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Analysis of Barriers to Branding Waterfront City Makassar and Surabaya in Indonesia Using Interpretive Structural Modelling Approach

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ABSTRACT

Indonesia boasts the second-longest coastline in the world, with almost half of its cities surrounded by bodies of water such as lakes, rivers, and seas. The waterfront areas of these cities are vital and could be developed as a brand for each city. Two examples of such cities are Makassar and Surabaya, which have been developing waterfront city projects to increase tourism and improve city infrastructure. However, in practice, strengthening the branding of waterfront cities still faces various challenges. This research analyzes the barriers to strengthening city branding, specifically for waterfront cities in Makassar and Surabaya, using a case study method with a comparative descriptive design. The Interpretive Structural Modelling (ISM) approach was used to systematically analyze the barriers to branding waterfront cities and determine the best strategies for strengthening their branding. The identification of barriers revealed 15 barriers, which were summarized into five categories and structured into seven levels. Barriers with the highest value of driver power should be prioritized in problem-solving. Finally, this paper discusses strategies for strengthening waterfront city branding in Indonesia and presents the research findings, including recommendations for policy makers, urban planners, and stakeholders to collaboratively enhance the branding efforts and overcome the identified challenges.

1.0 INTRODUCTION

Waterfront areas come in various forms, such as lakefronts, riverbanks, canals, harbours, or bay fronts (Iwata & Del Rio, 2004). In recent decades, the development potential of waterfront areas has been closely related to enhancing economic value and improving the overall area (Smith & Ferrari, 2012; Üzümcüoğlu & Polay, 2022). Achieving this goal requires the area manager's efforts in developing a branding model that accurately reflects the area's unique qualities, as well as creating strategies that align with the area's needs and geographic features. Realizing a region's potential requires the identification of its vast demographic resources and implementing development plans to promote it to the wider community. Currently, the region's image plays a crucial role in elevating its sustainable economic value. Therefore, the extent of development carried out to promote the area is essential to maximizing its potential.

When it comes to products or brands, the image and brand of a region or city also play a crucial role. Developing the potential of an area through branding strategies can lead to innovative changes in the growth of the creative economy, which can be hindered by various barriers faced by the actors involved. Historical and cultural factors play a vital role in building an effective image and brand for a city. Knowledge of a place's culture, including its myths and symbols, provides a foundation for analyzing and inferring the reasons for building a distinctive image and brand for a city (Bienkowska, 2022).

The development of a city's waterfront area is a crucial aspect that requires a sustainable approach. Waterfronts all over the world have played a significant role in enhancing a city's image and are an essential part of urban development (Shamsuddin et al., 2012). From the visitors' perspective, waterfront cities can be attractive based on their preferences. Research conducted by Wu et al. (2019) revealed that waterfront visitors' preferences are closely related to time or temporal aspects. The waterfront area's economic, social, and cultural conditions offer unique advantages for becoming a center of economic growth. The population's socio-economic activities are often closely linked to both water and land, and the area usually has rich historical relics, cultures, and traditions of coastal communities.

Based on World Resources data in 1998, Indonesia has the world's second-longest coastline, stretching for 91,181 km. As a result, many cities in Indonesia are located near the water. The growth of waterfront areas, particularly along the coast, has been relatively rapid compared to other regions due to their fertile sedimentary areas and easy accessibility. However, this growth has also led to various problems, including increasing land demand for housing, ports, ponds, and tourist attractions. The utilization of waterfront spaces also needs to adhere to the regional spatial plan, which aims to ensure the effective and environmentally sustainable development of the area. However, ineffective space utilization can cause waterfront areas to lose their potential. Therefore, the regional spatial plan serves as a reference for development programs to promote the welfare of the community (Zain, 2022).

Based on data from the Ministry of National Development Planning of the Republic of Indonesia / National Development Planning Agency, Indonesia has 516 cities/regencies, and nearly half of them are located near seas, rivers, and lakes, leading several local governments to apply the concept of a waterfront city in their area. The benefits of a waterfront city are significant, as it can become a regional tourism asset, aligning with the Indonesian government's program to develop the country as the best maritime economic base and archipelago country globally. In recent years, the development of waterfront cities has continued to increase, with many major cities in Indonesia implementing the project to improve the tourism sector and city infrastructure.

Makassar, a city located on Sulawesi Island, is one of Indonesia's key port cities and a central hub for trade and commerce in the eastern part of the country. The city’s waterfront development focuses on the Losari Beach area, which has undergone significant transformations aimed at enhancing tourism and local economic growth. Losari Beach has seen extensive redevelopment, including the construction of recreational spaces, promenades, and culinary centers that attract both locals and tourists. Additionally, investments in infrastructure such as roads, public transportation, and utilities have been made to support the growing activities along the waterfront. The area now features pedestrian paths, gardens, children's play areas, seating, and culinary areas to increase accessibility and attract both local and foreign tourists.

Figure 1. Losari Beach overview in Makassar
Source: Regional Development Planning Agency of Makassar City (2022).

Surabaya, a city located on Java Island, is Indonesia's second-largest city and a major economic and commercial center. The city's waterfront development has centered around the revitalization of the Kalimas River, one of the most important rivers in Surabaya, and the development of the North Coast area. The Kalimas River, which runs through the city, has been revitalized with the creation of green spaces, pedestrian pathways, bicycle paths, public open spaces, traditional boat areas, culinary zones, and recreational facilities aimed at improving the quality of urban life. Meanwhile, the North Coast region has experienced significant development, including the establishment of industrial estates, commercial centers, and residential complexes. Ensuring that waterfront development projects benefit all residents, including marginalized communities, has been a significant challenge, requiring inclusive planning and equitable distribution of benefits.

Figure 2. Revitalization process and transformation of the Kalimas River in Surabaya
Source: Regional Development Planning, Research and Development Agency of Surabaya City (2022).

The research utilizes Interpretive Structural Modeling (ISM) to identify potential branding strategies that can be implemented to enhance the sustainability of waterfront areas. ISM is a systematic methodology used to develop comprehensive models by identifying and analyzing interactions among distinct variables, which represent challenges or tactics. It simplifies complex problems into manageable components and highlights their interrelations, aiding in organizing issues, identifying key parameters, and supporting strategic decision-making.

This study aims to analyze the barriers to strengthening city branding, specifically for the waterfront cities of Makassar and Surabaya in Indonesia. Additionally, the study aims to establish a structured model to determine the interrelationships among the barriers to developing waterfront city branding in these cities.

2.0 LITERATURE REVIEW

2.1. Branding strategy: building a strong city brand

A brand is an essential identity that differentiates it from others and can be represented by symbols, terms, names, signs, or a combination of these (Kotler & Armstrong, 2020). Building a powerful brand requires considering both brand equity and value, with the former referring to the impact of brand awareness on consumer reactions and the latter referring to the financial value of the brand itself. Creating a strong brand requires making difficult choices regarding positioning, selection, sponsorship, and development. In city branding, the multidimensional uniqueness of city elements must be observed to deliver clear values to the audience (Travis, 2000). Multidimensional gap analysis is a useful tool for co-creating a powerful brand and considering how to deliver both tangible and intangible city values to the public (Sokołowska et al., 2022). Therefore, a city's unique characteristics can be utilized as an icon for city branding.

In the concept of a waterfront city, a powerful brand can increase not only the city's identity and reputation but also its tourism and economic values. City branding is a new approach to sustainable urban development (Rehan, 2014) that leverages the culture and behavior of local residents as tourist attractions to boost the local economy. Furthermore, existing landmarks in the waterfront area can be utilized to improve the city's appeal. Waterfront cities can use all available resources and technology to become creative. By strengthening existing branding in creative cities, they can become inclusive through solid branding and supportive policies (Alsayel et al., 2022). Branding supported by various stakeholders such as city developers, investors, experts, and individuals can significantly impact a city's future development (Anttiroiko, 2014).

The effectiveness of a brand, particularly in waterfront cities, can be measured using scientific methods. As mentioned earlier, brand equity and value can be measured. Customer-based brand equity is highly valued for territorial entities (Kavaratzis et al., 2015). From a financial management perspective, brand valuation can be conducted using financial analyses such as cost-based, market-based, and revenue-based methodologies (Zenker, 2011). This measurement is based on tangible assets in the waterfront city. Valuation of intangible assets can be done through empirical methods involving experts. Strategies for strengthening city branding depend on various conditions that need to be considered from a multidimensional perspective (Florek et al., 2021).

City branding includes logos, slogans, and names (Sáez et al., 2013), as well as supporting infrastructure such as public areas, museums, events, art galleries, and monuments (Hospers, 2011). In essence, city branding is similar to corporate branding, where the logo serves as a tangible representation of the city (Wahyurini, 2012). Thus, the logo on city branding serves as an image of the city's identity, designed by a visual communication designer. Brand and brand identity design is viewed by many scholars as a sub-genre of visual communication design (Valade-Amland, 2022), where designers create identity symbols and promotional materials to establish the brand's identity. Therefore, design plays an important role in every aspect of branding (Holland & Lam, 2014).

2.2. Waterfront city as a regional development ecosystem

Developing waterfront city areas is currently seen as a sustainable concept to anticipate the potential for strategic regional development. Many countries have done this, with urban areas surrounded by riversides, lakesides, coastal areas, and wetlands. The development of these areas covers various interdependent ecosystems that have potential based on their geographical location. The values contained in an area can be an advantage in developing existing branding, including by exploring the history and civilizations that have formed in the area. This existence is undoubtedly beneficial in planning and implementing regional development that can clearly show the position of an area as a unit of a sustainable economic development ecosystem.

When it comes to developing a waterfront city area, it is closely related to structuring areas that have the potential to develop the creative economy. Currently, the waterfront city area is a popular trend in the development of an area, but any changes should occur through sustainable spatial planning. This planning involves several entities from various related parties, including government elements, academics, and the private sector, each with roles and duties in developing the area. Although waterfront city development is a

global trend, the achievement and evaluation of waterfront development vary significantly depending on different countries' development strategies (Chen, 2015).

Waterfront city development projects must consider not only engineering technology factors but also systematic planning and sustainable management. Due to the complex factors involved in waterfront city development, it is necessary to refer to worldwide cases to minimize the possibility of making the same mistakes. Developing a coastal city area is an alternative to developing waterfront areas to create an organized area with good environmental quality that supports economic activities. Developing regions with the concept of waterfront cities is a significant investment and a thorough alternative structuring of the territory. It includes the sustainable development of riversides, lakesides, coastal areas, and wetlands into alternative policies for structuring and developing regional spatial planning for the government.

Urban waterfronts are a valuable public asset typically managed by local authorities, sometimes with the support of neighbouring communities. In recent years, many cities have formalized their waterfronts to either preserve their historical significance or establish a new identity. The development of formal waterfronts on rivers or seashores has led to increased public use of these areas (Shah & Roy, 2017). Furthermore, such development presents an opportunity to integrate ecology and restore ecosystem functions on the urban sea's edge, thus reducing the environmental impact of urbanization (Ayu et al., 2022).

Eco-waterfront city development combines ecological and waterfront city concepts, including forming function zones, access to transportation/circulation, public space management (open space), building mass arrangements, and sanitation (Ramadhani et al., 2021). The concept of adaptive reuse is used to develop waterfront cities, as seen in related uses such as the Mekong River (Pattananurot & Khongsaktrakun, 2022). Based on their function, waterfront cities can function ecologically, socially, and contextually (Niu et al., 2021). To become an attractive tourist destination, an area must have three conditions: something to see, something to do, and something to buy (Yoeti, 1991). The development of developing riverside cities often faces three challenges: the economy, society, and ecology (Pramesti, 2017). Marrades et al. (2021) found that there is a persistent conflict in the development of the waterfront city concept due to top-down planning and prioritization of profits over the existence of people and communities around the waterfront. To reduce conflict and overcome failures, it is necessary to reconfigure the goals, processes, and parties involved in planning as priorities.

2.3. Used cases of Interpretive Structural Modelling and its potential practical implications

The research by Bolaños et al. (2005) demonstrates how the theoretical principles and practical implications of Interpretive Structural Modeling (ISM) are used to reduce conflict in group decision-making. The interpretive structural model simulates the strategic decision-making process, illustrating individual and group relationships, and identifying key differences in priority sequences that reflect real situations in companies facing strategic issues. (Singh, 2012) used the ISM approach to identify and develop structural relationships between various factors influencing the power and management of SMEs in making strategic decisions. The analysis results showed that factors such as cost reduction, timely delivery, quality improvement, and inventory management appear weak and dependent on other variables. In contrast, factors like top management commitment, employee training, advanced technology, market research, vendor development, and product design capabilities have strong driving power. ISM is also used to map and evaluate the interests of stakeholders in urban infrastructure provision. The study by Rahmanea & Rarasati (2024) found that seven institutions are involved as key stakeholders that need to be tightly managed. The research identifies that the most influential factors include authority restrictions related to regional autonomy, the number of stakeholders involved, and regulations and policies related to the procurement of safe drinking water supplies.

To strengthen the waterfront city branding in Indonesia, it is important to identify and address the barrier elements and involve various actors through effective collaboration and proper resource allocation. Findings from previous research have shown that ISM is effective in various contexts for understanding how actors collaborate in solving strategic problems, competitiveness, and stakeholder interests. Further research should explore the application of ISM in a broader context to deepen the understanding of driving and dependent factors and their interactions in various situations. This study identifies barriers in the development of waterfront city branding using the ISM approach, which are grouped into five fundamental categories based on the compilation by Maulana et al. (2024), such as human resources, technology, geography, policy, and

sustainability. These categories are crucial in shaping and advancing waterfront cities and will facilitate the analysis conducted.

3.0 METHODOLOGY

This research study employs a comparative descriptive design using the multiple case study method. The case study approach, based on the constructivism paradigm, follows the Eisenhardt (1989) model. The study includes data collection through focus group discussions (FGDs) in the cities of Makassar and Surabaya, analysis of barriers and categorization of influencing factors, development of strategies to strengthen waterfront city branding, validation of formulated strategies through an in-depth interview process, pattern matching (based on data saturation), or comparison with existing literature, and formulation of recommendations to enhance waterfront city branding. This triangulation of data was done to increase the validity of the conclusions.

To finalize strategic recommendations, the Interpretive Structural Modelling (ISM) technique will be applied. The ISM method is used to systematically analyze the barriers to branding waterfront cities and find the best strategies for strengthening them. The ISM is a technique for solving complex problems individually or in groups by turning them into structured models (Warfield, 1974). The ISM process includes compiling a list of relevant variables, determining contextual relationships between variables, compiling a structured interaction matrix, testing for transitivity, partitioning the matrix into levels, describing variable arrangements, transforming the array picture into a structured model, and reviewing the model for modification.

ISM involves input data from literature studies and synthesis from 6 expert opinions. According to Hora (2004), an ideal number of experts is between 3 and 6 or 7, which is sufficient and highly precise. Therefore, having 6 experts complete the ISM questionnaire is adequate for conducting the analysis. To avoid bias among participants, the experts selected in Makassar and Surabaya come from various backgrounds: 2 experts from local government, 2 experts from a public university, 1 expert from a private university, and 1 expert from practice. The ISM technique is useful for solving complex problems and providing recommendations for planning and policy-making.

3.1. Interpretive Structural Modeling (ISM) analysis on the barrier elements

The identified barrier elements were analyzed using the ISM method, a computer-based technique that helps to identify the complex relationships between ideas and structures focused on the learning process. The ISM method has been widely used to analyze structural elements based on contextual relationships (Saxena et al., 1992), and is a descriptive statistical modeling technique. The ISM analysis in this study consists of three main steps: system identification, the analysis stage, and the output interpretation stage. The final stage involves interpreting the output to provide strategy recommendations (Kanungo & Bhatnagar, 2002).

The first stage of the study is the system identification stage, which involves formulating objectives, identifying elements and sub-elements, determining the level of contextual relationships between elements/sub-elements, and selecting expert respondents. The details of this stage are as follows:

1. The goals of this study are to provide recommendations on strategies to strengthen waterfront city branding.
2. Elements and sub-elements are identified through a literature review, brainstorming, and expert surveys.
3. Contextual relationships are arranged based on VAXO (V = i-element affects j-element, A = j-element affects i-element, X = both elements (i-j) equally affect/influence each other, and O = both elements (i-j) equally have no effect). The contextual relationships are arranged as a list of questions (questionnaire) with a pairwise comparison pattern.
4. Expert respondents are selected based on their expertise related to the case being studied. The number of expert respondents should be limited (Hora, 2004).

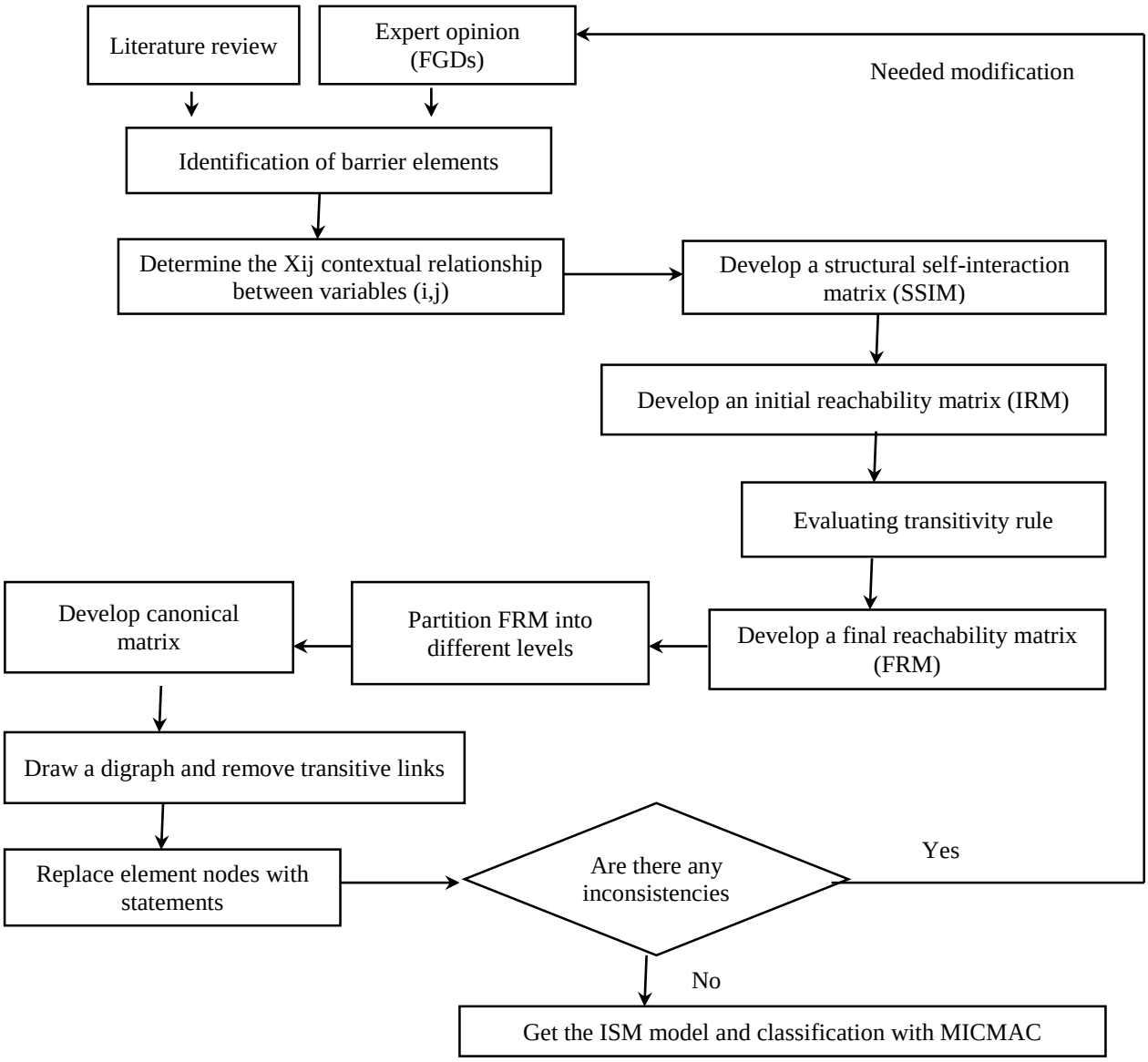

Figure 3. Stages of research with the ISM method.

The second stage involves data analysis, including tabulation, data input, compilation of the structural self-interaction matrix (SSIM), and conversion of SSIM into the reachability matrix (RM) through the following steps:

1. Tabulate the data to prepare for ISM data analysis.
2. Input the data into SSIM based on the aggregation of expert opinions.
3. Compile the SSIM.
4. Develop a binary reachability matrix (RM) from the SSIM, transforming the contextual relationship forms between elements into mathematical relationship forms.
5. Use the law of changing the form of a contextual relationship to a form of mathematical relationship to obtain the initial reachability matrix (IRM).
6. Check the consistency of the binary matrix with the transitivity rule, which ensures the completeness of the causal loop. For example, if element A affects element B and element B affects element C, then element A must affects element C. Check the transitivity rule on cells whose value is 0 (zero).
7. Compile the final reachability matrix (Final RM), which is an RM that has been checked for consistency using the transitivity rules method.

8. Determine the driver power and dependence of each element. The driver power value is the sum of the element values horizontally, while the dependence value is the sum of the element values vertically. Rank the elements based on the highest to the lowest value and determine their level.
9. Formulate the position of each element/sub-element in the ISM quadrant. The position is based on the dependence value as the X-axis and the driver power value as the Y-axis.
10. Arrange the levels (rankings) based on the level values obtained from the driver power and dependence matrices. The critical level, or the first level, is the element with the highest value, and so on.

To carry out this analysis stage, the ISM Professional 2.0 software is used, which is a website-based tool developed by Logic Institute and SWAN (Statistics Consultants) in 2018.

The third stage is the output interpretation stage, which involves interpreting the position of each element in the quadrant and interpreting the order/level of elements. To calculate the data for integration, the barrier elements were analyzed using ISM to determine the key factors and the strength of each sub-element in this category. Figure 3 illustrates the stages of ISM implementation carried out in this study.

3.2. Collection of expert opinion

ISM is an expert-based strategic policy analysis tool. In this study, the opinions of local governments, academics, and practitioners from Makassar and Surabaya were collected through online questionnaires using the Google Form platform. Six experts were involved in filling out the ISM questionnaire for further analysis, which is deemed to be an adequate and highly accurate number of experts (Hora, 2004). The analysis of the collected data was performed using the ISM Professional 2.0 Software.

4.0 RESULT

4.1. Identification of barriers in the development of waterfront city branding

The development of branding for waterfront cities still presents a barrier for local governments. Based on the FGDs and literature reviews, 15 barriers have been identified and grouped into five categories: policy, sustainability, geographical, technology, and human resources. A general description of these barriers is presented in Table 1.

Table 1. Barriers in the development of waterfront city branding.

No	Barrier	Description	Category
1	Implementing waterfront city development in the Regional Spatial Plan still needs to be improved.	The implementation of the Regional Spatial Plan document in practice is constrained by the significant cost of relocating settlements, such as those near rivers or waterfronts, as well as in heritage buildings that are supposed to be at a distance from settlements..	Policy
2	The waterfront city branding development policy has yet to be carried out based on an in-depth study.	The development of a waterfront city should involve not only spatial planning experts but also social, cultural, or historical experts..	Policy
3	Waterfront city regulation is not yet a major concern.	The lack of regulation on waterfront city makes the development and utilization of the waterfront inconsistent and unsustainable.	Policy
4	No dedicated institution that oversees branding management.	The absence of an institution that oversees branding management can be seen from the unprofessional changes made to the branding, for example, changes made to suit the interests of certain actors.	Policy

5	Lack of upfront planning related to sustainable waterfront city branding.	This is related to spatial planning which, in practice, is not in accordance with the plan as it tends to accommodate the interests of investors or commercial mindset of capitalists.	Sustainability
6	Lack of waterfront city promotion.	The socialization program related to the introduction and development of waterfront city branding to the community is still very limited, resulting in a lack of awareness and the failure to achieve strategic targets of the brand.	Sustainability
7	Lack of collaboration between local governments, academics, and practitioners.	Strengthening multi-stakeholder collaboration requires opportunities for parties outside the government to be involved in the decision-making process through an official forum.	Sustainability
8	No certainty of the sustainability of the city's branding when changing regional leaders.	Frequent changes in city branding concepts are caused by changes in political interests of regional leaders, resulting in inconsistency in the built branding identity.	Sustainability
9	Lack of elevating regional identity in waterfront city branding development.	The exploration of local wealth values is essential in developing waterfront city branding as an identity that can represent the area.	Geographical
10	The essential role of historical and cultural moments in forming waterfront city branding has yet to be elevated.	Examining the history and culture of a city is an important lesson in the planning process of building the identity of a waterfront city that affects the image and brand of a city.	Geographical
11	Lack of extensive use of technology in promotional communication.	Promotional activities using print and electronic media through social media have not been optimal, and there has been no implementation of the use of the latest technology, such as artificial intelligence.	Technology
12	Lack of visual communication design model development as a waterfront city branding development tool.	Visual elements used to convey the message of city branding for a specific purpose have not yet made a strong impression and are not easily remembered.	Technology
13	Lack of understanding of the waterfront city concept by local government and society.	The local government and the community have different understandings, perceptions, and interests regarding the development of a city with the concept of waterfront city.	Human Resource
14	Branding so far is still considered limited to logos.	The logo is the main branding identity used, but it has not gone through a comprehensive branding creation process in accordance with the city's identity.	Human Resource
15	Lack of appreciation of parties involved in branding a city.	The creation of city branding is only carried out by certain parties who have not received special attention and appreciation because it has not been a focus in city development.	Human Resource

Source: author's compilation from FGDs and literature reviews.

4.2. Interpretive Structural Modeling (ISM) analysis on the barrier elements

4.2.1. Structural Self-Interaction Matrix (SSIM)

Six experts were asked to fill out a questionnaire in the form of pairwise comparisons for each variable based on barrier identification beforehand. The opinions of the experts were aggregated to obtain one SSIM matrix for the barrier, as shown in Table 2.

Table 2. SSIM analysis for barrier element

Barrier		j=1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	i=1		X	V	A	X	A	A	X	X	X	A	A	V	A	V
2	2			V	V	X	V	V	V	X	X	X	X	V	V	V
3	3				V	V	V	V	V	V	X	V	V	V	V	V
4	4					A	V	X	X	X	X	V	V	X	V	V
5	5						V	V	V	X	X	X	X	X	V	V
6	6							X	X	X	X	X	X	X	X	X
7	7								X	X	V	X	X	X	V	X
8	8									V	V	O	O	X	X	X
9	9										V	X	A	V	V	V
10	10											V	V	X	V	X
11	11												X	X	X	X
12	12													X	V	A
13	13														V	X
14	14															X
15	15															

Source: data generated from ISM Professional 2.0 Software

4.2.2. Reachability Matrix (RM)

The symbols representing contextual relationships in the SSIM Matrix are subsequently translated into binary numbers of 1 and 0 to form the Initial Reachability Matrix (IRM), as presented in Table 3.

Table 3. Reachability matrix formulation.

Contextual relations between elements i and j (eij)	Mathematical relations between elements i and j (eij)
V	eij=1 and eji=0
A	eij=0 and eji=1
X	eij=1 and eji=1
O	eij=0 and eji=0

The IRM for the barrier can be obtained based on Table 3. For instance, if the SSIM matrix indicates an X relationship between barrier B1 and B2, then it is converted to IRM by assigning e12 to 1 and e21 to 1. The same procedure is applied to the remaining elements. Table 4 displays the conversion of IRM analysis based on the SSIM.

Table 4. Initial Reachability Matrix analysis.

Barrier		j=1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	i=1	1	1	1	0	1	0	0	1	1	1	0	0	1	0	1
2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	3	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
4	4	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1
5	5	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
6	6	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1
7	7	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1
8	8	1	0	0	1	0	1	1	1	1	1	0	0	1	1	1
9	9	1	1	0	1	1	1	1	0	1	1	1	0	1	1	1
10	10	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1
11	11	1	1	0	0	1	1	1	0	1	0	1	1	1	1	1
12	12	1	1	0	0	1	1	1	0	1	0	1	1	1	1	0
13	13	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
14	14	1	0	0	0	0	1	0	1	0	0	1	0	0	1	1
15	15	0	0	0	0	0	1	1	1	0	1	1	1	1	1	1

Source: data generated from ISM Professional 2.0 Software

After obtaining the initial reachability matrix (IRM), it is necessary to check for transitivity to obtain the final reachability matrix (FRM). The law of transitivity states that if A affects B, and B affects C, then A affects C. Checking is carried out using ISM Professional 2.0 software. The value that meets the criteria is replaced with 1*. Once the checking is completed, the FRM for the barrier elements is shown in Table 5.

Table 5. Final Reachability Matrix analysis.

Barrier		j=1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	i=1	1	1	1	1*	1	1*	1*	1	1	1	1*	1*	1	1*	1
2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	3	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
4	4	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1
5	5	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
6	6	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1
7	7	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1
8	8	1	0	0	1	0	1	1	1	1	1	1*	1*	1	1	1
9	9	1	1	0	1	1	1	1	0	1	1	1	1*	1	1	1
10	10	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1
11	11	1	1	0	0	1	1	1	0	1	0	1	1	1	1	1
12	12	1	1	0	0	1	1	1	0	1	0	1	1	1	1	1*
13	13	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
14	14	1	0	0	0	0	1	0	1	0	0	1	0	0	1	1
15	15	0	0	0	0	0	1	1	1	0	1	1	1	1	1	1

Source: data generated from ISM Professional 2.0 software.

4.2.3.Level Partition

After generating the final reachability matrix, level partitioning was conducted based on the reachability and antecedent sets. The reachability set comprises the variable and other variables that may influence it, while the antecedent set comprises the variable itself and other variables that may influence it. The intersection between the reachability and antecedent sets produces intersection sets to determine different levels. Variables with the same reachability and intersection sets will occupy the top level of the hierarchy. Then, the variable is removed to determine the next level and it continues to iterate until reaching the last level. In this study, the software was used to conduct level partitioning.

4.2.4.Formation of the ISM model

A digraph is constructed based on the relationships in the final reachability matrix, after removing any transitive links. The nodes representing factors are then transformed into statements, resulting in an ISM model. The model is carefully reviewed for conceptual inconsistencies. Next, the structural model is created based on the final reachability matrix. An arrow is drawn from barrier i to barrier j to depict their relationship, and the resulting graph is known as a digraph. Finally, as shown in Figure 4, the digraph is converted into an ISM model by adding arrows to represent direct influence relationships. This diagram represents the collective expert opinions.

The ISM hierarchical structure among the 15 representative barriers resulted in seven levels. The two barriers that have the most significant impact on the strengthening of the waterfront city's branding are positioned at the bottom levels (Level VII). Barrier 1 pertains to the suboptimal implementation of waterfront city development in the regional spatial plan, while Barrier 2 is concerned with the lack of in-depth study-based development policy for waterfront city branding. These barriers influence the above level (Level VI), which is the lack of upfront planning related to sustainable waterfront city branding (Barrier 5). At the top level (Level I), the limited consideration of branding to logos (Barrier 14) indicates a minor effect on the strengthening of the waterfront city's branding.

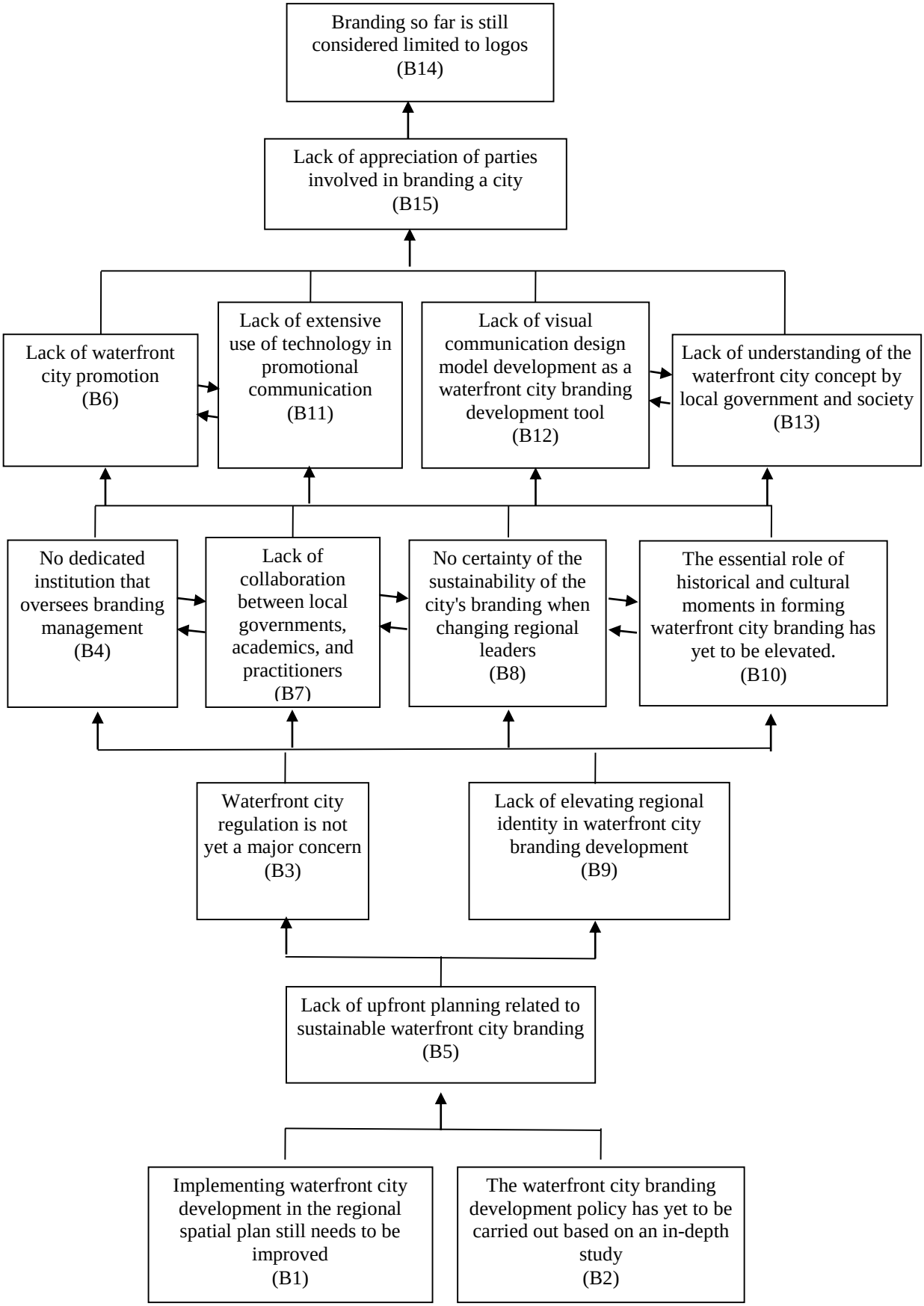

Figure 4. ISM model for barrier elements in strengthening the branding of waterfront city.
Source: data generated from ISM Professional 2.0 Software.

4.2.5. Matrix Impact Cross-Reference Multiplication Applied to a Classification (MICMAC) analysis

We used the MICMAC method to analyze the strength of driver power and dependence power of various factors, which are classified into four categories (quadrants). Table 6 shows an explanation of these categories.

Table 6. ISM quadrant

Quadrant 1. Autonomous	These factors have weak driver power and weak dependence power. These factors are relatively disconnected from the system. These factors have little link but may have high values (strong implication).
Quadrant 2. Dependent	These factors have weak driver power but strong dependence power.
Quadrant 3. Linkage	These factors have strong driver power and strong dependence as well. These factors are unstable. Any action on this factor will affect the others and have a feedback effect on the factor itself.
Quadrant 4. Independent	These factors have strong driver power but weak dependence. Key factors fall into this category.

The driver and dependency power values are obtained from the final reachability matrix of each element. The value of driver power is calculated by summing the values of the variable itself and other variables that may influence it, while the value of dependency power is calculated based on the variable's value and other variables that can influence it. These values are then used to determine the category of each sub-element in the diagram. Table 7 and Figure 5 provide the driver power and dependency power values for barrier elements.

Table 7. Driver power and dependence power of barrier elements

Barrier	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Driver power	15	15	13	12	14	11	12	12	13	12	11	11	11	6	9
Dependence power	12	7	4	10	9	15	13	11	11	12	15	14	14	15	15

Source: data generated from ISM Professional 2.0 Software

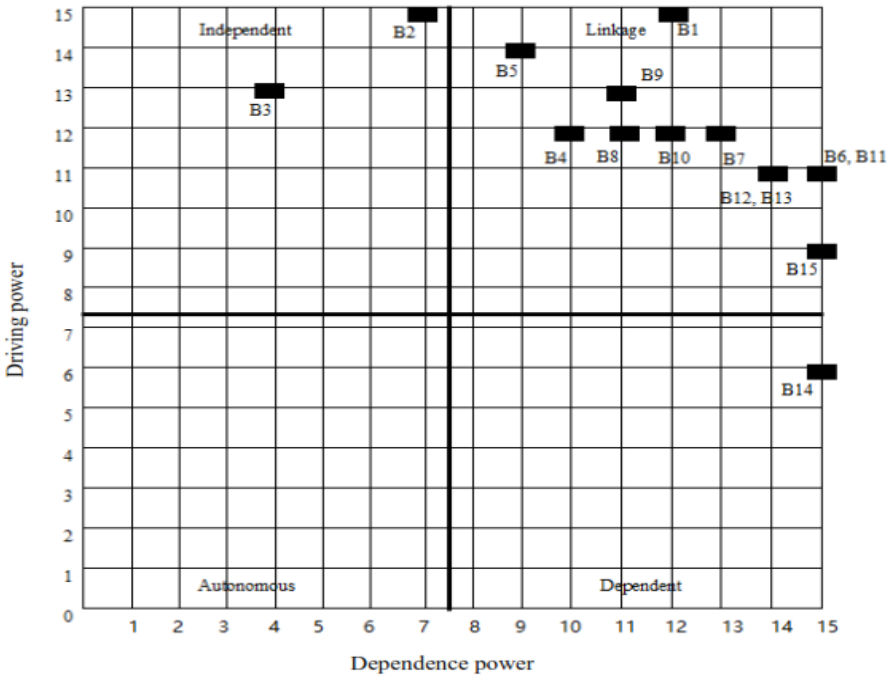

Figure 5. Diagram of driver power and dependence power.
Source: data generated from ISM Professional 2.0 Software

Based on the ISM model and the diagrams of driver power and dependence power for the barrier elements to strengthen the branding of waterfront cities, the key sub-elements are Barrier 2 and Barrier 1. Barrier 2, which is "the waterfront city branding development policy has not been carried out based on an in-depth study," and Barrier 1, which is "the implementation of waterfront city development in the regional spatial plan is still not optimal," both have the highest value of driver power. This shows that Barrier 2 and Barrier 1 are the main barriers that have the most significant influence on the other barriers and are less likely to be influenced by others in strengthening the branding of waterfront cities in Indonesia. Therefore, these two barriers should be given priority in solving problems so that efforts to strengthen the branding of waterfront cities can be carried out more appropriately.

5.0 DISCUSSION

Strengthening the branding of waterfront cities is crucial to maximizing their potential. This is a key issue that needs to be addressed in spatial and regional planning development programs. The potential of an area is closely tied to its history, which should be highlighted and incorporated into planning efforts to fully explore the area's potential. From the findings of several previous studies, Interpretive Structural Modelling (ISM) has proven effective in various contexts for understanding how actors collaborate to solve strategic problems, address competitiveness, and manage stakeholder interests. The use of ISM can simulate the strategic decision-making process and illustrate the relationships between individuals and the obstacles faced in the branding process of waterfront cities such as Makassar and Surabaya.

Based on the analysis of barrier elements in strengthening the branding of waterfront cities using the ISM model, several strategies need to be implemented:

- Strengthening the development and branding of waterfront cities by formulating policies at the national and regional levels. This is particularly important given Indonesia's archipelagic geography, which presents unique opportunities for developing certain areas. Developing and strengthening waterfront city branding policies should be based on in-depth studies conducted both nationally and regionally, as currently, there is a lack of such research. To achieve this, a feasibility study must be conducted to determine the potential of existing waterfront city areas. In the regional scope, the best spatial and regional planning can be determined by formulating a regional policy that refers to the national scale.
- Enhancing the implementation of existing policies by consolidating and strengthening the actors involved in developing waterfront cities. These actors include the government, academia, the private sector, and the people directly involved in the waterfront city area. These actors play a crucial role in implementing waterfront city development initiatives both nationally and regionally. Strengthening their collaboration is necessary because current conditions show that potential development is still being carried out in a partial manner, mainly by utilizing existing infrastructure and implementing spatial and regional planning.
- Ensuring the sustainability of development and branding efforts by elaborating on the existing regional potential in terms of economic, cultural, and geographical factors. The unique characteristics of the region can be used to differentiate it from other places.

The establishment of policies to strengthen branding is of utmost importance, as it significantly affects the development of various aspects along the waterfront city area. At a minimum, this concept will impact social, economic, and environmental aspects, as well as address the growing needs of the waterfront area (Papatheochari & Coccossis, 2019). Additionally, proper policy establishment will influence sustainability, including the strengthening of the regional economy, societal benefits, environmental protection, and risk control for potential disasters (Davidson, 2020).

In Makassar, branding reinforcement can focus on the concept of a sea-based waterfront city. Historically, Makassar has been a significant international port supporting global trade. The current city branding concept, 'Sombere & Smart', emphasizes revolution, reform, and reconstruction, aiming to present Makassar as a courteous and intelligent city. This concept needs further development, given the city's geographical proximity to the sea and its international port status. Studies on this concept are still minimal, as indicated by the ISM results, highlighting a need for greater intellectual involvement in the branding process.

For Surabaya, the branding concept is centered around the Kalimas River, with a primary focus on reinforcing the economy along this river. The local government emphasizes boosting the creative economy generated by the waterfront area. There is a need for strategic studies to develop the waterfront city through revitalization and strengthen the regional economy based on local products. The use of technology to enhance the branding of the waterfront city should also be explored through comprehensive studies.

Policy implementation in both waterfront cities requires not only the involvement of all stakeholders but also continuity based on prior research. Interaction and development of river-city and sea-city areas, while respecting regional heritage values, can strengthen the branding of each region (Durán Vian et al., 2021). The historical urban development of each area contributes unique architectural and cultural elements that can support the growth of the creative economy. Moreover, the concept of sustainability in waterfront city branding requires managing and conserving existing ecosystems. Community involvement and media engagement in promoting regional branding values are crucial. All these elements are interconnected and should be considered essential for regional governments to address in their strategic focus.

6.0 CONCLUSION

A waterfront city refers to an urban area that encompasses different types of waterfront spaces, such as lakefronts, river banks, canals, harbours, or bay fronts. In this study, barrier elements were identified as potential factors that can enhance the branding of waterfront cities in Indonesia. As waterfront city development in Indonesia is still spatially oriented, it involves multiple actors. Therefore, it is crucial that all actors collaborate and elaborate to maximize the potential of the waterfront cities. Effective implementation can be achieved by involving relevant actors and allocating appropriate resources.

Moreover, it is crucial to implement comprehensive analysis-based policies to develop and reinforce the branding of established waterfront cities. These policies, which rely on thorough assessments, can have a more substantial impact at both regional and national levels. Additionally, the support of the national government is vital in executing policies at the regional level. To achieve broad, short- and long-term effects, coordination and sustainability must be continuously developed and maintained. To do so, spatial and regional layout plans involving all stakeholders at national and regional levels should be improved based on a study of each region's potential.

Discovering the distinctive features of each region is a driving force in identifying the potential of waterfront cities in Indonesia. The unique geography and historical background of each region permanently shape their individual characteristics, particularly in the waterfront areas. There are various aspects to consider, including geography, economy, society, culture, historical heritage, cuisine, customs, and the people's habits. These characteristics can strengthen the branding of the region, especially in the Indonesian waterfront cities. Furthermore, the archipelagic nature of Indonesia provides an added advantage for developing waterfront cities.

Recommendations for policymakers, urban planners, and stakeholders to collaboratively enhance branding efforts and address the identified challenges include: formulate and implement comprehensive policies to develop national and regional policies specifically aimed at strengthening the branding of waterfront cities; enhance collaboration among key stakeholders to address current partial and fragmented development efforts by utilizing existing infrastructure and integrating spatial and regional planning; highlight and incorporate historical and cultural heritage of each area into planning efforts to fully explore and capitalize on the area's potential; ensure environmental sustainability to implement policies that not only promote economic growth but also ensure environmental sustainability and resilience against potential disasters.

Further research based on study findings includes: evaluating policy implementation and outcomes to assess the impact and effectiveness of implemented policies on waterfront city branding and development; investigating stakeholder collaboration dynamics to examine how different stakeholders interact and collaborate in the development process; studying the role of technology in branding to explore how technological advancements can enhance waterfront city branding efforts; and examining local economic development strategies to boost local economies within waterfront cities, particularly through creative and cultural industries.

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