



## **STRATEGIC LAND DEVELOPMENT MODEL FOR MALAY RESERVE LANDS (MRLs) IN MALAYSIA**

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### **Abstract**

There is currently no comprehensive strategic land development model to guide Bumiputera developers and landowners in developing Malay Reserve Lands (MRLs) in Malaysia. This study develops an evidence-based strategic land development model to support stakeholders involved in MRL development. A mixed-method approach is adopted, beginning with an inductive literature review to identify key success factors, followed by a questionnaire survey to empirically assess these factors. Quantitative data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) via SmartPLS 3 to evaluate the significance and strength of relationships among the constructs. The findings indicate that the establishment of research institutes exerts the strongest positive influence on strategic MRL development ( $\beta = 0.799$ ), followed by special financial institutions ( $\beta = 0.223$ ) and the enactment of a dedicated MRL Act ( $\beta = 0.146$ ). In contrast, Bumiputera land development units show a negative relationship ( $\beta = -0.151$ ), suggesting structural or implementation challenges. The proposed model provides a robust framework to inform policy formulation and enhance MRL development effectiveness in Malaysia.

**Keywords:** Strategic Land Development, Malay Reserve Land (MRL), Partial Least Squares Structural Equation Modeling (PLS-SEM)

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## **INTRODUCTION**

Malay Reserve Lands (MRLs), which are predominantly owned by Malays and Bumiputeras, represent a significant land resource with substantial potential to contribute to Malaysia's socio-economic development. MRLs play a crucial role in promoting equitable wealth distribution, supporting Bumiputera participation in the property sector, and ensuring inclusive urban and regional development. Despite this importance, many MRLs remain underdeveloped or inefficiently utilised, limiting their contribution to national development objectives. Previous studies have highlighted that structural, legal, financial, and institutional constraints continue to hinder the optimal development of these lands (Omar & Mohsen, 2020).

Although MRLs possess development potential comparable to non-MRL land, existing development strategies have largely been implemented in a fragmented and ad hoc manner. Prior research has emphasised the need for more comprehensive and coordinated strategies to guide MRL development (Rosman et al., 2021). Current approaches tend to focus on isolated policy instruments or institutional measures without integrating them into a holistic strategic framework. As a result, persistent challenges such as limited access to financing, weak institutional coordination, regulatory constraints, and insufficient technical expertise remain unresolved.

The literature indicates a clear absence of a dedicated strategic land development model specifically tailored to the unique legal, socio-economic, and institutional characteristics of MRLs. While several strategic measures have been proposed such as the establishment of research institutes, a specific MRL Act, Bumiputera land development units, and specialised financial institutions these initiatives have not been systematically assessed or integrated into a unified development model. Consequently, existing strategies often fail to achieve sustainable and effective outcomes. To address this gap, there is a critical need to identify the key success factors underpinning these strategies and to develop a holistic strategic land development model that can serve as a practical guideline for stakeholders involved in MRL development (Md. Azmi, 2021).

## **LITERATURE REVIEW**

The development of effective and sustainable strategies is essential to ensure the successful development of Malay Reserve Lands (MRLs) in Malaysia. Given the complex legal, institutional, and socio-economic characteristics of MRLs, the formulation of a holistic strategic framework must first be underpinned by clearly defined success factors. Identifying these factors enables policymakers and practitioners to understand why previous initiatives have produced limited outcomes and how future strategies can be strengthened. As highlighted by Md. Azmi (2021), the absence of an integrated strategic approach has resulted in

fragmented implementation and weak institutional coordination, thereby constraining the long-term viability of MRL development.

### **Success Factors for the Establishment of a Research Institute**

The establishment of a dedicated research institute has been widely identified as a critical enabler of strategic land development, particularly in addressing data gaps, technical limitations, and policy fragmentation. In the context of MRLs, research institutes serve as benchmarks and catalysts by providing evidence-based guidelines, standard operating procedures, and technical expertise to support informed decision-making (Nawawi & Rosman, 2021). Key success factors include clear guidelines and procedures, effective monitoring mechanisms, systematic evaluation of tasks, workforce diversity, and strong internal and external communication (Varjoranta, 2018; Abdul Hamid, 2020; Omar et al., 2020).

Recent literature also emphasises the importance of technological advancement and digital transformation in land governance, including the use of database management systems, integrated data coordination, and geospatial technologies to enhance transparency and efficiency (Sharif, 2022; Sahabuddin, 2019; World Bank Group, 2017). While existing land development models recognise the role of research and data, they often fail to institutionalise these functions within a dedicated entity, resulting in weak knowledge transfer and limited continuity. In the MRL context, this gap is particularly critical due to the unique legal restrictions and fragmented land ownership structures.

### **Success Factors for the Establishment of an MRL Act**

A specific MRL Act is widely regarded as fundamental to safeguarding Malay land ownership while facilitating development in a structured and consistent manner. The literature highlights that effective legal frameworks require alignment of procedures, clear structural and content dimensions, regular evaluation, and strong inter-agency cooperation (Abdul Wahid, 2013; Varjoranta, 2018). Political stability and sustained government intervention further influence the effectiveness of land-related legislation, particularly in countries with plural legal systems such as Malaysia (Gudiene et al., 2014; Tsiga et al., 2016).

However, existing land development models tend to rely on general planning or land acquisition laws, which are often ill-suited to address the specific constraints of MRLs. The lack of uniformity across state enactments, inconsistent enforcement of replacement provisions, and limited integration of MRL issues into high-level policy agendas have weakened past initiatives (Omar & Mohsen, 2020). This highlights the need for a dedicated MRL Act supported by comprehensive guidelines and strong enforcement mechanisms to ensure both protection and development objectives are achieved.

### **Success Factors for the Establishment of a Bumiputera Development Unit**

The establishment of a Bumiputera development unit is intended to strengthen institutional capacity and provide targeted support for MRL development projects. Key success factors identified in the literature include effective project team cooperation, feasibility assessments, skills upgrading, innovation, and the adoption of sustainable development principles (Tsiga et al., 2016; United Nations, 2021). Strategic approaches such as joint ventures, smart partnerships between public and private sectors, and comprehensive infrastructure provision have also been highlighted as important mechanisms to unlock MRL development potential (Omar, 2017).

Despite these strengths, existing development units often suffer from overlapping roles, limited authority, and insufficient technical expertise, which reduce their effectiveness. Many conventional land development models assume streamlined ownership and financing structures, making them less applicable to MRLs, where multiple stakeholders and legal restrictions complicate implementation. This underscores the need for a clearly defined and well-coordinated Bumiputera development unit within a broader strategic framework.

### **Success Factors for the Establishment of a Special Financial Institution for MRLs**

Access to financing remains one of the most significant barriers to MRL development. The literature consistently highlights the importance of specialised financial institutions in strengthening Bumiputera purchasing power, providing development funds, and offering financial incentives tailored to the unique characteristics of MRL projects (Omar & Mohsen, 2020; Aliasak, 2018; Saleh et al., 2025). Government support, innovative financial models, and the integration of Islamic financial structures are particularly relevant within the Malaysian context (Carol, 2022; Kementerian Kewangan Malaysia, 2020).

While conventional land development models often rely on commercial banking systems, these systems tend to perceive MRLs as high-risk due to legal restrictions and limited marketability. As a result, existing financial strategies frequently fail to optimise the value of MRLs located in strategic areas. A dedicated financial institution with tailored policies and procedures is therefore essential to bridge this gap and enable inclusive and sustainable MRL development.

### **Synthesis and Research Gap**

Overall, the literature demonstrates that while individual strategies and institutional mechanisms have been proposed to support MRL development, they are often implemented in isolation and lack integration within a coherent strategic model. Existing land development frameworks inadequately address the legal, institutional, and financial complexities unique to MRLs, resulting in persistent

underdevelopment. This study addresses this critical gap by systematically identifying and assessing the success factors underpinning these strategies and integrating them into a comprehensive strategic land development model for MRLs in Malaysia.

## **RESEARCH METHODOLOGY**

At the outset, in accordance with objective one, success factors were identified through an in-depth literature review. Objective two of this research is to assess the key success factors in strategic land development of MRLs. In order to achieve this objective, the research instrument used is the questionnaire which involves close-ended and open-ended questions. The questionnaire was designed to obtain primary data from the targeted perspective respondents consisting of academics, government officers, industry players, and Non-Governmental Organisations (NGOs). The distribution of this questionnaire was aimed at getting the expert opinions regarding the success factors that need to be considered in the development of MRLs. A survey was performed on ninety-one (91) experts in MRL field to reflect all the procedures of the main study. The PLS-SEM approach was used in the assessment of internal consistency of the variables and to gauge the development of a model of strategic land development for MRLs. Objective three is to develop a strategic land development model for MRLs. The researcher has used the Partial Least Squares Structural Equation Modeling (PLS-SEM) method to develop the model. Upon construction of the model, the researcher will proceed with semi-structured interviews with experts for the purpose of validating the model that has been developed.

This study adopts a mixed-method research design that integrates qualitative and quantitative approaches to comprehensively address the research objectives. The mixed-method approach is appropriate for studies that involve both the exploration of constructs and the empirical assessment of relationships among variables, as it enhances methodological rigor through triangulation (Creswell & Plano Clark, 2018). In this research, the qualitative phase through an in-depth literature review was used to identify potential success factors influencing the strategic development of Malay Reserve Lands (MRLs). This was followed by a quantitative survey to empirically assess the significance and interrelationships of these factors, thereby supporting theory development and model construction.

To achieve the second research objective, a structured questionnaire consisting of close-ended and open-ended questions was developed to collect primary data from key stakeholders involved in MRL development, including academics, government officers, industry practitioners, and representatives of Non-Governmental Organisations (NGOs). A purposive sampling technique was employed to ensure that respondents possessed relevant expertise and experience related to MRLs. A total of ninety-one (91) valid responses were obtained. This

sample size is considered adequate for Partial Least Squares Structural Equation Modelling (PLS-SEM), which is well suited for studies with relatively small to medium sample sizes and complex models (Hair et al., 2019). In addition, the sample satisfies the “ten-times rule”, whereby the minimum sample size should be at least ten times the maximum number of structural paths directed at any construct in the model (Hair et al., 2017).

PLS-SEM was selected as the primary analytical technique due to its suitability for exploratory research, prediction-oriented studies, and theory development. Unlike covariance-based SEM, PLS-SEM has fewer distributional assumptions and is robust when dealing with non-normal data and formative or complex constructs (Hair et al., 2017; Sarstedt et al., 2017). In this study, PLS-SEM was used to assess the measurement model in terms of internal consistency reliability and construct validity, as well as the structural model through path coefficient analysis, thereby enabling the development of a strategic land development model for MRLs.

For the third research objective, the proposed strategic land development model was subsequently validated through semi-structured interviews with selected experts. This qualitative validation phase provided deeper insights into the practicality, relevance, and feasibility of the model, ensuring that the proposed framework is grounded in real-world MRL development practices (Yin, 2018).

## **ANALYSIS AND DISCUSSION**

This section will discourse in detail the analysis of data and present the results of the research involving the qualitative and quantitative methods of analysis. The analyses of primary data are based on the objectives to be achieved by using several analytical methods such as thematic analysis and SmartPLS 3 software for Partial Least Square Structural Equation Modeling (PLS-SEM) to assess the development of the model.

### ***Inductive Literature Review and Thematic Analysis***

The researcher uses inductive literature review as a method in identifying success factors for the proposed MRL development strategy. Table 1 below displays the success factors that have been identified for each MRL development strategy that has been formulated.

**Table 1: Success Factors Related to Strategic Land Development for MRLs**

| <b>Proposed Strategy</b>                                            | <b>Success Factors</b>                                             | <b>Coding</b> |
|---------------------------------------------------------------------|--------------------------------------------------------------------|---------------|
| <b>Establishment of Malay Reserve Land Research (MRL) Institute</b> | 1) Guidelines and Procedures                                       | RI1           |
|                                                                     | 2) Monitoring                                                      | RI2           |
|                                                                     | 3) Evaluating                                                      | RI3           |
|                                                                     | 4) Workforce Diversity                                             | RI4           |
|                                                                     | 5) Communication                                                   | RI5           |
|                                                                     | 6) Partnership Project                                             | RI6           |
|                                                                     | 7) Organizational Agility                                          | RI7           |
|                                                                     | 8) Collaboration and Cooperation                                   | RI8           |
|                                                                     | 9) Technological Development                                       | RI9           |
|                                                                     | 10) Digital Transformation                                         | RI10          |
|                                                                     | 11) Database Management System                                     | RI11          |
|                                                                     | 12) Coordination Data and Information.                             | RI12          |
|                                                                     | 13) Knowledge                                                      | RI13          |
|                                                                     | 14) Experience                                                     | RI14          |
|                                                                     | 15) Technical Capabilities                                         | RI15          |
|                                                                     | 16) Quality of Research                                            | RI16          |
| <b>Establishment of Malay Reserve Land (MRL) Act</b>                | 1) Evaluating the Current Issues of MRL at State and Federal Level | ACT1          |
|                                                                     | 2) Aligning Procedures                                             | ACT2          |
|                                                                     | 3) Content Dimension                                               | ACT3          |
|                                                                     | 4) Structure Alignment                                             | ACT4          |
|                                                                     | 5) Political Stability                                             | ACT5          |
|                                                                     | 6) Government Intervention                                         | ACT6          |
|                                                                     | 7) Agenda at a Meeting of the Malay Rulers                         | ACT7          |
|                                                                     | 8) Uniformity of the Act and Enactment                             | ACT8          |
|                                                                     | 9) Enforcement of MRL Replacement                                  | ACT9          |
|                                                                     | 10) Collaboration                                                  | ACT10         |
|                                                                     | 11) National Level Coordination                                    | ACT11         |
|                                                                     | 12) Protect the Ownership Status                                   | ACT12         |
| <b>Establishment of Bumiputera Land Development Unit</b>            | 1) Cooperation                                                     | BLDU1         |
|                                                                     | 2) Feasibility Research                                            | BLDU2         |
|                                                                     | 3) Up-skilling and Retraining                                      | BLDU3         |
|                                                                     | 4) Sustainable Development.                                        | BLDU4         |
|                                                                     | 5) Highest and Best Use                                            | BLDU5         |
|                                                                     | 6) Potential Development                                           | BLDU6         |
|                                                                     | 7) Joint Venture Project                                           | BLDU7         |
|                                                                     | 8) Infrastructure Development                                      | BLDU8         |
|                                                                     | 9) Management Competencies                                         | BLDU9         |
|                                                                     | 10) Ownership Right                                                | BLDU10        |
|                                                                     | 11) Evaluate of Plan Implementation                                | BLDU11        |
|                                                                     | 12) Innovativeness of the Project                                  | BLDU12        |
|                                                                     | 13) Coordination of Land Development                               | BLDU13        |
|                                                                     | 14) Comprehensive Development Proposal                             | BLDU14        |

| Proposed Strategy                                     | Success Factors                                              | Coding |
|-------------------------------------------------------|--------------------------------------------------------------|--------|
| <b>Establishment of Special Financial Institution</b> | 1) Strengthen the Purchasing Power of the Bumiputera.        | SFI1   |
|                                                       | 2) Provide Incentives to Encourage Innovation of Development | SFI2   |
|                                                       | 3) Potential Development                                     | SFI3   |
|                                                       | 4) Provide Funds for the Development                         | SFI4   |
|                                                       | 5) Government Support                                        | SFI5   |
|                                                       | 6) Financial Model                                           | SFI6   |
|                                                       | 7) Financial Incentives for Developer                        | SFI7   |
|                                                       | 8) Optimize the Value of MRL                                 | SFI8   |
|                                                       | 9) Financial Sources                                         | SFI9   |
|                                                       | 10) Financial Policies and Procedures                        | SFI10  |
|                                                       | 11) Islamic Financial Structure                              | SFI11  |

### ***Partial Least Squares Structural Equation Modeling (PLS-SEM) Approach using SmartPLS 3 Software***

#### ***Convergent Validity using Redundancy Analysis (Path Coefficients)***

Redundancy analysis results (Table 2) show that the establishment of a research institute has the highest path coefficient (0.799), exceeding the recommended threshold of 0.700 and confirming adequate convergent validity. Consistent with Hair et al. (2017), coefficients above 0.60 are acceptable in exploratory research. In contrast, the path coefficients for the establishment of a special financial institution (0.223), the enactment of an MRL Act (0.146), and the establishment of a Bumiputera Land Development Unit (−0.151) fall below acceptable levels, indicating insufficient convergent validity. These findings suggest that the formative indicators require theoretical and conceptual refinement. Overall, the results highlight the establishment of a research institute as a key strategic factor in strengthening Malay Reserve Land development in Malaysia.

**Table 2:** Path Coefficients

| Construct                        | Convergent Validity |
|----------------------------------|---------------------|
| Act                              | 0.146               |
| Bumiputera Land Development Unit | -0.151              |
| Special Financial Institution    | 0.223               |
| Research Institute               | 0.799               |

#### ***Collinearity Using Variance Inflation Factor (VIF) Analysis***

Collinearity was assessed using the Variance Inflation Factor (VIF). VIF values below 5 indicate no critical collinearity issues in formative constructs (Hair et al., 2017). Indicators with VIF values above 10 may be removed, provided that content and nomological validity are maintained (Hair et al., 2022). The results (Table 3) show that four indicators exceeded the threshold and were removed: RI11 (13.818), RI12 (11.352), RI14 (11.740), and SFI10 (12.910). Only 7% of

indicators were deleted, indicating that collinearity was effectively controlled without compromising model validity.

**Table 3:** Collinearity Statistics (VIF)

| Constructs                       | Formative Indicators | VIF    | Action   |
|----------------------------------|----------------------|--------|----------|
| Act                              | ACT1                 | 3.581  | Maintain |
|                                  | ACT10                | 5.576  | Maintain |
|                                  | ACT11                | 7.037  | Maintain |
|                                  | ACT12                | 5.366  | Maintain |
|                                  | ACT2                 | 3.212  | Maintain |
|                                  | ACT3                 | 9.322  | Maintain |
|                                  | ACT4                 | 7.297  | Maintain |
|                                  | ACT5                 | 2.548  | Maintain |
|                                  | ACT6                 | 3.405  | Maintain |
|                                  | ACT7                 | 3.404  | Maintain |
|                                  | ACT8                 | 4.363  | Maintain |
|                                  | ACT9                 | 3.533  | Maintain |
| Bumiputera Land Development Unit | BLDU1                | 3.769  | Maintain |
|                                  | BLDU10               | 2.718  | Maintain |
|                                  | BLDU11               | 4.912  | Maintain |
|                                  | BLDU12               | 5.992  | Maintain |
|                                  | BLDU13               | 6.714  | Maintain |
|                                  | BLDU14               | 6.793  | Maintain |
|                                  | BLDU2                | 4.009  | Maintain |
|                                  | BLDU3                | 3.252  | Maintain |
|                                  | BLDU4                | 5.282  | Maintain |
|                                  | BLDU5                | 3.777  | Maintain |
|                                  | BLDU6                | 6.786  | Maintain |
|                                  | BLDU7                | 4.368  | Maintain |
|                                  | BLDU8                | 4.181  | Maintain |
|                                  | BLDU9                | 5.419  | Maintain |
| Special Financial Institution    | SFI1                 | 3.303  | Maintain |
|                                  | SFI10                | 12.91  | Removed  |
|                                  | SFI11                | 6.612  | Maintain |
|                                  | SFI2                 | 6.832  | Maintain |
|                                  | SFI3                 | 5.852  | Maintain |
|                                  | SFI4                 | 5.860  | Maintain |
|                                  | SFI5                 | 3.313  | Maintain |
|                                  | SFI6                 | 7.404  | Maintain |
|                                  | SFI7                 | 2.940  | Maintain |
|                                  | SFI8                 | 6.479  | Maintain |
|                                  | SFI9                 | 6.988  | Maintain |
| Research Institute               | RI1                  | 3.597  | Maintain |
|                                  | RI10                 | 4.626  | Maintain |
|                                  | RI11                 | 13.818 | Removed  |
|                                  | RI12                 | 11.352 | Removed  |
|                                  | RI13                 | 8.262  | Maintain |

| Constructs | Formative Indicators | VIF   | Action   |
|------------|----------------------|-------|----------|
|            | RI14                 | 11.74 | Removed  |
|            | RI15                 | 5.075 | Maintain |
|            | RI16                 | 5.445 | Maintain |
|            | RI2                  | 5.536 | Maintain |
|            | RI3                  | 4.157 | Maintain |
|            | RI4                  | 4.250 | Maintain |
|            | RI5                  | 4.023 | Maintain |
|            | RI6                  | 5.376 | Maintain |
|            | RI7                  | 3.742 | Maintain |
|            | RI8                  | 4.639 | Maintain |
|            | RI9                  | 4.834 | Maintain |

#### ***Measurement Properties for Formative Construct***

The results presented in Table 4 and Figure 1 indicate that the **best** strategy construct demonstrates the strongest convergent validity, with a path coefficient of 0.900. This suggests a high degree of alignment among its formative indicators. The establishment of a research institute follows with a substantial path coefficient of 0.776, indicating strong internal consistency and confirming its strategic importance in MRL development. In contrast, the establishment of a special financial institution for MRLs (0.168), the enactment of an MRL Act (0.144), and the establishment of Bumiputera land development units (0.054) record relatively weak path coefficients. Convergent validity reflects the extent to which indicators of a construct are closely related to one another, while remaining distinct from unrelated constructs (Streiner et al., 2015). In exploratory research, path coefficients above 0.600 are considered acceptable (Hair et al., 2017); therefore, constructs with coefficients below this threshold suggest limited interrelationships among their formative indicators.

For the MRL Act construct, the outer weight results show that ACT7 (0.489) and ACT2 (0.231) are the most influential indicators, emphasising the importance of strengthening governance mechanisms and aligning existing development procedures. This finding is consistent with Md Azmi (2021), who highlights the need to reinforce institutional control to safeguard Malay privileges and address governance weaknesses in MRL administration. Conversely, ACT10, which relates to inter-agency cooperation, records the lowest contribution (−0.034), reflecting persistent coordination challenges. Previous studies have similarly stressed the lack of uniformity and collaboration among stakeholders involved in MRL development (Nawawi & Rosman, 2021).

With respect to the Bumiputera land development unit construct, feasibility studies (BLDU2 = 0.357) emerge as the most critical indicator, underscoring the importance of informed decision-making prior to development. This aligns with Mukherjee and Roy (2017), who argue that feasibility analysis is essential for project selection and risk mitigation. Joint venture arrangements

(BLDU7 = 0.293) also contribute meaningfully, supporting Omar's (2017) recommendation that collaborative development between landowners and developers enhances development viability. In contrast, coordination of approval standards (BLDU13 = 0.048) and infrastructure provision (BLDU8 = 0.000) are perceived as less influential, suggesting that these factors are secondary unless directly linked to market demand and development potential (Omar & Raji, 2015).

The research institute construct exhibits strong indicator contributions related to organisational capability. The most influential indicator is RI7, which highlights the importance of effective organisational management, consistent with Varjoranta (2018), who emphasises organisational agility as a key driver of institutional performance. Clear guidelines and procedures (RI1 = 0.425) are also identified as critical, echoing findings from the Auditor General's Report (2019) on the need for clearer administrative frameworks in land governance. However, indicators related to monitoring (RI2) and communication (RI5) show weak contributions, reflecting persistent administrative and record-keeping challenges noted in previous studies (Md Azmi, 2021).

Finally, for the special financial institution construct, the provision of core capital and financing mechanisms (SFI4 = 0.604; SFI9 = 0.492) emerges as the most significant success factor. This supports Omar's (2020) assertion that inadequate access to capital remains a major constraint on the development of Malay-owned land. In contrast, incentives, grants, and subsidies (SFI2 and SFI5) contribute less to the construct, reinforcing the view that structural financing solutions, rather than short-term assistance, are more effective in addressing long-standing financial barriers in MRL development (Nawawi & Rosman, 2021).

**Table 4:** Measurement Properties for Formative Construct

| Constructs                       | Indicators    | Convergent Validity | Weights       | VIF          | T-Value Weights | P Values     |
|----------------------------------|---------------|---------------------|---------------|--------------|-----------------|--------------|
| Act                              | ACT1          | 0.144               | 0.192         | 3.581        | 0.835           | 0.404        |
|                                  | <b>ACT10</b>  |                     | <b>-0.034</b> | <b>5.576</b> | <b>0.120</b>    | <b>0.904</b> |
|                                  | ACT11         |                     | 0.220         | 7.037        | 0.700           | 0.484        |
|                                  | ACT12         |                     | -0.132        | 5.366        | 0.467           | 0.641        |
|                                  | <b>ACT2</b>   |                     | <b>0.231</b>  | <b>3.212</b> | <b>1.157</b>    | <b>0.248</b> |
|                                  | ACT3          |                     | 0.145         | 9.322        | 0.432           | 0.666        |
|                                  | ACT4          |                     | 0.069         | 7.297        | 0.213           | 0.831        |
|                                  | ACT5          |                     | -0.198        | 2.548        | 0.875           | 0.382        |
|                                  | ACT6          |                     | -0.201        | 3.405        | 0.828           | 0.408        |
|                                  | <b>ACT7</b>   |                     | <b>0.489</b>  | <b>3.404</b> | <b>1.851</b>    | <b>0.065</b> |
| Bumiputera Land Development Unit | ACT8          | 0.054               | 0.228         | 4.363        | 0.866           | 0.387        |
|                                  | ACT9          |                     | -0.039        | 3.533        | 0.166           | 0.868        |
|                                  | BLDU1         |                     | 0.133         | 3.769        | 0.472           | 0.637        |
|                                  | BLDU10        |                     | -0.101        | 2.718        | 0.432           | 0.666        |
|                                  | BLDU11        |                     | 0.105         | 4.912        | 0.369           | 0.712        |
|                                  | BLDU12        |                     | 0.173         | 5.992        | 0.477           | 0.634        |
|                                  | <b>BLDU13</b> |                     | <b>0.048</b>  | <b>6.714</b> | <b>0.117</b>    | <b>0.907</b> |
|                                  | BLDU14        |                     | -0.263        | 6.793        | 0.788           | 0.431        |

| Constructs                    | Indicators   | Convergent Validity | Weights       | VIF          | T-Value Weights | P Values     |
|-------------------------------|--------------|---------------------|---------------|--------------|-----------------|--------------|
|                               | <b>BLDU2</b> |                     | <b>0.357</b>  | <b>4.009</b> | <b>1.133</b>    | <b>0.258</b> |
|                               | BLDU3        |                     | 0.192         | 3.252        | 0.778           | 0.437        |
|                               | BLDU4        |                     | 0.082         | 5.282        | 0.249           | 0.803        |
|                               | BLDU5        |                     | -0.218        | 3.777        | 0.662           | 0.508        |
|                               | BLDU6        |                     | 0.209         | 6.786        | 0.710           | 0.478        |
|                               | <b>BLDU7</b> |                     | <b>0.293</b>  | <b>4.368</b> | <b>0.965</b>    | <b>0.335</b> |
|                               | <b>BLDU8</b> |                     | <b>0.000</b>  | <b>4.181</b> | <b>0.001</b>    | <b>0.999</b> |
|                               | BLDU9        |                     | 0.074         | 5.419        | 0.231           | 0.817        |
| Research Institute            | <b>RI1</b>   | 0.776               | <b>0.425</b>  | <b>3.470</b> | <b>1.838</b>    | <b>0.067</b> |
|                               | RI10         |                     | 0.030         | 4.226        | 0.126           | 0.900        |
|                               | RI13         |                     | 0.202         | 3.594        | 0.673           | 0.501        |
|                               | RI15         |                     | 0.339         | 4.222        | 1.312           | 0.190        |
|                               | RI16         |                     | 0.145         | 4.226        | 0.672           | 0.502        |
|                               | <b>RI2</b>   |                     | <b>-0.028</b> | <b>5.084</b> | <b>0.112</b>    | <b>0.911</b> |
|                               | RI3          |                     | 0.115         | 4.035        | 0.412           | 0.680        |
|                               | RI4          |                     | 0.220         | 3.385        | 1.119           | 0.264        |
|                               | <b>RI5</b>   |                     | <b>-0.012</b> | <b>3.389</b> | <b>0.050</b>    | <b>0.960</b> |
|                               | RI6          |                     | 0.168         | 3.088        | 0.974           | 0.330        |
|                               | <b>RI7</b>   |                     | <b>-0.517</b> | <b>3.150</b> | <b>2.327</b>    | <b>0.020</b> |
|                               | RI8          |                     | 0.110         | 3.536        | 0.683           | 0.495        |
| Special Financial Institution | RI9          |                     | -0.148        | 4.663        | 0.497           | 0.620        |
|                               | SFI1         | 0.168               | -0.290        | 3.153        | 1.021           | 0.308        |
|                               | SFI11        |                     | -0.172        | 4.527        | 0.491           | 0.624        |
|                               | <b>SFI2</b>  |                     | <b>-0.108</b> | <b>6.569</b> | <b>0.265</b>    | <b>0.791</b> |
|                               | SFI3         |                     | 0.448         | 5.126        | 1.306           | 0.192        |
|                               | <b>SFI4</b>  |                     | <b>0.604</b>  | <b>5.036</b> | <b>1.613</b>    | <b>0.107</b> |
|                               | <b>SFI5</b>  |                     | <b>0.100</b>  | <b>3.273</b> | <b>0.343</b>    | <b>0.732</b> |
|                               | SFI6         |                     | 0.223         | 7.073        | 0.663           | 0.507        |
|                               | SFI7         |                     | -0.214        | 2.929        | 0.965           | 0.335        |
|                               | SFI8         |                     | -0.151        | 6.478        | 0.501           | 0.617        |
| Best Strategy                 | <b>SFI9</b>  |                     | <b>0.492</b>  | <b>4.832</b> | <b>1.687</b>    | <b>0.092</b> |
|                               | <b>BS1</b>   | 0.900               | <b>0.775</b>  | <b>1.831</b> | <b>3.094</b>    | <b>0.002</b> |
|                               | BS2          |                     | 0.264         | 1.823        | 1.238           | 0.216        |
|                               | BS3          |                     | -0.160        | 1.831        | 0.757           | 0.450        |
|                               | BS4          |                     | 0.247         | 1.728        | 0.955           | 0.340        |

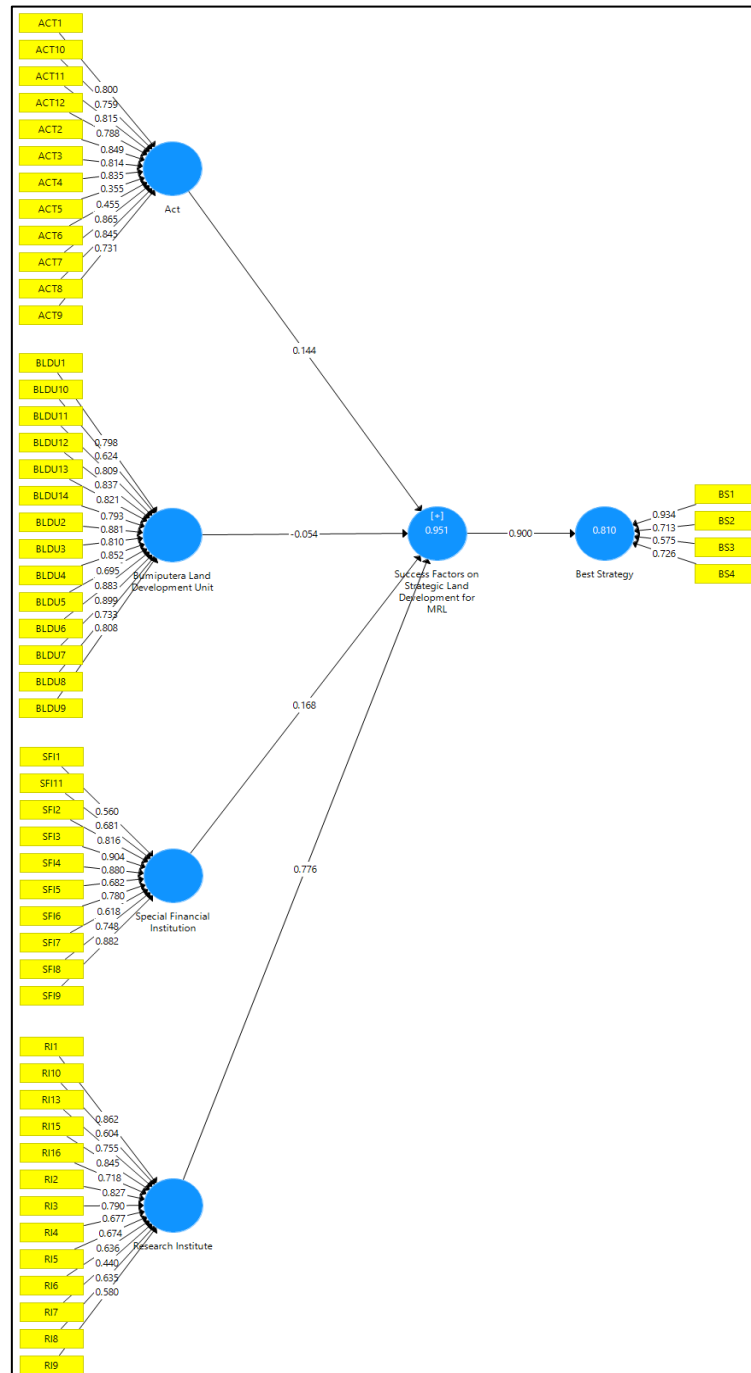


**Figure 1:** Output of Outer Loading, Path Coefficients and R-Square

### Collinearity Assessment Inner VIF Values

Table 5 shows that all inner VIF values are below the threshold of 5, indicating no critical collinearity issues. The MRL Act (2.982), Bumiputera land development unit (3.400), research institute (3.329), and special financial institution (2.995) all fall within acceptable limits. Consistent with Hair et al. (2017), collinearity does not affect the estimation of the PLS-SEM model.

**Table 5:** Inner VIF Values

| Construct                        | Inner VIF Value |
|----------------------------------|-----------------|
| Act                              | 2.982           |
| Bumiputera Land Development Unit | 3.400           |
| Research Institute               | 3.329           |
| Special Financial Institution    | 2.995           |

### Significance and Relevance of Path Coefficients

Figure 2 shows that only the research institute construct has a strong and meaningful relationship with the success factors of strategic Malay Reserve Land (MRL) development, with a path coefficient of 0.776. This indicates a substantial influence on the structural model. The special financial institution construct records the second-highest coefficient (0.168), followed by the MRL Act (0.144). In contrast, the Bumiputera land development unit shows a weak and negative relationship ( $-0.055$ ). Overall, the findings confirm that the establishment of a research institute is the most significant construct influencing the success of strategic MRL development.

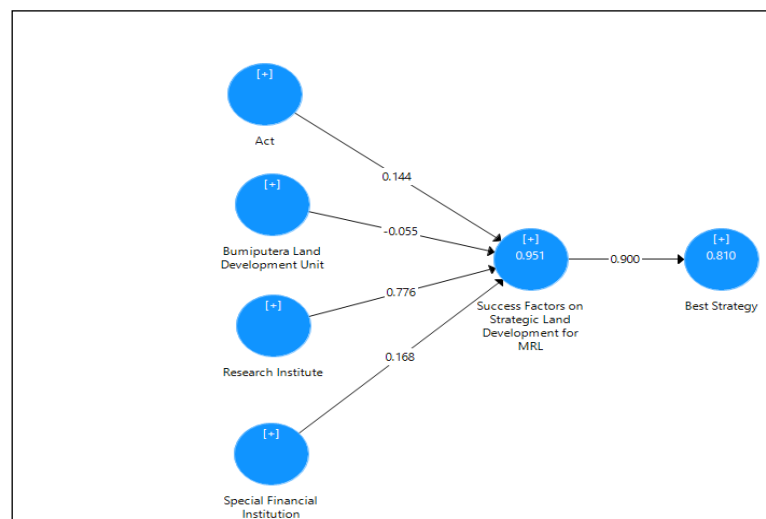


**Figure 2:** Structural Model of Strategic Land Development for Malay Reserve Lands (MRLs)

### ***Level of R<sup>2</sup> of Endogenous Latent Variables***

Table 6 shows that the R<sup>2</sup> values for the endogenous constructs are high. The success factors for strategic Malay Reserve Land (MRL) development record an R<sup>2</sup> of 0.951, while the best strategy construct records an R<sup>2</sup> of 0.810. These values indicate strong predictive accuracy, explaining 95% and 81% of the variance, respectively. R<sup>2</sup> reflects a model's explanatory power (Hair et al., 2021). According to established guidelines, R<sup>2</sup> values above 0.75 are considered substantial, values around 0.50 are moderate, and values around 0.25 are weak (Hair et al., 2014). Therefore, the proposed model demonstrates substantial explanatory power.

**Table 6:** Level of R-Square (R<sup>2</sup>) of Endogenous Latent Variables

| Endogenous Latent Variables                           | R Square | R Square Adjusted |
|-------------------------------------------------------|----------|-------------------|
| Best Strategy                                         | 0.810    | 0.808             |
| Success Factors on Strategic Land Development for MRL | 0.951    | 0.949             |

### ***Effect Size f<sup>2</sup> of Path Coefficients***

Table 7 presents the effect sizes (f<sup>2</sup>) of the exogenous constructs. The MRL Act (f<sup>2</sup> = 0.141) and special financial institution (f<sup>2</sup> = 0.191) show moderate effects on the model, as their values exceed the 0.15 threshold. In contrast, the Bumiputera land development unit records a negligible effect (f<sup>2</sup> < 0.02), indicating that its removal would not affect the model. The research institute construct demonstrates a strong effect (f<sup>2</sup> > 0.35), confirming its substantial influence on the model.

**Table 7:** Effects Size F-Square (f<sup>2</sup>) of Path Coefficients

|                                  |       |
|----------------------------------|-------|
| Act                              | 0.141 |
| Bumiputera Land Development Unit | 0.018 |
| Research Institute               | 3.678 |
| Special Financial Institution    | 0.191 |

### ***Effect Size Q<sup>2</sup> of Path Coefficients***

Table 8 shows that Q<sup>2</sup> values greater than zero indicate predictive relevance of the exogenous constructs for the endogenous constructs. As a guideline, Q<sup>2</sup> values of 0.02, 0.15, and 0.35 represent small, medium, and large predictive relevance, respectively. The results indicate that success factors for strategic MRL development (Q<sup>2</sup> = 0.447) and best strategy (Q<sup>2</sup> = 0.343) exhibit strong predictive relevance. These findings confirm the model's high predictive capability.

**Table 8:** Construct Cross Validated Redundancy

|                                  | SSO  | SSE     | Q <sup>2</sup> (=1-SSE/SSO) |
|----------------------------------|------|---------|-----------------------------|
| MRL Act                          | 1092 | 1092    |                             |
| Best Strategy                    | 364  | 239.217 | 0.343                       |
| Bumiputera Land Development Unit | 1274 | 1274    |                             |
| Research Institute               | 1183 | 1183    |                             |
| Special Financial Institution    | 910  | 910     |                             |

## CONCLUSION

This research developed and validated a strategic land development model for Malay Reserve Lands (MRLs) in Malaysia by identifying and empirically assessing the key success factors influencing effective implementation. Employing a mixed-method approach that combined an inductive literature review with Partial Least Squares Structural Equation Modeling (PLS-SEM), the study addresses a critical gap in the literature by offering a structured and evidence-based framework for MRL development. From a policy and practice perspective, the findings suggest that priority should be given to strengthening institutional coordination through a centralised research-driven mechanism, supported by aligned financial and legal instruments. Future research is encouraged to pilot-test the proposed model in actual MRL development projects and to examine its applicability across different state jurisdictions, development scales, and land-use contexts to enhance its generalisability and practical relevance.

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