriana, 2014).

### **2. Knowledge and Skills Factors**

Factors that influence SME development are knowledge and skills, which consist of:

The level of education and training an individual possesses can influence knowledge and skills in business development. The more education and training you take, the more knowledge and skills you have to improve (Sumarwati & Rachman, 2019).

Family and social environments can also influence expertise and skills in developing a business. If individuals grow up in an environment that supports entrepreneurship and example, which is good for the family or social environment, knowledge and skills in developing business will be better (Febriyanti et al., 2022).

Motivation and self-confidence can also influence learning and skills in creating a company. If individuals have strong motivation and are confident in their ability to grow their business, they will be more motivated to continue learning and developing the necessary knowledge and skills. (Kartika et al., 2019) .

### **3. Market Access Factors**

Factors that influence SME development are knowledge and skills, which consist of:

Lack of Marketing Knowledge and Skills about markets, customer segmentation, branding, and promotions can hinder SMEs' ability to reach the market. A lack of adequate infrastructure, such as transportation, telecommunications, and Internet access, can limit SMEs' ability to reach a broader market (Married and Lesbian, 2020).

Processes for distributing goods or services, consumer contact, and market information access require more infrastructure.

Limited relationships and networks with other business actors may make it difficult for them to reach a wider audience. According to Sumarwati and Rachman (2019), SMEs can benefit from having solid networks and contacts to reach potential clients, collaborate on projects, and learn about industry trends.

### **4. Government Factors**

Factors that influence SME development are knowledge and skills, which consist of:

The government's role in providing in-depth support for OAP business in the development sector is such as: Infrastructure and Access, Financing and Credit, Education and Training, Mentoring and Consultation, Access to Markets and Promotion, Collaboration and Networking.

### **Identify the Main Cause (*Basic Event*)**

Identify the immediate cause of the main event that may have occurred. It may be a process failure, device, or other factor causing the problem. In this study, the basic events are:

**Table 2.** *The main cause*

<b>Top Events</b>	<b>The main cause</b>
Independent Capital	Lack of own capital
Capital Assistance	Unequal distribution of business capital assistance
education and training	Lack of training and education provided by the government
Environment, Family and Social	Lack of support from family and environment
Motivation and Self-Confidence	Lack of motivation and self-confidence
Marketing Knowledge and Skills	Lack of training in marketing
Limited Infrastructure	Lack of infrastructure to develop business
Networks and Connections	Lack of networks and connections to expand business
The Government's Role in: Infrastructure and Access Financing and Credit education and training Assistance and Consultation Access to Markets and Promotions Collaboration and Networking	Insufficient and uneven implementation of government programs in developing OAP businesses

*Source: Research Data*

**Main Factors Influencing the Development of OAP SMEs**

Based on data from distributing questionnaires to 30 OAP SMEs, several factors are priorities to pay attention to so that OAP business development in Southwest Papua can develop. Table 3 displays the calculations:

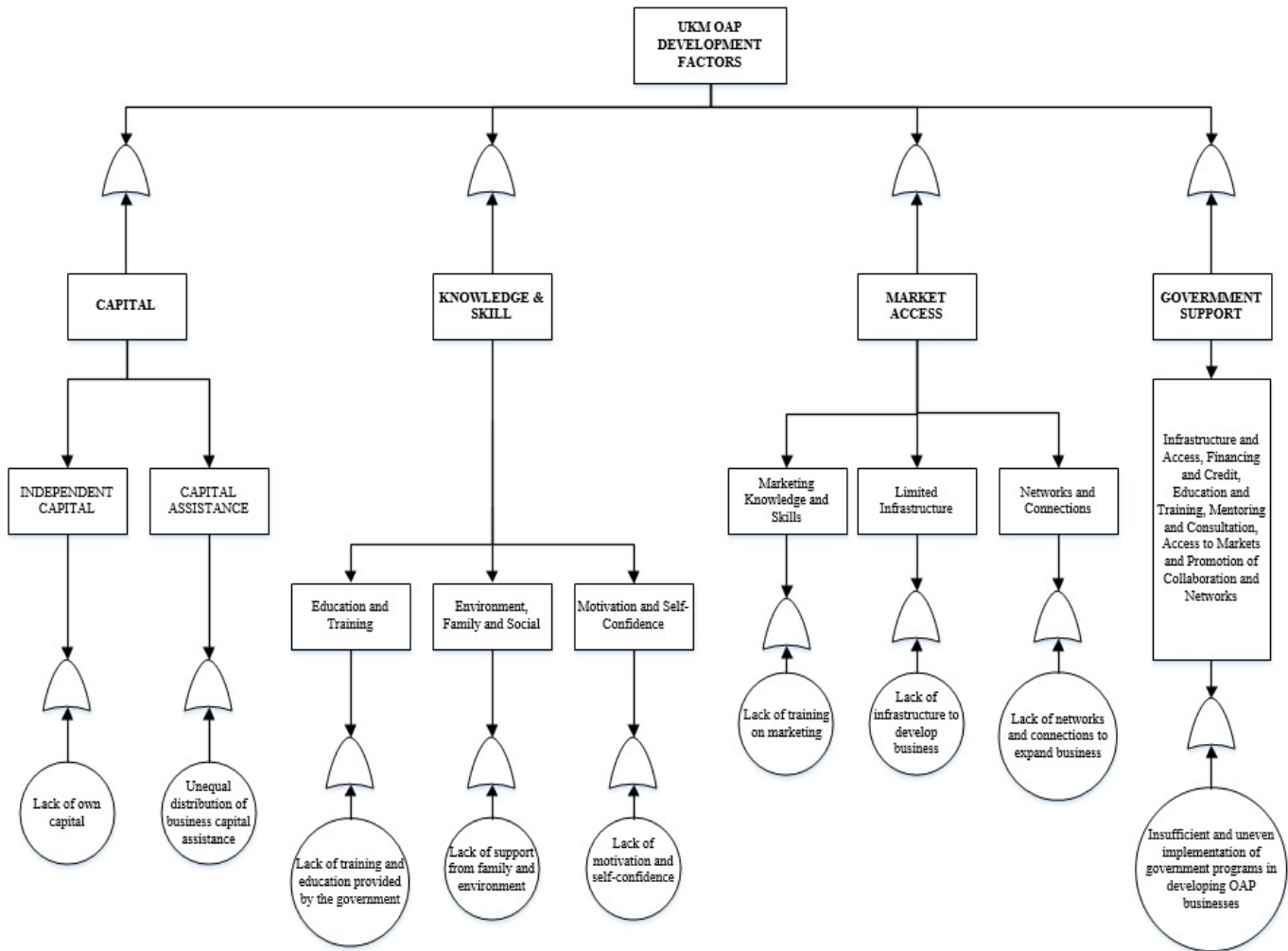
**Table 3.** *Development factors that are priorities for development*

<b>Basic Events</b>	<b>Number of Answers</b>		<b>Total</b>	<b>Priority Main</b>
	<b>Yes</b>	<b>No</b>		
Independent Capital	30	0	100%	
Capital Assistance	3	27	-80%	3
Education and training	0	30	-100%	1
Environment, Family and Social	30	0	100%	
Motivation and Self-Confidence	25	5	67%	
Marketing Knowledge and Skills	3	27	-80%	4
Limited Infrastructure	6	24	-60%	6
Networks and Connections	2	28	-87%	2
Government's Role in (Infrastructure and Access to Financing and Credit Education and Training Mentoring and Consultation Access to Markets and Promotion of Collaboration and Networks)	5	25	-67%	5

*Source: Research Data*

From the table 3, the main priority for developing OAP SMEs in Southwest Papua is at points 1,2,3,4,5,6 where according to business actors the business assistance program implemented by the government is not yet comprehensive and the regional government has never implemented this. so that this data will be a reference for the government in developing OAP businesses.

**Fault Tree Diagram**



**Figure 2.** FTA analysis to determine the factors that influence OAP business development

This Fault Tree diagram is depicted based on research results:

From Figure 2, the factors that influence the development of the OAP business are the priorities and initial steps for developing the OAP business: (1) Train skills and knowledge to manage a good business; (2) Efforts to develop capital from other sources; (3) Marketing and network markets; and (4) The role of government in supporting OAP business development.

**Risk Mitigation / Risk Management**

Table 4 illustrates the dangers that influence the failure of OAP SMEs to grow and should worry the government of Southwest Papua to address each element, as shown in Figure 2.

**Table 4. Risk Mitigation / Management**

<b>Factor</b>	<b>Variable</b>	<b>Mitigation</b>
Capital	Sources of own capital and assistance	Looking for investors from outside parties, both government and private institutions Don't just focus on one type of investment capital.
Knowledge and Skills	Education and Training Environment Motivation and Beliefs Family and Social	Attend basic business development training from social media experts or trainers with business development experience.
Market Access	Lack of Knowledge and Limited Infrastructure: Marketing Skills, Networking and Connections	It provides training in sustainable marketing and creates infrastructure that can become a forum for OAP SMEs to develop.
Government	Infrastructure and Access to Financing and Credit for Education and Training Assistance and Consultancy Access to Markets and Promotion of Collaboration and Networking	<ul style="list-style-type: none"> <li>• The government's role in this development is critical regarding capital, skills, market access and the need for assistance provided_sustainably because Southwest Papua has abundant wealth from sea and land products.</li> <li>• Providing tiered training to OAP to foster interest and motivation for development.</li> <li>• Create an industrial platform for OAP and marketing outside the Papua West Power province.</li> </ul>

## CONCLUSION

In this research, to determine the factors that influence the development of OAP efforts, these consist of:

The main Factors (Top Events) influence SMEs' development: Capital, Education and Knowledge, Market Access, and the Role of Government.

The Main Causes (Basic Events) that influence the development of OAP SMEs are Independent Capital, Capital Assistance, Education and Training, Environment, Family and Social, Motivation and Self-Confidence, Marketing Knowledge and Skills, Limited Infrastructure, Networks and Connections, Government Role in Infrastructure and Access, Financing and Credit, Education and Training, Mentoring and Consultation, Access to Markets and Promotion, Collaboration and Networking.

Based on *top events* and *basic events*, there are six reasons OAP SMEs do not develop: Education and Training, Networks and Connections, Capital Assistance, Marketing Skills, Infrastructure and the Role of Government.

Mitigation or treatment that researchers recommend in research for four factors: (1) Do not just stick to one type of capital. (2) Education and Training, Networks and Connections, Capital Assistance, Marketing Skills, infrastructure and the role of government (3) It provides training pieces in sustainable marketing and creates infrastructure that can become a forum for OAP SMEs to develop. (4) The role of government in development is very much needed. Both in terms of capital, skills, market access and assistance, it needs to be organized sustainably because southwest Papua has abundant wealth from sea and land products. It is providing tiered training to OAP to foster interest and motivation for development. Create an industrial forum for OAP and marketing outside Southwest Papua province.

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