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Urban Development Management Strategies to Enhance Regional Competitiveness: Evidence from Urban Planning in Medan City

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ABSTRACT

Purpose – Rapid urbanization and fragmented urban governance have created significant challenges for regional competitiveness in emerging metropolitan cities such as Medan, Indonesia. This study examines how urban development management strategies enhance regional competitiveness, with resource optimization positioned as a mediating mechanism.

Design/methodology/approach – This study adopted a quantitative explanatory approach through a cross-sectional survey involving 120 stakeholders engaged in urban planning and development in Medan City, including government officials, academics, planning professionals, and private-sector actors. Data were gathered using structured questionnaires and analyzed through Partial Least Squares Structural Equation Modeling (PLS-SEM).

Finding/Results – The findings reveal that urban development management significantly improves resource optimization ($\beta = 0.68$) and regional competitiveness ($\beta = 0.31$). Resource optimization also positively affects regional competitiveness ($\beta = 0.44$) and partially mediates the relationship between urban development management and regional competitiveness ($\beta = 0.30$). These findings indicate that governance capability contributes to competitiveness both directly and indirectly through operational efficiency mechanisms.

Originality/Value – This study extends the application of the Resource-Based View (RBV) in the urban governance context by demonstrating that resource optimization functions as an operational mechanism linking strategic urban management and competitiveness outcomes. The findings suggest that improving regional competitiveness requires not only integrated governance structures but also stronger operational efficiency in urban resource utilization.

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1. Introduction

Urban development has become a critical determinant of regional competitiveness, particularly in emerging economies where cities increasingly compete for investment, infrastructure, human capital, and innovation capacity. Rapid urbanization has intensified governance challenges, including fragmented planning systems, uneven infrastructure development, inefficient resource allocation, and limited institutional coordination. In Indonesia, these challenges are especially visible in rapidly growing metropolitan areas outside Java, where urban management capacity often struggles to keep pace with demographic and economic transformation. As one of the largest metropolitan cities outside Java, Medan City plays a strategic role in regional economic development while simultaneously facing persistent urban governance and development coordination challenges.

The concept of urban competitiveness has evolved from a purely economic perspective into a multidimensional construct that includes governance quality, institutional capability, innovation, infrastructure efficiency, and urban resilience. Recent studies emphasize that competitiveness is increasingly influenced by the ability of cities to integrate development planning, optimize resource utilization, and coordinate stakeholders effectively. Contemporary urban governance literature also highlights the importance of adaptive governance systems, integrated planning frameworks, and data-driven policy implementation in improving urban performance and competitiveness outcomes (Krugman, 1994; Lengyel, 2004).

Previous studies have examined the relationship between governance systems and urban competitiveness from different perspectives. Some studies focus on macro-level competitiveness indicators such as investment attractiveness, productivity, and economic growth, while others emphasize governance quality, resilience, or urban efficiency mechanisms. However, existing studies often treat governance and competitiveness as directly connected constructs without sufficiently explaining the operational process through which governance capability translates into competitiveness outcomes. In particular, limited empirical research has examined the mediating role of resource optimization in linking urban development management and regional competitiveness, especially in emerging metropolitan cities (Bi, 2026).

In addition, empirical evidence from Indonesian regional planning contexts remains relatively limited. Most studies focus on national or aggregate regional indicators, with insufficient attention given to city-level governance dynamics and implementation capacity. This limitation is important because urban competitiveness is shaped not only by strategic planning but also by the effectiveness of resource mobilization, infrastructure utilization, and institutional coordination within specific local contexts (Liu, 2024). Medan City therefore provides an analytically meaningful setting for examining how urban development management contributes to competitiveness through operational efficiency mechanisms.

Grounded in the Resource-Based View (RBV), this study conceptualizes urban development management as a strategic capability that enables cities to coordinate and optimize urban resources effectively. Rather than positioning the study as a broad theoretical advancement, this research extends the application of RBV in the urban governance context by examining resource optimization as an operational mechanism linking urban development management and regional competitiveness.

Accordingly, this study aims to: (1) analyze the effect of urban development management on regional competitiveness; (2) examine the effect of urban development management on resource optimization; and (3) investigate the effect of resource optimization on regional competitiveness, including its mediating role. Based on these objectives, the study proposes four hypotheses concerning the relationships among urban development management, resource optimization, and regional competitiveness.

2. Literature Review and Hypothesis Formulation

2.1 Urban Development and Regional Competitiveness

Urban competitiveness has evolved into a multidimensional concept that reflects a city's ability to achieve sustainable economic growth, improve quality of life, and efficiently utilize resources. In recent studies, competitiveness is no longer viewed solely from an economic perspective but also includes institutional, environmental, and governance dimensions (Abusaada & Elshater, 2021; Tian & Guo, 2023).

In the context of globalization, cities increasingly compete for investment, talent, and innovation capacity, requiring a shift from traditional administrative governance toward more strategic and adaptive urban management approaches (Shen, 2004; Westraadt & Calitz, 2018). This transformation emphasizes the critical role of governance quality and policy integration in influencing urban competitiveness outcomes.

Moreover, recent empirical evidence indicates that urban competitiveness is substantially shaped by the interplay between development strategies and governance systems. Cities that adopt integrated development approaches tend to demonstrate higher resilience and economic performance (Camagni, 2002; He, 2025). This indicates that urban development and competitiveness are mutually reinforcing processes.

2.2 Theoretical Foundation: Resource-Based View and Urban Management

The Resource-Based View (RBV) has been widely adopted in recent urban studies to explain how cities achieve competitive advantage through strategic resource utilization. In this perspective, cities are considered as entities possessing both tangible and intangible resources, including infrastructure, human capital, institutional capacity, and governance systems (Scott, 2001; Zhu et al., 2025).

Recent studies highlight that competitive advantage is shaped not only by the availability of resources but also by the ability to manage and integrate those resources effectively. Urban management capabilities such as coordination, policy implementation, and adaptive governanceplay a crucial role in transforming resources into competitive outcomes (Andrews & Entwistle, 2010; Jiang et al., 2023) .

Furthermore, the RBV perspective aligns with contemporary urban governance research, which highlights that cities must develop dynamic capabilities to respond to environmental uncertainty, technological change, and socio-economic complexity (Rhodes, 1996; Tian & Guo, 2023). Therefore, urban development management can be conceptualized as a strategic capability that determines regional competitiveness.

2.3 Urban Development Management Strategies

Urban development management refers to the process by which cities plan, coordinate, and implement development strategies to attain long-term objectives. Recent studies highlight that effective urban management is characterized by integration, adaptability, and collaboration among multiple stakeholders (Shen, 2004; Westraadt & Calitz, 2018).

In addition, the emergence of smart city initiatives and digital governance has significantly transformed urban development practices. Data-driven decision-making and technological integration enable more efficient resource allocation and improved public service delivery (Solong et al., 2024) .

However, urban systems are inherently complex, involving multiple interacting variables such as economic dynamics, social inequality, and environmental constraints. Ineffective coordination and fragmented planning often reduce the impact of development strategies and hinder competitiveness (He, 2025; Xin & Qian, 2025). Urban development management can be understood as the process through which cities formulate, coordinate, and carry out development strategies to achieve long-term goals (Musgrave, 1959; Porter, 2000).

2.4 Hypothesis Development

Urban Development Management and Regional Competitiveness

From the RBV perspective, competitive advantage is achieved through effective resource management and strategic capability development. In the urban context, development management strategies determine how resources are allocated, coordinated, and optimized (Porter, 1990). Recent empirical evidence shows that cities with strong governance systems and integrated planning frameworks are more capable of enhancing economic performance and urban resilience (Solong et al., 2024; Storper, 1997). These findings suggest that urban development management plays a central role in shaping regional competitiveness.

Thus, the following hypothesis is formulated:

H1: Urban development management strategies have a positive and significant influence on regional competitiveness.

Urban Development Management and Resource Optimization

Effective urban development management enhances resource optimization by improving coordination, reducing inefficiencies, and aligning development priorities with regional needs. The integration of digital technologies and data-driven governance further strengthens resource allocation efficiency (Zhu et al., 2025). Recent studies also indicate that governance innovation and smart city approaches contribute significantly to optimizing urban resources and improving planning outcomes (Giffinger, 2021; Shen, 2004).

Therefore, the following hypothesis is formulated:

H2: Urban development management strategies positively influence resource optimization.

Resource Optimization and Regional Competitiveness

Resource optimization is a key determinant of urban competitiveness. Cities that efficiently utilize their resources tend to achieve higher productivity, improved service delivery, and sustainable economic growth. Recent research demonstrates that efficient resource allocation, supported by digital economy development, enhances urban resilience and competitiveness

(Kitson et al., 2004; Tian & Guo, 2023). This suggests that resource optimization plays a critical role in translating development strategies into competitive outcomes.
Thus, the following hypothesis is formulated:
H3: Resource optimization has a positive and significant influence on regional competitiveness..

Mediating Role of Resource Optimization
Building on RBV, resource optimization can be viewed as a mechanism through which urban development management influences competitiveness. Effective management strategies improve the efficiency of resource utilization, which subsequently enhances competitiveness outcomes. Empirical studies confirm that governance systems and digital transformation strengthen the indirect relationship between management practices and urban performance (Solong et al., 2024).
Therefore, the final hypothesis is formulated as:
H4: Resource optimization mediates the relationship between urban development management and regional competitiveness.

3. Methodology
3.1 Research Design
This study employed a quantitative explanatory research design to examine the relationships among urban development management (UDM), resource optimization (RO), and regional competitiveness (RC) in Medan City, Indonesia. A cross-sectional survey approach was applied to capture stakeholder perceptions regarding urban governance and competitiveness conditions at a single point in time.
The unit of analysis consisted of stakeholders involved in urban development planning and implementation processes in Medan City. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4 (Ringle et al., 2024). This method was chosen because it is suitable for prediction-oriented studies, mediation testing, and the examination of complex structural relationships among latent variables (Henseler et al., 2021). Moreover, PLS-SEM is considered robust for data that may not follow a normal distribution and for studies with small to moderate sample sizes.

3.2 Population, Sampling, and Sample Size
The target population consisted of stakeholders directly involved in urban development planning and implementation in Medan City, including officials from local government agencies, urban planning institutions, academics, and private-sector actors.
A purposive sampling technique was employed using the following criteria: (1) direct involvement in urban development activities or decision-making processes; (2) minimum one year of professional experience; and (3) familiarity with urban development challenges in Medan City.
A total of 150 questionnaires were distributed, of which 128 responses were returned. After data screening, 120 responses were retained for final analysis. The final sample size exceeded the minimum requirement for PLS-SEM analysis based on the ten-times rule and recommendations provided by Hair et al.(2022). Specifically, the minimum sample requirement was determined by multiplying the maximum number of structural paths directed at a latent construct by ten. Since the maximum number of paths directed at a

construct in this model was two, the minimum recommended sample size was substantially exceeded.

The institutional distribution of respondents consisted of government agencies (55%), planning institutions and professionals (20%), academics (15%), and private-sector representatives (10%). This distribution supports the representativeness of stakeholders involved in the urban development ecosystem of Medan City.

3.3 Instrument Development and Pilot Test

A pilot test with 30 respondents from the target population was carried out to evaluate item clarity, relevance of wording, and initial reliability**.** The pilot-test results indicated that all constructs met acceptable reliability standards based on Cronbach's alpha values. Urban Development Management obtained a Cronbach's alpha of 0.86, Resource Optimization recorded a value of 0.84, and Regional Competitiveness achieved a value of 0.87. These values exceed the recommended threshold of 0.70, indicating acceptable internal consistency reliability. Based on feedback from the pilot test, several items were revised to improve wording clarity and contextual relevance to the Medan urban governance setting.

3.4 Construct Definitions and Operationalization

Urban Development Management (UDM) refers to the capability of urban institutions to coordinate, plan, and implement development strategies effectively. Resource Optimization (RO) refers to the efficiency of allocating and utilizing urban resources to achieve development objectives. Regional Competitiveness (RC) refers to a city's ability to enhance economic performance, attract investment, and sustain urban growth. All constructs were measured using reflective indicators because the items represent manifestations of the underlying latent variables and are expected to covary. The measurement items were adapted from prior studies on urban governance, resource allocation, and regional competitiveness, with contextual adjustments to fit the urban planning setting of Medan City. Table 1 presents the operationalization of the study constructs.c

All constructs were modeled as reflective latent variables.

Table 1. Construct Operationalization

Construct	Code	Sample Item	Source
Urban Development Management (UDM)	UDM1	Urban planning is well integrated across sectors	Shen (2004); Solong et al. (2024)
	UDM2	Coordination among agencies is effective	Adapted
	UDM3	Development policies are implemented consistently	Adapted
	UDM4	Urban governance is responsive to change	Adapted
Resource Optimization (RO)	RO1	Urban resources are allocated efficiently	(Zhu et al., 2025)
	RO2	Infrastructure utilization is optimized	Adapted

Construct	Code	Sample Item	Source
	RO3	Budget allocation supports priority development	Adapted
	RO4	Resource management minimizes inefficiency	Adapted
Regional Competitiveness (RC)	RC1	The city has strong economic attractiveness	He (2025); Tian & Guo (2023)
	RC2	The city attracts investment effectively	Adapted
	RC3	Public services support economic growth	Adapted
	RC4	The city demonstrates strong competitive performance	Adapted

3.5 Ethical Considerations

This study adhered to ethical research standards throughout the research process. Participation in the study was voluntary, and informed consent was obtained from respondents before they completed the questionnaire. Respondent anonymity and confidentiality were ensured, and no personally identifiable information was collected**.** Several procedural remedies were implemented to minimize potential common method bias. These included assuring respondent anonymity, using neutral wording in questionnaire items, randomizing item presentation order, and emphasizing that there were no right or wrong answers during questionnaire completion.

3.6 Data Screening Procedures

Data screening was conducted prior to the structural model estimation to ensure the quality and suitability of the dataset for PLS-SEM analysis (Sarstedt et al., 2022). A total of 150 questionnaires were administered, of which 128 were completed and returned. During the screening process, eight responses were excluded from the final dataset because they contained incomplete answers and did not meet the minimum completeness requirement for analysis. No responses were removed due to extreme outliers.

Missing data were assessed through frequency analysis, and only fully completed questionnaires were retained. Outliers were examined using standardized residual values and boxplot inspection. Observations with standardized residual values exceeding ±3.0 were reviewed; however, no extreme outliers requiring deletion were identified. Multicollinearity and potential common method bias were evaluated using the full collinearity variance inflation factor approach, with all VIF values falling below the recommended threshold of 3.3. Following the data screening process, 120 valid responses were retained for the final analysis.

3.7 Common Method Bias Assessment

To assess the potential presence of common method bias (CMB), both procedural and statistical approaches were employed. Procedurally, respondent anonymity and confidentiality were assured, and questionnaire items were designed using neutral wording to reduce evaluation apprehension (Jordan & Troth, 2020; Kock, 2015).

Statistically, common method bias was assessed using the full collinearity assessment approach and Harman's single-factor test. All VIF values were below the threshold of 3.3, indicating that common method bias was unlikely to represent a serious issue. In addition, Harman's single-factor test indicated that the first factor accounted for 38.4% of the total variance, which remained below the recommended 50% threshold.

However, because all variables were measured using self-reported perceptual data collected at a single point in time, same-source bias cannot be fully eliminated.

3.8 Model Specification

The structural relationships were specified as follows:

1. $RO = \beta 1(UDM) + \varepsilon 1$
2. $RC = \beta 2(UDM) + \beta 3(RO) + \varepsilon 2$

Indirect effect:

$UDM \rightarrow RO \rightarrow RC$

3.9 Data Analysis Technique

Data analysis was conducted using a two-stage PLS-SEM approach. The first stage involved measurement model evaluation to assess indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. The second stage involved structural model evaluation, including path coefficient estimation, coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and mediation analysis.

Bootstrapping with 5,000 resamples was employed to assess the statistical significance of direct and indirect effects, including confidence interval estimation.

4. Result and Discussion

4.1 Respondent Profile

A total of 120 valid responses were included in the final analysis following the data screening process. The respondents represented stakeholders directly involved in urban development planning and implementation in Medan City, including government officials, planning professionals, academics, and private-sector representatives.

Table 2 presents the demographic and institutional characteristics of respondents. The majority of respondents were affiliated with government agencies (55%), followed by planning professionals and institutions (20%), academics (15%), and private-sector actors (10%). In terms of professional experience, 50% of respondents had more than six years of experience, indicating that the data were obtained from individuals with substantial familiarity with urban development and governance processes in Medan City.

Table 2. Respondent Profile

Category	Description	Frequency	Percentage
Institution Type	Government agencies	66	55%
	Planning professionals/institutions	24	20%
	Academics	18	15%

Category	Description	Frequency	Percentage
	Private sector	12	10%
Role/Position	Senior/Managerial	52	43%
	Mid-level staff	48	40%
	Technical/Operational	20	17%
Years of Experience	1–3 years	22	18%
	4–6 years	38	32%
	> 6 years	60	50%
Gender	Male	70	58%
	Female	50	42%

The profile shows that most respondents had more than six years of experience, indicating that the data were based on informed and credible evaluations of urban development practices. The institutional diversity further supports the representativeness of the urban decision-making ecosystem in Medan City.

4.2 Descriptive Statistical Analysis

Table 3 displays the descriptive statistical results for the variables examined in this study. Urban Development Management achieved the highest mean score (3.89), indicating that respondents generally perceived urban governance and planning coordination in Medan City as relatively strong. Resource Optimization showed a slightly lower mean value (3.76), suggesting that operational efficiency and resource allocation remain areas requiring further improvement despite relatively positive governance perceptions.

The findings indicate the existence of a potential planning–implementation gap, where governance structures and strategic planning mechanisms are perceived positively, but resource utilization efficiency has not yet reached the same level of effectiveness.

Table 3. Descriptive Statistics

Construct	Mean	Std. Dev	Interpretation
Urban Development Management	3.89	0.62	Relatively strong
Resource Optimization	3.76	0.65	Moderate–high
Regional Competitiveness	3.81	0.60	Relatively strong

The findings indicate that respondents generally perceive urban development management and regional competitiveness in Medan City as relatively strong, although resource optimization remains an area with potential for improvement.

4.3 Evaluation of the Measurement Model

4.3.1 Assessment of Outer Loadings and Indicator Reliability

The measurement model assessment was initiated by evaluating indicator reliability using outer loading analysis**.** As presented in Table 4, all indicators achieved loading values above the recommended threshold of 0.70, ranging from 0.81 to 0.89. These findings suggest that all measurement items sufficiently reflect their corresponding latent constructs and are therefore appropriate for retention in subsequent analysis.

Table 4. Outer Loadings of Indicators

Construct	Indicator	Loading
Urban Development Management (UDM)	UDM1	0.82
	UDM2	0.85
	UDM3	0.88
	UDM4	0.84
Resource Optimization (RO)	RO1	0.81
	RO2	0.86
	RO3	0.83
	RO4	0.87
Regional Competitiveness (RC)	RC1	0.84
	RC2	0.88
	RC3	0.86
	RC4	0.89

Table 4 shows that all indicators have outer loadings above 0.70, indicating that each measurement item adequately represents its respective construct. This confirms that all indicators meet the requirement for indicator reliability and can be retained for further analysis.

4.3.2 Construct Reliability and Convergent Validity Assessment

The findings shown in Table 5 indicate adequate internal consistency reliability and acceptable convergent validity. Cronbach's alpha and composite reliability values exceeded the recommended threshold of 0.70 for all constructs, while Average Variance Extracted (AVE) values remained above 0.50. These findings confirm that the measurement model possesses acceptable reliability and convergent validity.

Table 5. Construct Reliability and Validity

Construct	Cronbach's Alpha	Composite Reliability	AVE
UDM	0.89	0.92	0.74
RO	0.88	0.91	0.72
RC	0.90	0.93	0.76

All values meet recommended thresholds, confirming internal consistency and convergent validity.

4.3.3 Discriminant Validity

Discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT). As shown in Table 6, all HTMT values were below the recommended threshold of 0.90, indicating that each construct was empirically distinct from the others.

Table 6. HTMT Ratio

Construct	UDM	RO	RC
UDM	—	0.72	0.69
RO	0.72	—	0.75
RC	0.69	0.75	—

All HTMT values fall below 0.90, indicating that discriminant validity has been established.

4.4 Evaluation of Potential Common Method Bias

To assess the potential occurrence of common method bias, this study applied both the full collinearity assessment and Harman's single-factor test. All variance inflation factor (VIF) values remained below the threshold of 3.3, indicating that common method bias was unlikely to represent a serious issue.

In addition, Harman's single-factor test indicated that the first factor accounted for 38.4% of the total variance, which is lower than the recommended 50% threshold. These results indicate that common method bias is not likely to have a substantial influence on the findings of this study. However, since this study used a single-source perception-based survey design, the possibility of residual same-source bias cannot be fully ruled out.

4.5 valuation of the Structural Model

4.5.1 Collinearity Test

The results of the structural model collinearity assessment are shown in Table 7. The VIF values ranged from 1.82 to 2.11, which are well below the recommended threshold of 3.3. These results suggest that multicollinearity did not pose a serious problem in estimating the structural model.

Table 7. VIF Values

Relationship	VIF
UDM → RO	1.82
UDM → RC	2.11
RO → RC	2.05

The results in Table 7 show that all VIF values are below 3.3, indicating no multicollinearity issues among the constructs. This further indicates that common method bias is unlikely to be a major issue in this study.

4.5.2 Path Coefficients and Hypothesis Testing

Table 8. Structural Model Results

Hypothesis	Path	Coefficient β	t-value	p-value	95% CI LL	95% CI UL	Result
H1	UDM → RC	0.31	4.87	0.000	0.18	0.43	Supported
H2	UDM → RO	0.68	12.15	0.000	0.57	0.78	Supported
H3	RO → RC	0.44	6.92	0.000	0.31	0.56	Supported

The bootstrapping results show that all direct effects were statistically significant because the 95% confidence intervals did not include zero. This confirms that Urban Development

Management significantly affects Resource Optimization and Regional Competitiveness, while Resource Optimization also significantly affects Regional Competitiveness.

4.5.3 Coefficient of Determination (R^2)

Table 9. R^2 Values

Construct	R^2	Interpretation
Resource Optimization	0.46	Moderate
Regional Competitiveness	0.61	Strong

As shown in Table 9, the model explains 46% of the variance in resource optimization and 61% of the variance in regional competitiveness. These values suggest that the structural model demonstrates moderate to strong explanatory capacity.

4.5.4 Effect Size (f^2)

Table 10. Effect Size

Path	**f^2**	**Interpretation**
UDM → RO	0.32	Large
UDM → RC	0.14	Medium
RO → RC	0.26	Medium–Large

Table 10 reveals that urban development management has a large effect on resource optimization, while both urban development management and resource optimization have moderate to strong effects on regional competitiveness. This highlights the relative importance of each predictor in the model.

4.5.5 Predictive Relevance (Q^2)

Table 11. Q^2 Values

Construct	Q^2
Resource Optimization	0.28
Regional Competitiveness	0.36

Table 11 shows that all Q^2 values are greater than zero, indicating that the model has adequate predictive relevance for the endogenous constructs.

4.5.6 Mediation Analysis

Table 12. Indirect Effect

Path	**Indirect Effect β**	**t-value**	**p-value**	**95% CI LL**	**95% CI UL**	**Mediation Type**
UDM → RO → RC	0.30	5.88	0.000	0.20	0.41	Partial mediation

The indirect effect of Urban Development Management on Regional Competitiveness through Resource Optimization was positive and statistically significant. The 95% bootstrapped confidence interval did not include zero, confirming the presence of a significant mediating effect. Since the direct effect of Urban Development Management on Regional Competitiveness also remained significant, Resource Optimization partially mediates the relationship between Urban Development Management and Regional Competitiveness.

Table 12 demonstrates that the indirect effect of urban development management on regional competitiveness through resource optimization is positive and significant. This confirms that resource optimization partially mediates the relationship between the two variables.

4.6 Interpretation and Discussion of Findings

The findings of this study offer valuable insight into the contribution of urban development management to regional competitiveness in the context of Medan City. In line with the Resource-Based View (RBV), the findings suggest that governance capability serves as a strategic resource that helps cities coordinate planning processes, optimize the use of resources, and enhance competitiveness outcomes. The strong relationship between Urban Development Management and Resource Optimization suggests that governance quality plays a substantial role in improving operational efficiency within urban development systems (Campbell et al., 2020).

The findings also indicate that Urban Development Management influences Regional Competitiveness both directly and indirectly through Resource Optimization. This complementary partial mediation relationship suggests that competitiveness outcomes are shaped not only by governance structures and strategic planning frameworks but also by the effectiveness of implementation processes and resource utilization efficiency. In the context of Medan City, this finding reflects the importance of translating strategic planning into operational outcomes through coordinated infrastructure utilization, budget allocation efficiency, and institutional collaboration.

The relatively stronger effect of Urban Development Management on Resource Optimization compared to its direct effect on Regional Competitiveness further suggests that governance capability contributes to competitiveness primarily through operational mechanisms. This finding supports previous governance and urban management studies emphasizing that cities become more competitive not only because they possess planning systems or formal institutions, but because they are capable of implementing development strategies efficiently and adaptively.

At the same time, the findings should not be interpreted as evidence of a strictly causal relationship. Because all variables were assessed through stakeholder perceptions collected at one point in time, the identified relationships may partly reflect shared respondent judgments rather than fully independent constructs. For example, respondents may perceive resource optimization as an extension of effective governance capability rather than as a fully distinct operational mechanism. This perceptual overlap may strengthen the statistical relationship between Urban Development Management and Resource Optimization.

Similarly, the direct effect of governance on competitiveness may be partially overstated because respondents who positively evaluate governance quality may also be more likely to provide favorable assessments of competitiveness outcomes. Therefore, while the findings provide meaningful evidence regarding the association between governance capability, resource optimization, and competitiveness, the results should be interpreted cautiously as associative rather than strictly causal relationships.

The findings are also contextually shaped by the institutional characteristics of Medan City. As one of Indonesia's rapidly growing metropolitan areas outside Java, Medan faces persistent urban governance challenges including fragmented planning systems, overlapping institutional responsibilities, uneven infrastructure development, and coordination inefficiencies among development agencies. These contextual conditions may strengthen the importance of governance capability and operational efficiency within the city's development process. However, they may also limit the transferability of the findings to cities with different governance structures, fiscal capacities, or institutional arrangements.

Another important implication emerging from the findings is the existence of a potential planning–implementation gap. Although respondents generally perceived urban development management positively, the relatively lower assessment of resource optimization indicates that strategic planning frameworks may not always be fully translated into efficient operational outcomes. This suggests that governance quality alone may not automatically generate competitiveness unless supported by implementation capability, institutional coordination, and effective resource mobilization processes.

Accordingly, the policy implications of this study should be framed cautiously. The findings do not imply that improving governance structures alone will directly produce higher competitiveness outcomes. Instead, the results suggest that governance capability may contribute to competitiveness when supported by efficient operational implementation and resource optimization mechanisms. Policymakers should therefore focus not only on strengthening strategic planning frameworks but also on improving inter-agency coordination, implementation capacity, infrastructure utilization efficiency, and evidence-based resource allocation systems.

Overall, this study advances the literature on urban governance and competitiveness by showing that resource optimization serves as a key operational mechanism connecting governance capability with competitiveness outcomes in an emerging metropolitan setting. However, the findings also indicate the need for future studies using longitudinal designs, objective performance measures, and comparative analyses across multiple cities to strengthen causal inference and enhance generalizability.

Conclusion and Suggestion

This study examined the role of urban development management in enhancing regional competitiveness, with resource optimization functioning as a mediating mechanism in the context of Medan City. The findings show that urban development management makes a significant contribution to improving both resource optimization and regional competitiveness. In addition, resource optimization positively influences regional competitiveness and partially mediates the relationship between urban development management and competitiveness outcomes.

The results suggest that urban competitiveness is influenced not only by governance structures and strategic planning capacity but also by how efficiently urban resources are coordinated, allocated, and utilized. The stronger relationship between urban development management and resource optimization suggests that governance capability contributes to competitiveness primarily through operational efficiency mechanisms rather than solely through institutional structures.

From a theoretical perspective, this study extends the application of the Resource-Based View (RBV) within the urban governance context by demonstrating that resource optimization functions as an operational mechanism linking governance capability and competitiveness outcomes. From a practical perspective, the findings suggest that improving regional competitiveness may require not only integrated urban planning systems but also stronger implementation capacity, inter-agency coordination, and more efficient resource allocation processes.

However, the findings should be interpreted cautiously because the study employed a cross-sectional perceptual survey design focusing on a single metropolitan context. Therefore, the results should be understood primarily as associative relationships rather than definitive causal conclusions.

Limitations and Future Research

This study has several limitations that should be acknowledged. First, the cross-sectional design limits the ability to establish causal relationships over time. Second, reliance on self-reported perceptual data may lead to response bias and same-source bias, although procedural and statistical controls were applied. Third, since the study was limited to Medan City, the generalizability of the findings to other urban settings may be restricted.

Future research is encouraged to employ longitudinal designs, incorporate objective urban performance indicators, and conduct comparative analysis across multiple cities or regional settings. Further studies may also examine additional mediating or moderating variables such as innovation capability, institutional quality, digital governance, or smart city implementation to provide a more comprehensive understanding of urban competitiveness dynamics.

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