

Pentahelix Collaboration Model of Public Space and Economic Development Towards Green Space Sustainability in Malioboro Pedestrian

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Abstract— Malioboro area is a center of tourist, cultural, and economic in Yogyakarta, due to dense activity it causes traffic jams, limited access for pedestrians, and lack of public space. This fact causes inconvenience for road users and tourists. The Yogyakarta City Government has revitalized Malioboro as a pedestrian area to create a comfortable public space for Yogyakarta residents and tourists. This research aims to examine how the Pentahelix model collaboration is implemented between various stakeholders who have an interest in the area. The method in this research was the Analytical Hierarchy Process (AHP) and software Expert Choice. There are five key persons consisting of representatives of the five pillars of the Pentahelix, namely academics, business people, community, government, and media. The research results show that the Yogyakarta City Government plays an important role in the Pentahelix collaboration with a value of 0.290. supported by an inconsistency value below 10%, namely 0.00829.

Index Terms— Pentahelix, Analytical Hierarchy Process, Pedestrian.

I. INTRODUCTION

The Malioboro area is a tourist, cultural and economic center consisting of Jalan Margo Utomo, Jalan Malioboro, and Jalan Margo Mulyo and this landscape has become the identity (icon) of Yogyakarta. According to Rupa (2015) Cities in the world, including in Indonesia and especially Yogyakarta, realize the importance of public space as an integral part of urban identity. Before the revitalization was carried out, the Malioboro area was a chaotic and congested corner of the city (Bmt & Malioboro, 2017). Malioboro pedestrian area is in the Malioboro tourist area which has high economic, social, and cultural value, making it a favorite destination for tourists. However, during its development, this area was not only filled with visitors, but also filled with vehicles and became one of the busiest commercial spaces in the city of Yogyakarta (Uak, 2020; Kumar and Lata, 2022). Pradipto et al., (2014) say that an increase in the pedestrian growth rate of 5.2% has resulted in the Malioboro area from a pedestrian aspect being in a worrying condition. This condition is exacerbated by the lack of balance in the provision of representative parking spaces in the Maliboro area. Vehicles passing through Maliboro continue to increase while parking spaces do not increase, the impact of which is that road shoulders and sidewalks are used as parking spaces. This causes the area for pedestrians to become increasingly reduced and

uncomfortable

In the 2017-2022 Regional Medium Term Development Plan document for the city of Yogyakarta, it is stated that the Malioboro area has become the heart of the city of Yogyakarta, which is characterized by various activities centered in this area. Activities in the Malioboro area include government activities, namely the office of DPRD Yogyakarta, BAPPEDA Yogyakarta, UPT Malioboro, and other official offices. Trade and service activities in the Malioboro area are in accordance with the mandate in the RPJMD that this area is directed as a cultural area as well as an economic area (Yogyakarta, 2020).

The Sultan conveyed the discourse on revitalizing the Malioboro area as a new vision, namely "Yogyakarta Welcomes a New Civilization". Furthermore, the Yogyakarta City government synchronized the strategic area development program with the DIY provincial government and prepared the necessary budget. This revitalization program aims to return the Malioboro strategic area to its original forms, such as pedestrians, green open spaces, and ongoing economic activities (Mulyandari et al., 2015) (Hidayah et al., 2021). Economic activities adjacent to this public space are accommodated in an area called Teras Malioboro. Malioboro Terrace is a comfortable, clean shopping place equipped with escalators, lifts, culinary enjoying spots, aesthetic and Instagrammable photo spots and a modern industrial theme (Yogyakarta, 2020).

In realizing the Malioboro revitalization plan, the government already has a structuring direction, namely making Malioboro a pedestrian area. In the Spatial and Regional Planning, (RTRW) of the city of Yogyakarta in article 80 paragraph 2 reads "Jalan Mangkubumi, Jalan Malioboro, Jalan Ahmad Yani are directed to special pedestrian or pedestrian areas". The revitalization of the Malioboro area as a pedestrian area is to create a comfortable public space for both Yogyakarta residents and tourists. The better development and arrangement of public spaces will encourage domestic and foreign tourists to visit the area. In a public space that is neatly arranged, clean, and full of cultural philosophical content, a place to take selfies will become a magnet for tourists. Even though it is very late, the pedestrian arrangement process currently underway has made Malioboro's face more accessible and humanist (Mahadi et al., 2016).

In revitalizing the Malioboro area, the Yogyakarta City Government is not only tasked with moving, arranging and providing new parking lots but also managing pedestrians and street vendors (PKL). Organizing a tourist area with lots of visitors will definitely have many obstacles. Moreover, since time immemorial, Malioboro has become a fairly important trading center, where business activities do not only involve one party, but also involve the economic interests of many people from the smallest level such as street vendors, parking attendants, to large entrepreneurs. both shops, restaurants, and hotels in the area.

Therefore, implementing pedestrian revitalization in the Malioboro area ideally requires cooperation from all parties, namely stakeholders who are directly or indirectly related to the revitalization process. Because the development of a region needs to be supported by all existing elements. In the process of collaboration to realize harmonious communication, the Pentahelix concept is known, where elements of government, society or community, academics, entrepreneurs, and the media come together to build togetherness (Lata & Kumar, 2022). Government elements have the political power to formulate a policy through decisions, while society or community has social power to exercise control, academics have knowledge power to be able to present knowledge so that the revitalization process is more precise and useful, business people are entities that carry out business processes in creating value, while the media can synergize with the government and the community to report and broadcast and contribute accurate information needed by the wider community (Perkasa et al., 2021).

The Pentahelix Collaboration Model is a profitable partnership between investors, government, industry, communities and entrepreneurs to encourage social and economic development. Initially, the Pentahelix collaboration model was the Triplehelix model introduced by Etzkowitz & Leydesdorff (1995) which was based on the condition of separate institutions and tasks between industry/private sector, universities/academics, and government, all three of which could actually work together on the same path and goals, without harming one or both parties (Etzkowitz & Leydesdorff, 2000).

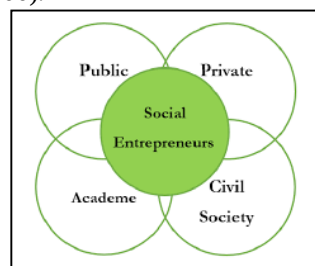


Figure 1. Five pillar pentahelix concept (etzkowitz & leydesdorff, 2000)

In the Pentahelix model, community/society and entrepreneurs are added. Both actors have an important role in promoting shared goals for growth and contributing to the region's socio-economic progress. The best innovation is achieved when key actors have strong collaboration and partnerships (Muhyi et al., 2017; Maturbongs, 2020; Hertati, 2023).

In this research, an in-depth study will be carried out using the Analytical Hierarchy Process (AHP) system to find out the priorities for cooperation between stakeholders in the Pentahelix and also what appropriate alternatives are so that pedestrian revitalization is by the Yogyakarta City Spatial and Regional Planning Plan (RTRW) in article 80 paragraph 2 can not only have an impact on increasing economic development and improving the quality of public spaces in the Malioboro area but also aims to ensure that this policy can provide benefits for all parties. This research is intended to collect data/ information that shows an overview of formulation forms of collaboration on the Pentahelix concept in order to develop the economy and public space of pedestrian revitalization in the Malioboro area and how the alternative policy in the cooperation of the Pentahelix model in the economic development and public space revitalization of pedestrians in the Malioboro area using Analytical Hierarchy Process (AHP) decision support system.

II. METHODS

A. Research Design

This examination utilizes a Quantitative (Parametric) Technique where the quantitative methodology is connected with boundary assessment, speculation testing, laying out certainty spans, and the connection between at least two properties (factors) for boundaries that have a specific known dissemination (ordinary dispersion). Quantitative strategies depend on specific presumptions that have been arranged ahead of time. On the off chance that these suppositions don't compare to the real circumstance, particularly on the off chance that they go amiss altogether, the adequacy of this strategy can't be ensured or might be deluding (Tajibu, 2021). Quantitative Exploration Strategy is a type of examination technique used to investigate a specific populace or test, gathering information utilizing research instruments, and quantitative/measurable information examination, fully intent on testing foreordained theories Quantitative research can be carried out in various ways, including using analytical tools Analytical Hierarchy Process(AHP) is a method for solving a complex, unstructured situation into several components in a hierarchical arrangement, by giving a subjective value regarding the relative importance of each variable, and determining which variable has the highest priority in order to influence the outcome of the situation.

Quantitative approach research can be completed in different ways, one of a kind was utilizing scientific devices Analytical Hierarchy Process (AHP). AHP is a technique for tackling, what is going on into a few parts in a various leveled game plan, by giving an emotional worth with respect to the general significance of every variable, and figuring out which variable has the most elevated need to impact. The primary device of Analytical Hierarchy Process (AHP) is to have a useful pecking order with the principal input being human insight. With hierarchy, a complicated and unstructured issue is settled into groups and organized into a form of hierarchy from predetermined hypotheses.

This research, to determine various policy alternatives that are considered quite important for all parties in the Pentahelix pillar, it was obtained by conducting in-depth interviews with representatives from the five pillars, namely from academics, business, community, government, and media. The results of the interview, it was then supported by direct observation of the area and literature study, insight into several important points related to the policies expected in developing the economy and public space of the pedestrian revitalization program in the Malioboro area, namely relocation of street vendors, parking relocation, accessibility, socialization, and education also the role of the media. The data is then described in a research framework as follows:

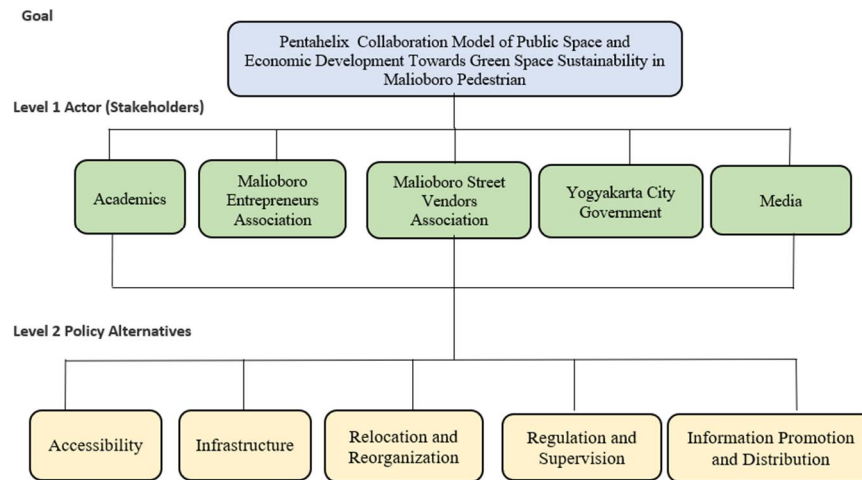


Figure 2. Research framework

B. Participats And Sampling Design

The populace in this exploration are key expert who represent competent parties, whether straightforwardly or in a roundabout way connected with the renewal cycle in the Malioboro region. Key expert are five agents from academics, business, community, government and media. We use a non-probability sampling technique with a purposive sampling approach, namely a sample selection technique with certain considerations based on certain characteristics which are considered to be closely related to previously known characteristics of the population. In other words, the sample units contacted are adjusted to certain criteria applied based on the research objectives. Data collection in this research uses a limited survey method where the survey is conducted through in-depth interviews with selected respondents.

C. Data Collection

- Primary data was obtained directly through interviews and in-depth discussions with selected respondents. Primary data includes the results of extracting information from representatives of the five pillars of Pentahelix, each from academics, the business world, community, government and media.
- Meanwhile, secondary data that is relevant to the research objectives is taken from various sources, such as reference books, the internet, and books or information from related agencies.
- The data collection technique uses a questionnaire which is carried out directly. This aims to dig up information from sources so that the results are more accurate. The questionnaire uses a Likert scale with a weight of 1-9.

D. Key Expert (Research Informan)

The use of AHP in research requires respondents to be experts or people directly involved in the revitalization process of the Malioboro area with the Pentahelix concept.

The criteria set for respondents or informants are as follows:

- Has quite a lot of information regarding the process, policies and impacts of the pedestrian revitalization policy in the Malioboro area.
- Willing to spend time in the interview.
- The informants selected in this research are stakeholders who represent the five pillars

TABEL I KEY EXPERTS LIST

No	Division	Institution
1	Tourism Marketing Division	Yogyakarta Tourism Department
2	Lecturer at the Faculty of Economics and Business (FEB)	Janabadra University
3	Chairman of the Entrepreneurs Association	Malioboro Ahmad Yani Entrepreneurs Association (PPMAY)
4	Chairman of the PKL Association	Malioboro Area Street Vendors Association
5	Journalist	Kedaulatan Rakyat

III. RESULT AND DISCUSSION

The results of data processing using Expert Choice V.11 software, the results for each element are shown in the following scheme;

A. Hierarchical Structure Form

Of all research elements are entered into the software consisting of goal elements, criteria and alternatives, a hierarchical structure will be obtained as in the picture.

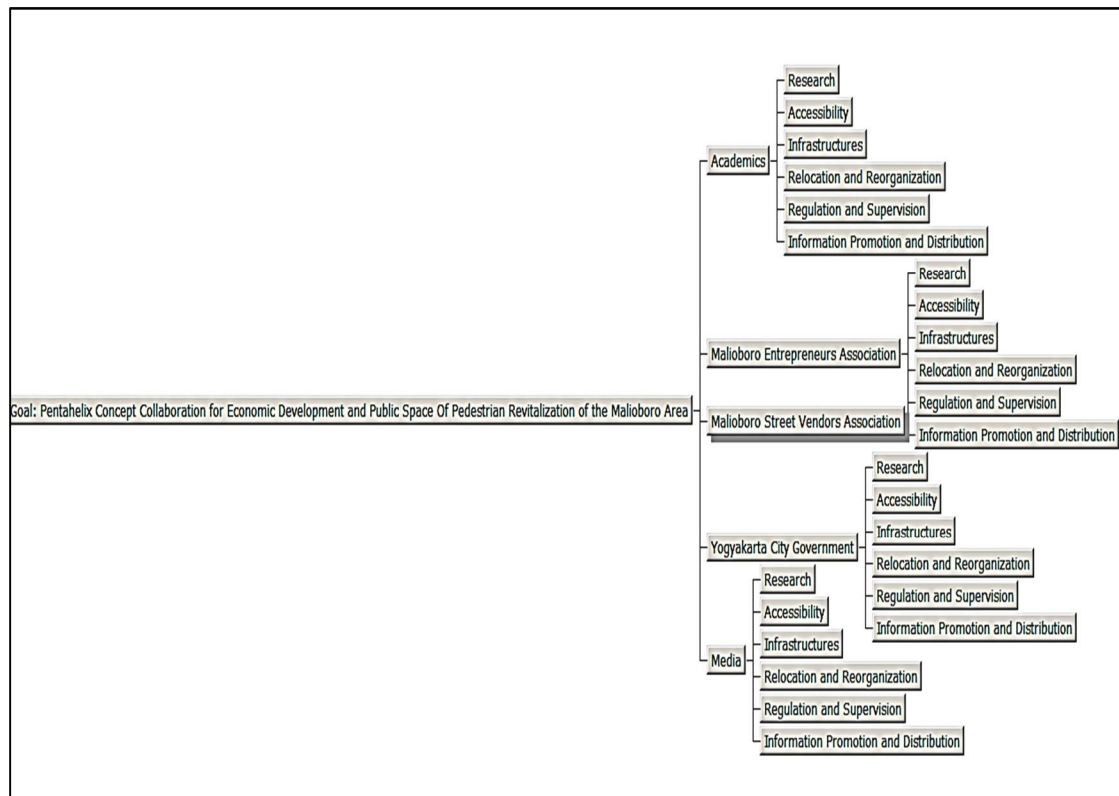


Figure 3. Hierarchical Scheme

B. Synthetic Calculations

Synthetic calculation to obtain the priority order of the various available alternatives (by calculating the eigenvector value of each matrix)

i. Comprehensive Synthesis of Stakeholder Elements to Objectives (goal):

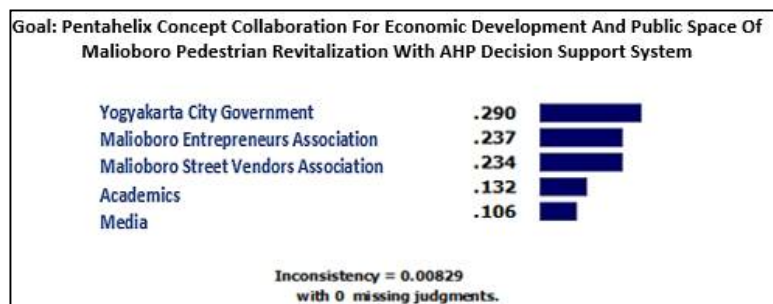


Figure 4. Table of synthesis priority between criteria elements versus objectives (goal)

The overall synthesis results for actor elements (stakeholders) at level 1 towards goals with Expert Choice V.11 show that in the Pentahelix Concept Collaboration for Economic and Public Space Development Of Malioboro

Pedestrian Revitalization, the Yogyakarta City Government plays a key role with a value of 0.290; followed by the role of the Malioboro Entrepreneurs Association of 0.237; Malioboro Area PKL Association with a score of 0.234; Academics with a result of 0.132; and Media with a value of 0.106. Meanwhile, the inconsistency value of this synthesis is still acceptable because the value is below 10%, namely 0.00829.

ii. Overall Synthesis of Alternative Elements to the Criteria (Actors/Stakeholders)

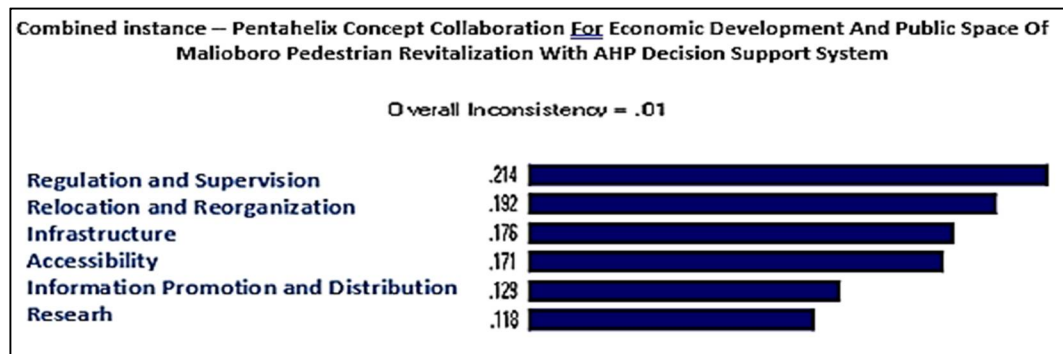


Figure 5. Table of Priority Synthesis Calculation Results Between Alternative Elements Against Criteria (Actors/Stakeholders)

Overall synthesis results for Alternative elements at level 2 against Level 1 Criteria Elements with Expert Choice V.11 show that in the Pentahelix Concept Collaboration for Economic and Public Space Development Of Malioboro Pedestrian Revitalization, the most prioritized policies are regulation and supervision with a value of 0.214; relocation and rearrangement with a value of 0.192; Infrastructure is in third place with a value of 0.176; then accessibility with a value of 0.171; promotion and distribution of information with results 0.129; and finally research with a value of 0.118. Where the inconsistency value is still below 10%, namely 0.01.

IV. CONCLUSIONS

The pedestrian revitalization policy in the Malioboro Area carried out by the Yogyakarta City Government since 2014, with the aim of making the Malioboro Area more comfortable, clean, neat and public-friendly should not ignore and sacrifice economic and business interests in the area. This is because the Malioboro area is the focus of economic activity for some of the people of Yogyakarta. This policy is expected to provide benefits for all parties, this can only be achieved if there is ideal cooperation between stakeholders in the five Pentahelix pillars that are directly or indirectly related to the area, namely academics, business actors, communities, government and media.

From the research results, it can be concluded that the role of stakeholders in the Pentahelix Collaboration collaboration shows evidence that the role of the government, especially the Yogyakarta City Government, takes the main proportion in the cooperation pattern with a value of 0.290 and alternative policy priorities in the form of establishing clear rules and regulations, as well as monitoring the implementation of these policies with a value of 0.214.

V. SUGGESTION

A limitation in research using the AHP approach is the limited number of key respondents, where each pillar of the Petahelix model is only represented by one informant. This is because the AHP approach cannot be applied to a large or mass number of respondents. It is hoped that in future research other approaches can be implemented with more respondents so that they can represent the actual population.

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