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Original Article

The Role of Traditional Maritime Transport in Facilitating Regional Development in the Selayar Islands Regency

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Abstract - *Selayar Islands Regency, located in South Sulawesi, comprises 132 islands that are separated from the Sulawesi mainland. Limited accessibility to these islands continues to hinder balanced regional development. This study aims to examine and assess the role of the maritime transportation system in supporting regional growth, particularly focusing on the impact of local or community-based shipping services. A mixed methods approach was employed, with the study population consisting of residents within the Selayar Islands Regency. Based on the guidelines of [1], a total of 120 respondents were selected using a Non-Probability Sampling technique. Data analysis was carried out using the Structural Equation Modeling (SEM) method via SmartPLS (Partial Least Squares). The findings indicate that maritime transportation remains a vital and active component of life in the Selayar Islands, serving as the primary means of access for both residents and economic activities. Furthermore, both the transportation network and community-based Shipping play a significant role in driving regional development in the area.*

Keywords *- Traditional shipping transportation, Regional development, Selayar Islands Regency, Inter-island sea transportation.*

1. Introduction

Selayar Islands Regency (SIR) is included in the South Sulawesi Province and is separated from the mainland of Sulawesi Island. This condition is exacerbated by limited infrastructure (accessibility), which greatly affects the rate of growth and development. However, from the perspective of the development of Eastern Indonesia, SIR has strategic value.

Selayar Islands Regency consists of 132 islands, 34 of which are inhabited, located in the center of the east-west stretch of the Unitary State of the RI, and between the Indonesian Archipelagic Sea Lines (called ALKI), namely ALKI II and III. This advantage is complemented by the stretch of coastline, the majority of which borders the deep sea, which has been used as a domestic, national, and international transportation traffic lane.

The transportation route is through the Bira Strait, so Selayar has the potential to be developed as a Logistics Distribution Center for nine necessities, and fuel oil to Eastern Indonesia. Furthermore, the development of Selayar Islands Regency and the surrounding small islands is supported by the potential of natural resources, especially in the petroleum sector in the northern area of Selayar Island, the fisheries and tourism sectors in the central and southern areas of Selayar Island, and Takabonerate National Park.

Transportation plays a vital role as a key driver in promoting regional development and ensuring equitable access. The advancement of a region is strongly influenced by the availability and ease of transportation services-particularly maritime transport-which can connect isolated areas with major economic hubs [2-4].

As a large archipelago with thousands of islands, Indonesia relies heavily on sea transportation for Connectivity [5]. With Connectivity, various production sectors are interdependent (such as agriculture, manufacturing, food, and tourism); the domestic economy can be strengthened through efficient transportation and logistics systems [6]. Connectivity illustrates how effectively ports can support international trade and foster regional integration by providing smooth market access, making it a crucial factor in the effectiveness of short sea shipping efforts [7], which in turn encourages regional development through increased accessibility and community mobility [5, 8, 9].

Sea transportation serves a vital function in linking islands with the mainland [10], particularly in Eastern Indonesia, where the geographic conditions and available infrastructure make maritime transport a more efficient option [6]. The sea transportation system plays a crucial role in serving growth centres in Indonesia, especially South Sulawesi [2, 12]. Through sea transportation, goods can be transported in large quantities at a reasonable cost [13, 14].

The marine transportation network plays a crucial role in linking different regions, expediting the movement of goods, and fostering regional growth. According to Miro [15], a transportation system consists of interconnected components that work in harmony to deliver services covering areas from the local to the international scale. With a dependable transportation system supported by proper infrastructure, inter-island Connectivity can be achieved [16]. Enhanced transportation accessibility can have a substantial impact on boosting a region's economic development [9].

Various challenges need to be addressed in the transportation system in Indonesia, such as improving infrastructure and facilities, as well as efficiency in service [7-9]. Transportation infrastructure is cited as key to promoting growth and development and accelerating the cyclical movement of the means of production among human social groups [8, 20, 21]. One of the infrastructures needed in the transportation system is the Port. Ports are very important for the global economy and the regions they supply. In island regions, almost all goods enter and exit through ports [22, 23]. The presence of ports on islands promotes local Connectivity and stimulates economic growth [24]. The Ministry of Transportation is working hard with relevant parties to prepare the infrastructure of the sea transportation system, which includes ports and other sea transportation facilities, a fleet of ships to be ready to serve the mobility of people and trade between regions.

In Indonesia, one of the transportation modes that supports Connectivity in small islands is pelra. This traditional shipping system continues to deliver essential goods and strategic materials to coastal communities while serving as a medium for social interaction in island regions with limited transportation options [25]. As a traditional mode of transport, pelra can access locations that are unreachable by other transportation types, thereby enhancing economic and social integration. It also possesses distinctive features that set it apart from conventional vessels.

Traditional maritime transport in Indonesia possesses unique features, typically involving the use of sailing vessels, motorized sailboats, and small, Indonesian-flagged motorboats of specific dimensions. Traditional Shipping is a sea transportation activity that aims to transport goods and/or animals using sailing ships, traditional motorized sailing ships, or motorized ships of a certain size. In addition, some opinions state that traditional Shipping is a voyage using sailing ships or motorized ships that can operate in all regions of Indonesia without burdensome formal requirements.

Traditional sea transportation activities are carried out by individual Indonesian citizens or business entities using Indonesian-flagged vessels that meet the requirements of shipworthiness and are manned by Indonesian national crew members. Traditional maritime transport fleets can operate both within the country and across borders, on established, scheduled routes or on flexible, unscheduled ones. Traditional shipping sea transportation business license is granted by; a) the relevant regent/mayor for individual Indonesian citizens or business entities domiciled in the regency/city area and operating at cross ports within the regency/city area; or b) the relevant governor for individual Indonesian citizens or business entities domiciled and operating at cross ports between regencies/cities within the provincial area, interprovincial ports, and international ports.

Pelra transportation services are still needed, especially for the transportation needs of Eastern Indonesia and remote islands that large ships cannot reach [26]. Pelra has two comparative advantages over modern Shipping. Pelra has a small draft, and they can easily enter distant waters, such as rivers and estuaries. In addition, shipping costs are lower [27]. The advancement of community-based maritime transport aims to preserve its vital role and sustain its operations as an integral component of national sea transport, which forms part of the broader national transportation system.

The Selayar Islands Regency has a well-developed maritime transportation network that links different regions. Numerous previous studies on the marine transport system in KKS have centered on evaluating port service performance, facilities, and operational aspects related to access to Selayar. For instance, [28] examined the operational efficiency of Pamatata Port as a gateway to KKS, while focused on assessing the quality of ferry port services to Selayar. Similarly, [29] explored the facilities and service operations at Pamatata Port, and author studied the development of Bonerate Port. The current study aims to assess the present condition of the maritime transport system in supporting growth centres, analyze the role and impact of the transportation network and community-based Shipping as components of the overall marine transport system, and formulate strategic policies for enhancing traditional shipping services to promote regional development in Selayar Islands Regency.

The Selayar Islands Regency has a functioning sea transportation network that links various regions effectively. This study aims to assess the current state of the maritime transport system in serving key growth centers, examine the function and impact of the transportation system and traditional Shipping as a component of maritime transport, and develop strategic policy recommendations for implementing traditional Shipping to support regional development in the Selayar Islands Regency.

2. Research Methods

This study employed a mixed-methods approach, integrating both quantitative and qualitative research. The quantitative component aimed to test predefined hypotheses through statistical analysis. It focused on specific populations or samples, with data gathered via questionnaires distributed to 120 respondents, including the Harbormaster and Port Authority officials, ship owners, and crew members. The data was analyzed using the Structural Equation Model (SEM) with the smart Partial Least Squares (PLS) software, which facilitated the examination of relationships between variables. In this context, SEM was employed to evaluate the impact of sea transportation and traditional Shipping on regional development in KKS.

The qualitative component was conducted through Focus Group Discussions (FGD) to complement and validate the quantitative results. The FGD involved subject-matter experts and local stakeholders from the Selayar Islands Regency. This qualitative analysis was aimed at formulating policy strategies for the development of traditional shipping services, utilizing the SOAR analytical framework.

3. Results and Discussion

3.1. Overview of Existing System Conditions of the Marine Transportation System

The existence of the sea transportation system in Selayar Islands Regency is still very important and active, being the main access for residents and economic activities in the area. This is based on the geography of the Selayar Islands, which are separated from the mainland of South Sulawesi and consist of a cluster of several islands. There are 5 sub-districts out of a total of 11 sub-districts located outside of the main island. This situation gives the Selayar Islands a total of 9 ports and 1 airport [30]. This geographical condition makes the sea transportation system, both in the form of ferries and ojek boats, play a role in population mobility, transportation of goods, and access to various tourist attractions.

Easy access to all areas of Selayar Islands Regency by sea is very important, especially considering that most of the area consists of small islands. For example, Pamatata Harbor in Pamatata village is the lifeline that connects communication and logistics between mainland South Sulawesi and Selayar Island. The distribution of goods, vehicles and passengers relies heavily on this Port [31]. Sea travel is the main way to reach various locations, including the surrounding islands. The population's accessibility to various islands and coastal areas relies heavily on the sea transportation system, especially fast boats and ferries.

3.2. The Effect of Traditional Shipping on Regional Development

3.2.1. Outer Model Evaluation

The evaluation of the outer model involves testing construct validity-covering both convergent and discriminant validity-and assessing construct reliability. Validity testing aims to ensure that the instrument accurately measures the intended variables, while reliability testing evaluates the consistency of the instrument in capturing a particular concept.

3.2.2. Convergent Validity

Testing convergent validity is done using the outer loading value or loading factor. Indicators that meet convergent validity or are declared to be in the good category must have an outer loading value> 0.7.

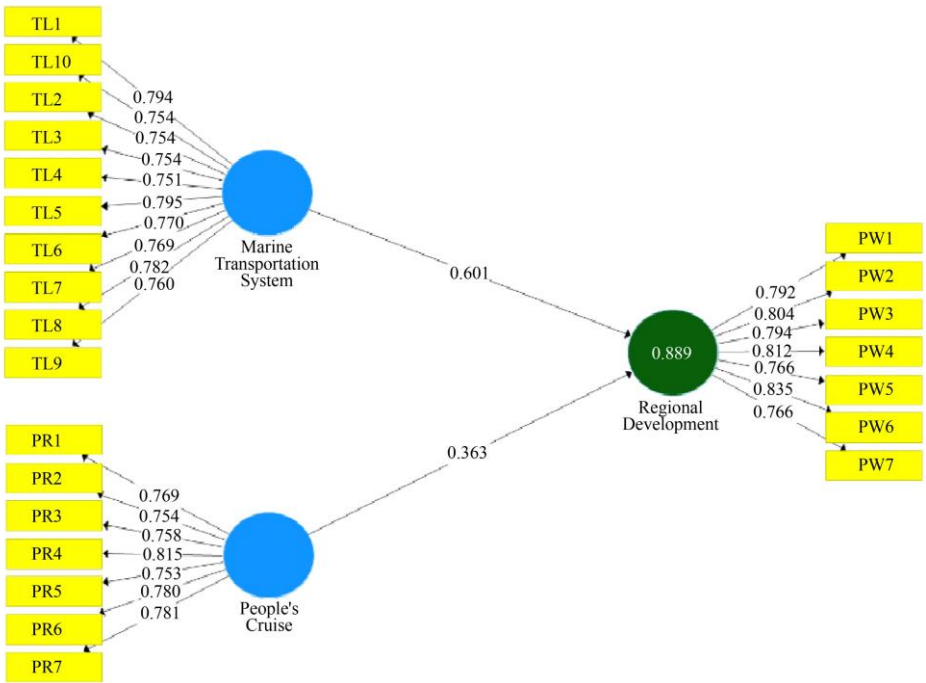

Fig. 1 Outer model

The outer loading values indicate that each indicator of the research variables exceeds 0.6. This demonstrates that the indicators satisfy the requirements for convergent validity, as values within the range of 0.5 to 0.6 are considered acceptable according to [32]. Therefore, it can be concluded that all indicators are valid and appropriate for use in the study and subsequent analysis.

As shown in Figure 1, the outer model diagram indicates that the highest path coefficient value, 0.601, is found in the relationship between the sea transportation system variable and regional development. The outer loading values for each statement item related to the research variables are presented in Table 1.

Table 1. Outer loading value

Variable	Code	Indicators	Value	Validity
Marine transportation system (X1)	TL1	Convenience	0,794	Valid
	TL2	Frequency	0.739	Valid
	TL3	Completeness	0.771	Valid
	TL4	Quality	0.751	Valid
	TL5	Appropriateness of information	0.795	Valid
	TL6	Schedule conformity	0.770	Valid
	TL7	Service suitability	0.769	Valid
	TL8	Human risk	0.782	Valid
	TL9	Vehicle risk	0.760	Valid
	TL10	Environmental risks	0,754	Valid
Traditional Shipping (X2)	PR1	Ship fleet	0.796	Valid
	PR2	Ship seaworthiness	0.754	Valid
	PR3	Shipload	0.758	Valid
	PR4	Ship facilities	0.815	Valid
	PR5	Service standardization	0.753	Valid
	PR6	Technology standardization	0.780	Valid
	PR7	Time Efficiency	0.781	Valid
Regional development (Y)	PW1	Economic growth	0.792	Valid
	PW2	Community welfare	0.804	Valid
	PW3	Labor	0.794	Valid
	PW4	Unemployment	0.812	Valid
	PW5	Public health	0.766	Valid
	PW6	Level education	0.835	Valid
	PW7	Population distribution	0.766	Valid

3.2.3. Discriminant Validity

This section explains the outcomes of the discriminant validity assessment. The test is conducted by examining the Average Variance Extracted (AVE) value for each indicator, where a value greater than 0.5 indicates an acceptable model. The detailed results of this test are shown in Table 2.

Table 2. Average Variant Extracted (AVE)

Variable	AVE	Validity
Marine transportation system	0,591	Valid
Traditional Shipping	0,604	Valid
Regional Development	0,633	Valid

Source: PLS Processing Results, 2025

Table 2 indicates that the AVE values for the sea transportation system, community shipping, and regional development variables are all greater than 0.5. This confirms that each variable possesses strong discriminant validity.

3.2.4. Composite Reliability

Composite reliability is used to assess the reliability of the indicators within a variable. A variable is considered to meet the composite reliability standard if its value exceeds 0.7. Table 3 presents the composite reliability scores for each research variable.

Table 3. Composite reliability

Variable	Composite Reliability	Reliability
Marine transportation system	0,935	Reliabel
Traditional Shipping	0.914	Reliabel
Regional Development	0.924	Reliabel

Source: PLS Processing Results, 2025

Table 3 illustrates that all research variables achieved a composite reliability score of 0.7. This demonstrates that each variable satisfies the composite reliability criteria, indicating that all variables are highly reliable.

3.2.5. Cronbach's Alpha

The reliability test results obtained through composite reliability can be further supported by examining the Cronbach's alpha values. A variable is considered reliable if its Cronbach's alpha score exceeds 0.7. Table 4 presents the Cronbach's alpha values for each variable.

Table 4. Cronbach alpha

Variabel	Cronbach Alpha	Reliability
Marine transportation system	0,960	Reliabel
Traditional Shipping	0,783	Reliabel
Regional Development	0,917	Reliabel

Source: PLS Processing Results, 2025

Table 4 shows that the Cronbach's alpha values for all research variables are greater than 0.7. This means each variable meets the required standard for Cronbach's alpha, indicating that all variables demonstrate high reliability.

3.2.6. Inner Model Evaluation

Hypothesis testing in this study is based on the Inner Model (structural model) assessment, which includes the R-squared values, parameter coefficients, and t-statistics. The acceptance or rejection of a hypothesis is determined by examining the significance between constructs, along with the t-statistics and p-values.

The analysis was conducted using SmartPLS (Partial Least Squares) software, with values obtained through bootstrapping. In this study, the criteria applied were t-statistics greater than 1.96, a p-value of 0.05 (5%), and a positive beta coefficient. The results of the bootstrapping for this research model are presented in Figure 2.

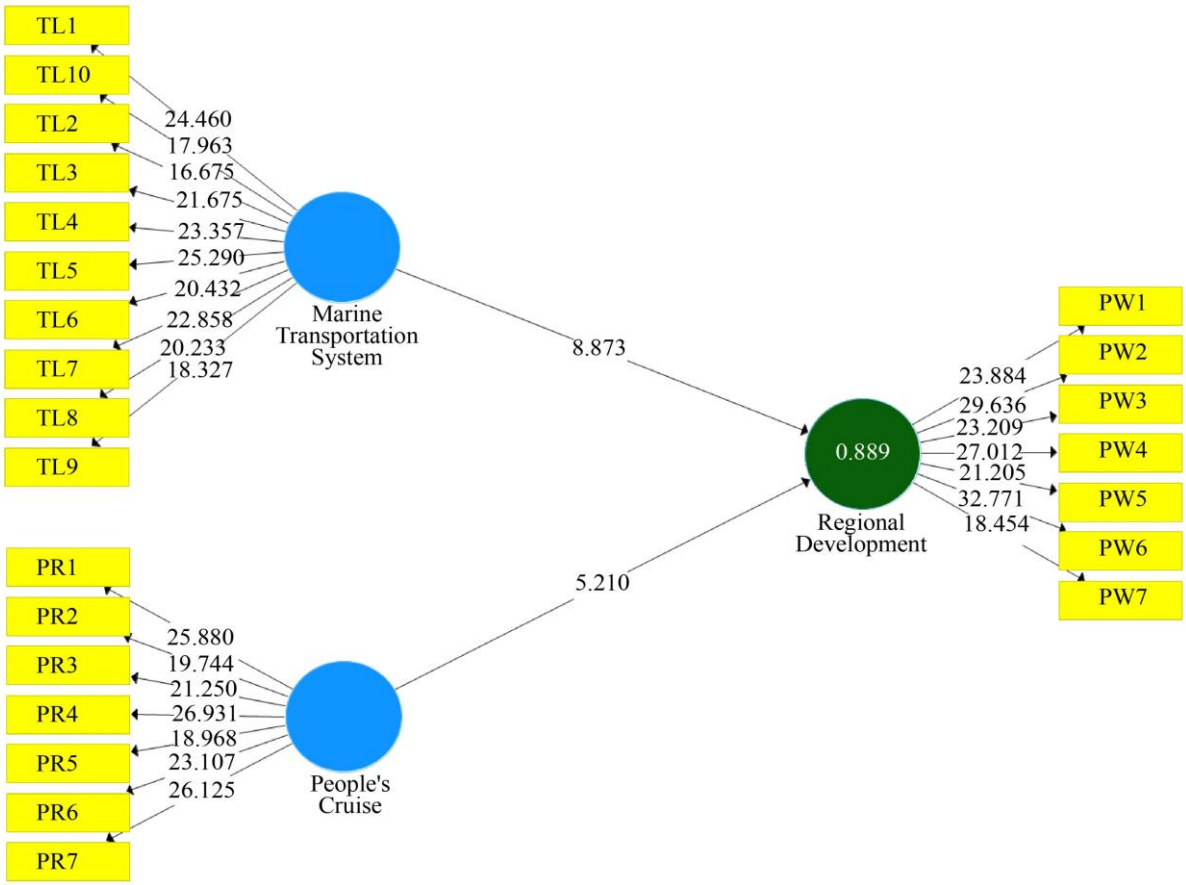

Fig. 2 Inner model (boot strapping)

3.2.7. Path Coefficient Test

The path coefficient analysis is used to determine the strength of the influence exerted by independent variables on dependent variables. Meanwhile, the coefficient of determination (R-Square) measures the extent to which other variables affect endogenous variables. In the structural model, an R^2 value of 0.67 or higher for endogenous latent variables indicates a strong influence from exogenous variables. Values ranging from 0.33 to 0.67 are categorized as moderate, while values between 0.19 and 0.33 are considered weak [33]. The outer model diagram in Figure 1 shows that the highest path coefficient value is found in the relationship between the sea transportation system variable and regional development, with a value of 0.356. The second-highest path coefficient is seen in the relationship between the community shipping variable and regional development, with a value of 0.326.

Meanwhile, the inner model diagram in Figure 2 shows that the largest t-statistic value is recorded for the influence

of the sea transportation system on regional development, at 8.873. The next largest effect is from community shipping on regional development, with a t-statistic value of 5.210.

These findings indicate that all independent variables in this model have positive path coefficient values toward regional development. This means that an independent variable's higher path coefficient value corresponds to a stronger influence on the regional development variable.

3.2.8. Goodness of Fit Test

The data analysis conducted using the SmartPLS software produced the R-Square value presented in Table 5.

Table 5 indicates that the R-Square value for the regional development variable is 0.889. This means that 88.9% of the variation in regional development is explained by the sea transportation system and community shipping variables, while the remaining 11.1% is influenced by other factors not examined in this study.

Table 5. R-Square values

Variable	R Square values
Regional development	0,889

Source: PLS Processing Results, 2025

The goodness of fit can be evaluated using the predictive relevance Q-Square value. A Q^2 value greater than 0 indicates that the model possesses predictive relevance, whereas a Q^2 value less than 0 suggests the absence of predictive relevance. The Q-Square calculation results obtained through blindfolding are presented in Table 6.

Table 6. Q-Square value results

	SSO	SSE	Q^2 (=1-SSE/SSO)
Traditional Shipping	840.000	840.000	
Regional development	840.000	375.812	0.553
Marine transportation system	1200.000	1200.000	

Source: PLS Processing Results, 2025

Table 6 shows that the Q-Square value for regional development is 0.553, which is greater than 0. This indicates that the research model demonstrates a good level of goodness of fit.

3.2.9. Hypothesis Testing

The direct effects of the sea transportation system and community shipping on regional development are reflected in the path coefficient values shown in Table 7.

Table 7. Direct influence

Hypothesis	Influence	Original Sample	T-Statistik	P-Values	Results
H1	Sea transportation system => Regional development	0,601	8,873	0,000	Accepted
H2	Traditional Shipping => Regional development	0,363	5,210	0,000	Accepted

Source: PLS Processing Results, 2025

Table 7 indicates that the sea transportation system variable positively and significantly impacts regional development, with a t-statistic value of 8.873, exceeding the threshold of 1.96. Similarly, the community shipping variable also shows a positive and significant effect on regional development, with a t-statistic value of 5.210, which is greater than 1.96.

4. Discussion

4.1. Effect of Marine Transportation System on Regional Development

The research findings show a t-value of 8.873, which is greater than 1.96, indicating that the marine transportation system has a significant and positive influence on regional development. The path coefficient of 0.601 suggests that 60.1% of regional development is influenced by the marine transportation system, while the remaining 39.9% is affected by other factors not examined in this study.

The sea transportation system refers to an integrated maritime transport network. According to [15], a transportation system can be understood as a unified set of components that work together and support one another in providing transportation services, covering areas from the local level (villages and cities) to national and international scales. It involves the interaction between passengers, goods, facilities, and infrastructure, organized systematically-either naturally or through engineering-to enable movement.

A well-implemented sea transportation system in the Selayar Islands Regency such as easy access to each location, ship arrival and departure schedules, integrated, information according to reality, paying attention to shipping safety by having adequate crew skills, considering the seaworthiness of ships and the shipping environment so that this can affect the economic development of an area so that it can ultimately affect regional development.

The findings of this study align with the views expressed by participants in the Focus Group Discussion (FGD), who emphasized that an effectively implemented sea transportation system in Selayar Islands Regency can

enhance regional development. According to the FGD participants, the maritime transportation system plays a crucial role in the region's progress by connecting islands, fostering economic growth, and improving community welfare. They also highlighted that developing adequate port facilities and maritime transport infrastructure is essential to achieving Connectivity and equitable development, which positively impacts regional development. The findings of this study are consistent with the research conducted by [3, 4], which concluded that the maritime transportation system significantly influences regional development.

4.2. The Effect of People's Shipping on Regional Development

The research results show a t-value of 5.210, which exceeds the threshold of 1.96, indicating that community shipping significantly and positively impacts regional development. With a path coefficient of 0.363, it can be interpreted that 36.3% of regional development is influenced by community shipping, while the remaining 63.7% is attributed to other factors not examined in this study. Effective implementation of traditional Shipping in Selayar Islands Regency can be developed and optimally utilized as a sub-system of maritime transportation, thereby promoting and enhancing regional development in the area.

The findings of this study align with the perspectives of Focus Group Discussion (FGD) participants, who stated that well-managed community shipping in Selayar Islands Regency can significantly impact regional development. According to the participants, people's Shipping-commonly referred to as Pelra-plays a vital role in fostering regional growth, particularly in inland, remote, and border areas. Pelra enhances Connectivity, stimulates economic activity, and generates employment opportunities in these regions. By facilitating the movement of goods and supporting economic activities in areas that are difficult to reach by other transportation modes, Pelra helps drive economic progress and reduce price disparities. Moreover, Pelra contributes to national development by improving transportation and logistics networks across various regions, positively influencing regional development. The results of this study are consistent with the findings of research. which concluded that community shipping has a significant impact on regional development.

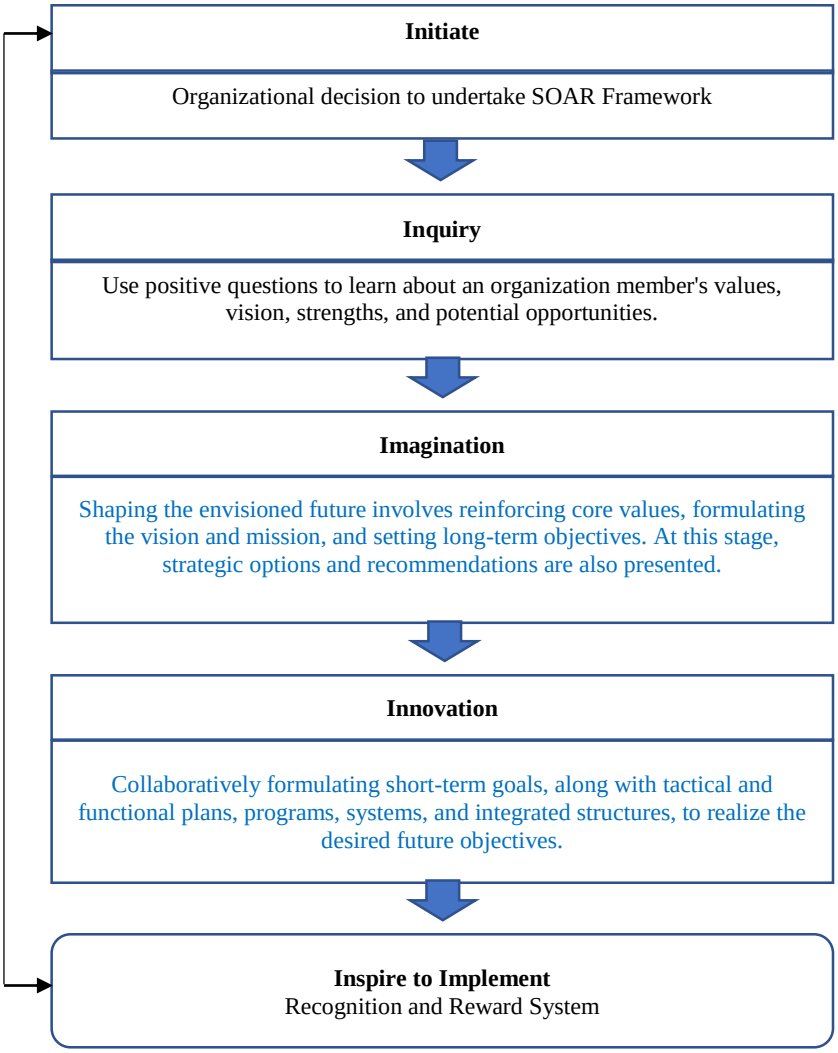

Fig. 3 SOAR analysis stages

4.3. Analysis of Policy Strategies for Implementing Traditional Shipping Transportation with the SOAR Method

The data obtained from community interviews around the Selayar Islands Regency will be used for analysis using the SOAR method. The SOAR framework was applied to identify strategies for advancing the people's shipping policy by focusing on strengths, opportunities, aspirations, and measurable results, rather than solely emphasizing shortcomings [34]. This analysis was used to formulate a policy strategy for implementing traditional shipping transportation to support the regional development of the Selayar Islands Regency. Some of the main factors affecting traditional shipping transportation (Shipping that serves the transportation needs of the general public) include Human Resources (HR), facilities (ships and equipment), infrastructure (ports and supporting infrastructure), and government regulations and policies. In addition, safety, security, and cost are also important factors that affect the use of traditional shipping transportation.

Strengths, Opportunities, Aspirations, Results (SOAR) analysis is a business strategy that focuses on leveraging a business's positive aspects, developing them further, and turning them into its primary competitive advantage. Internal analysis of the company can use analysis that refers to strengths and aspirations, while external factors can be analyzed that refer to opportunities. After this is analyzed both from the internal and external aspects of the company, it will produce a result that is a strategy that aims to develop the business. The stages or steps of the SOAR strategy analysis can be seen in Figure 3.

The following stage involves assessing the company's situation and position within business competition by analyzing its internal strengths and external challenges, which then serves as the basis for creating a SOAR analysis diagram.

Table 8. SOAR analysis diagram

	Internal	**Eksternal**
Present	S Strengths	O Opportunity
Future	A Aspiration	R Result

Source: [34]

The diagram illustrates two main conditions. The first is the strategic planning focus, derived from the company's condition and developed based on the strengths and opportunities analysis. The second is the human development strategy, which involves all company or organization members and is planned using insights from the aspirations and results analysis.

The policy strategy analysis for implementing community shipping transportation shows that the organizers possess distinct strengths, opportunities, aspirations, and results. The following are details of the strengths, opportunities, aspirations, and results obtained from interviews with business owners, employees and customers.

1. Strengths
   a. Has wide coverage to remote island areas
   b. Has a diverse fleet
   c. Prioritize shipping safety
   d. Service information according to reality

2. Opportunities
   a. Increased economic development increases the demand for sea transportation
   b. People's Shipping is needed by the community
   c. Increase tourism

3. Aspirations
   a. Become a provider of sea transportation needed by the community
   b. Maintaining service quality and prioritizing shipping safety
   c. Can expand the range of access to remote islands

4. Results
   a. Having loyal passenger customers
   b. Increasing number of passengers
   c. Cheaper transportation costs
   d. Increased community income

The SOAR matrix is used to formulate policy strategy factors, showing how the external strengths and opportunities encountered by Pelra organizers can be aligned with their aspirations and measurable outcomes. The matrix is completed with information on strengths, opportunities, aspirations, and results derived from interviews with informants, as presented in Table 9.

Table 9. SOAR matrix for people's shipping

Internal / Eksternal	**Strength (S)**	**Opportunities (O)**
	a. Has wide coverage to remote island areas b. Has a diverse fleet c. Prioritize shipping safety d. Service information according to reality	a. Increased economic development increases the demand for sea transportation b. Traditional Shipping is needed by the community c. Increase tourism growth
Aspiration (A) a. Become a provider of sea transportation needed by the community	**Strategy SA** a. Conduct community research on the needs of people's Shipping (S1.A1)	**Strategy OA** a. Leverage online social media platforms to inform the public about the schedule

b. Maintaining service quality and prioritizing shipping safety c. Can expand the range of access to remote islands	b. Creating good services and improving passenger safety (S2.A2) c. Creating new routes to remote islands that have never been visited (S3.A3)	of community shipping services (O1.A1) b. Create new, more attractive services and guarantee passenger safety (O2.A2) c. Cooperation with related parties to determine the new lines needed (O3.A3)
Result (R)	**Strategy SR**	**Strategy OR**
a. Having loyal passenger customers b. Increasing number of passengers c. Increased community income d. Regional development of the Selayar Islands Regency	a. Actively listen to customer feedback (S1.R1). b. Consistent in passenger service and safety (S2.R2). c. Conduct research on remote islands (S3.R3)	a. Provide transparent information according to reality (O1.R1) b. Have a member program for passengers who often use people's shipping services (O2.R2). c. Establish Cooperation with the authorities (O3.R3)

After the analysis described above regarding the SOAR matrix, alternatives are formulated regarding strategies that can be applied to traditional Shipping for future sustainability. The SOAR matrix analysis for policy strategies in managing traditional Shipping can be viewed through the aspects of strengths, opportunities, aspirations, and measurable results, serving as an alternative approach, as outlined below:

1. The SA strategy involves leveraging all existing strengths to realize the desired aspirations. Based on the SOAR element findings obtained through interviews, the policy strategies that can be implemented for managing community shipping include the following:
   a. Conduct research on the community about the needs of people's Shipping.
   b. Creating good service and improving passenger safety.
   c. Creating new routes to remote islands that have never been visited.
2. The OA strategy identifies and meets stakeholders' aspirations by capitalizing on available opportunities. Based on the SOAR element analysis derived from interviews, the policy strategies for managing community shipping under the OA approach include the following:
   a. Making use of online social media to inform the public about community shipping schedules.
   b. Creating new services that are more attractive and guarantee passenger safety.
   c. Cooperation with related parties to determine new routes needed by the community.
3. The SR strategy aims to leverage strengths to achieve measurable outcomes. Based on the SOAR element findings obtained through interviews, the policy strategies that can be implemented for managing community shipping include the following:
   a. Actively gathering and responding to customer feedback helps enhance and tailor service quality and passenger safety to meet their needs and expectations.
   b. Consistent in service and safety, passengers will feel more satisfied if they get the same good service every time they use people's shipping services, and shipping safety is always prioritized.
   c. Conduct research into remote islands, so that they can be visited, and develop the region.
4. The OR strategy focuses on utilizing opportunities to attain measurable outcomes. Based on the SOAR element findings from interviews, the policy strategies for managing community shipping under the OR approach include the following:
   a. Provide transparent information according to reality. This can increase passenger loyalty to traditional shipping transportation.
   b. Hold a member program for passengers who often use people's shipping services, so that passengers continue to use traditional shipping services.
   c. Establish Cooperation with the authorities, so that various new routes to remote islands are obtained.

Based on the above analysis, it can be concluded that traditional Shipping has successfully implemented several existing strategies. However, seeing the internal strengths and external opportunities that are still open, along with the current situation and conditions, traditional Shipping can still develop other strategies. This is so that the existing opportunities can be optimally utilized for the development of the traditional shipping business.

5. Conclusion and Recommendation

5.1. Conclusion

1. The existing condition of the sea transportation system in the Selayar Islands Regency can affect the development of the regional economy in the Selayar Islands Regency when carried out properly. The development of adequate port and sea transportation infrastructure will realize Connectivity and equitable development, so that it can affect regional development.
2. Traditional Shipping, which is implemented as a sub-system of sea transportation, can encourage and improve regional development in the Selayar Islands Regency. Pelra vessels are able to access areas that are difficult to reach by other transportation modes,

thereby contributing to faster economic activity and reducing price gaps.

3. Developing policy strategies for implementing traditional Shipping to support regional development in Selayar Islands Regency-through the SA, OA, SR, and OR strategies-has achieved success in several existing approaches.

5.2. Recommedation

1. It is recommended for the Selayar Islands Regency Government to further improve the implementation of the sea transportation system by increasing the development of modern and integrated port infrastructure, improving the quality of sea transportation services, developing human resources for sea transportation, and encouraging private investment and international Cooperation.
2. The Selayar Islands Regency Government is recommended to further improve the implementation of traditional Shipping by improving ship safety, Connectivity, and service quality. This can be achieved through standardizing ships, providing assistance, maintaining port infrastructure, and encouraging economic growth and employment in the shipping sector.
3. It is suggested that the Selayar Islands Regency Government, besides applying the SA, OA, SR, and OR strategies, should continue to explore and develop additional strategies.
4. Future researchers studying similar topics are encouraged to include additional variables that may influence regional development and to broaden the research scope beyond the Selayar Islands Regency to achieve more comprehensive results.

5.3. Managerial Implications

1. The sea transportation system is proven to have a positive and significant effect on regional development. For this reason, it is recommended to further improve the implementation of the sea transportation system by increasing the development of modern and integrated port infrastructure, improving the quality of sea transportation services, developing sea transportation human resources, and encouraging private investment and international Cooperation.
2. Traditional Shipping is proven to have a positive and significant effect on regional development. For this reason, it is recommended that people's shipping transportation be further improved by improving ship safety, Connectivity, and service quality. This can be achieved through standardization of ships, provision of assistance, maintenance of port infrastructure, and encouraging economic growth and employment in the shipping sector.
3. The formulation of a policy strategy for the implementation of traditional Shipping in supporting the regional development of the Selayar Islands Regency, through Strategy SA, Strategy OA, Strategy SR and Strategy OR. However, seeing the internal strengths and external opportunities that are still open, along with the current situation and conditions, People's Shipping can still develop other strategies. This is so that the existing opportunities can be optimally utilized for the development of the people's shipping business.

References

[1] Joseph F. Hair et al., *Multivariate Data Analysis*, Pearson Education Limited, pp. 1-734, 2013. [Google Scholar] [Publisher Link]

[2] Reskyah Fitriani, and Nisrina Imtiyaz, "The Influence of Sea Transportation in Supporting Economic Growth in South Sulawesi," *Marine Science and Technology Research*, vol. 6, no. 1, pp. 30-33, 2023. [CrossRef] [Google Scholar] [Publisher Link]

[3] Alexandra Fratila (Adam) et al., "The Importance of Maritime Transport for Economic Growth in the European Union: A Panel Data Analysis," *Sustainability*, vol. 13, no. 14, pp. 1-23, 2021. [CrossRef] [Google Scholar] [Publisher Link]

[4] Herman Fithra et al., *Effect of Freight Transportation for Regional Development in the North Zone of Aceh*, Emerald Reach Proceedings Series, Emerald Publishing Limited, vol. 1. pp. 35-42, 2018. [CrossRef] [Google Scholar] [Publisher Link]

[5] Robert Verhaeghe, Ronald A. Halim, and Lóránt Tavasszy, *Chapter 6 - Optimizing the Efficiency of the Future Maritime Transport Network of Indonesia*, Freight Transport Modeling in Emerging Countries, Elsevier, pp. 109-134, 2021. [CrossRef] [Google Scholar] [Publisher Link]

[6] Azmat Gani, "The Logistics Performance Effect in International Trade," *The Asian Journal of Shipping and Logistics*, vol. 33, no. 4, pp. 279-288, 2017. [CrossRef] [Google Scholar] [Publisher Link]

[7] Christina Myriouni et al., "Analyzing Ro-Ro Short Sea Shipping Connectivity in Spain: Supply Instability and Policy Implications," *Case Studies on Transport Policy*, vol. 21, pp. 1-11, 2025. [CrossRef] [Google Scholar] [Publisher Link]

[8] Changshuai Cao, and Yingjuan Su, "Transportation Infrastructure and Regional Resource Allocation," *Cities*, vol. 155, 2024. [CrossRef] [Google Scholar] [Publisher Link]

[9] Zhenhua Chen, Yan Li, and Peng Wang, "Transportation Accessibility and Regional Growth in the Greater Bay Area of China," *Transportation Research Part D: Transport and Environment*, vol. 86, 2020. [CrossRef] [Google Scholar] [Publisher Link]

[10] Karl Agius, Nadia Theuma, and Alan Deidun, "So Close Yet so Far: Island Connectivity and Ecotourism Development in Central Mediterranean Islands," *Case Studies on Transport Policy*, vol. 9, no. 1, pp. 149-160, 2021. [CrossRef] [Google Scholar] [Publisher Link]

[11] Muhammad Badrus Zaman, Iwan Vanany, and K. Duha Awaluddin, "Connectivity Analysis of Port in Eastern Indonesia," *Procedia Earth and Planetary Science*, vol. 14, pp. 118-127, 2015. [CrossRef] [Google Scholar] [Publisher Link]

[12] A. Adris Putra, and Susanti Djalante, "Port Infrastructure Development in Supporting Sustainable Development," *Media Engineering Scientific Journal*, vol. 6, no. 1, 2011. [Google Scholar]

[13] Wang Likun, and Yang Zaili, "Bayesian Network Modelling and Analysis of Accident Severity in Waterborne Transportation: A Case Study in China," *Reliability Engineering & System Safety*, vol. 180, pp. 277-289, 2018. [CrossRef] [Google Scholar] [Publisher Link]

[14] Yos Sunitiyoso et al., "Port Performance Factors and their Interactions: A Systems Thinking Approach," *The Asian Journal of Shipping and Logistics*, vol. 38, no. 2, pp. 107-123, 2022. [CrossRef] [Google Scholar] [Publisher Link]

[15] Fidel Miro, *Introduction to Transportation System*, Jakarta: Erlangga, 2012. [Google Scholar]

[16] Josua Satria Collins, and Meta Diansari, "Connectivity Optimization through the Development of Feeder Ports for Small Islands in Indonesia," *Bappenas Working Papers*, vol. 1, no. 2, pp. 248-263, 2018. [Google Scholar] [Publisher Link]

[17] Rumaji, and Ana Adiliya, "Port Maritime Connectivity in South-East Indonesia: A New Strategic Positioning for Transhipment Port of Tenau Kupang," *The Asian Journal of Shipping and Logistics*, vol. 35, no. 4, pp. 172-180, 2019. [CrossRef] [Google Scholar] [Publisher Link]

[18] Windra Priatna Humang et al., "Hub-and-Spoke Network Design to Optimize Government Subsidy Costs for Maritime Transportation in Indonesia," *Sustainable Futures*, vol. 9, pp. 1-12, 2025. [CrossRef] [Google Scholar] [Publisher Link]

[19] Chairullah Amin et al., "Impact of Increasing Local Economic Capacity on Reducing Maritime Logistics Costs in Island Province of Eastern Indonesia: A Dynamic System Approach," *Transportation Research Interdisciplinary Perspectives*, vol. 27, pp. 1-9, 2024. [CrossRef] [Google Scholar] [Publisher Link]

[20] Abhijit Banerjee, Esther Duflo, and Nancy Qian, "On the Road: Access to Transportation Infrastructure and Economic Growth in China," *Journal of Development Economics*, vol. 145, pp. 1-51, 2020. [CrossRef] [Google Scholar] [Publisher Link]

[21] Huijuan Li et al., "The Impact of Transportation Infrastructure on the Regional Economic Integration in China: A CGE Analysis," *International Review of Economics & Finance*, vol. 99, pp. 1-14, 2025. [CrossRef] [Google Scholar] [Publisher Link]

[22] Beatriz Tovar, Rubén Hernández, and Héctor Rodríguez-Déniz, "Container Port Competitiveness and Connectivity: The Canary Islands Main Ports Case," *Transport Policy*, vol. 38, pp. 40-51, 2015. [CrossRef] [Google Scholar] [Publisher Link]

[23] Clément Iphar et al., "Port Call Extraction from Vessel Location Data for Characterising Harbour Traffic," *Ocean Engineering*, vol. 293, pp. 1-11, 2024. [CrossRef] [Google Scholar] [Publisher Link]

[24] Jing Su, Jiayi Liu, and Anmin Zhang, "Promoting Regional Coordinated and Sustainable Development of Port, Economy, and Environment in Archipelago-A Case Study of Zhoushan Port in China," *Ocean & Coastal Management*, vol. 257, 2024. [CrossRef] [Google Scholar] [Publisher Link]

[25] Windra Priatna Humang, Wimpie Agoeng Noegroho Aspar, and Dwi Phalita Upahita, "Competitiveness of Traditional Shipping in Sea Transportation Systems Based on Transport Costs: Evidence from Indonesia," *International Journal of Sustainable Development & Planning*, vol. 18, no. 2, pp. 627-364, 2023. [CrossRef] [Google Scholar] [Publisher Link]

[26] Eka Ardhi, I. Buana, and Dwiky Ruci, "Design Architecture Cargo Acquisition for Traditional Shipping," *Proceedings of the 3rd International Conference on Marine Technology SENTA*, Surabaya, Indonesia, vol. 1, pp. 139-144, 2018. [CrossRef] [Google Scholar] [Publisher Link]

[27] Akmal Lazuardy, Muhammad Helmi, and Edy Haryanto, "The Possibility and Acceptability of Indonesian Traditional Shipping as Feeder Services," *Proceeding of Marine Safety and Maritime Installation*, pp. 13-23. [CrossRef] [Google Scholar] [Publisher Link]

[28] Natalia Lapu, "*Performance Study of Pamatata Ferry Port in Selayar Islands Regency, South Sulawesi*," Thesis, Hasanuddin University, pp. 1-46, 2022. [Google Scholar] [Publisher Link]

[29] Muliadi Aminuddin, Achmad Munawir Patli, and Jupriadi Jabbar, "Operational Study of Pamatata Port, Selayar Regency," *Macca Civil Engineering Journal*, vol. 4, no. 2, pp. 105-112, 2019. [CrossRef] [Google Scholar] [Publisher Link]

[30] "Selayar Islands Regency in Figures 2024," *BPS-Statistics Indonesia Selayar Islands Regency*, 2024. [Publisher Link]

[31] Andi Wahida Patta, "*Ferry terminal in Pamatata, Selayar Islands Regency*," Thesis, Alauddin State Islamic University, pp. 1-184, 2011. [Google Scholar]

[32] Imam Ghozali, and F. Fuad, *Structural Equation Modeling: Theory, Concepts and Applications with the Lisrel 9.10 Program*, Semarang: UNDIP Publishing, 2015. [Google Scholar]

[33] Wynne W. Chin, *The Partial Least Squares Approach to Structural Equation Modeling*, Modern Methods for Business Research, 1st ed., Psychology Press, pp. 1-42, 1998. [Google Scholar] [Publisher Link]

[34] Stavros Jacqueline, Cooperrider David, and Kelly D. Lynn, "Strategic Inquiry, Appreciative Intent: Inspiration to SOAR. A New Framework for Strategic Planning," *Journal Ai Practitioner*, pp. 1-21, 2003. [Google Scholar]