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Digital Readiness Assessment in Islamic Higher Education Institutions with Operationalized BIMAS Framework

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Abstract— Background: Digital readiness (DR) has become a critical prerequisite for effective digital transformation (DT), particularly as institutions face increasing demands for digital governance, quality assurance, and institutional resilience. These challenges are especially evident in Islamic Higher Education Institutions (IHEIs), where digital transformation must align with regulatory and value-based frameworks. **Objective**: The purpose of this research is to construct and operationalize the BIMAS framework, comprising Business Model, Infrastructure and Technology, Management and Organization, Audit and Quality Control, and Sustainability and Environment, as an integrated reference for assessing institutional digital readiness. **Methods**: A Digital Readiness Index (DRI) is developed using a seven-level continuum to classify readiness across BIMAS dimensions and institutional levels. Structural Equation Modeling (SEM) is employed to analyze the causal relationships among the dimensions, complemented by Importance–Performance Map Analysis (IPMA) to identify priority areas for strategic improvement. **Results:** The findings indicate that Management and Organization ($\beta = 0.378$, $p < 0.05$) and Sustainability and Environment ($\beta = 0{,}352$, $p < 0.05$) have positive and statistically significant effects on digital readiness, confirming the validity of the BIMAS framework and the proposed DRI. **Conclusion**: The findings reveal that Management and Organization and Sustainability and Environment exert positive and statistically significant effects on DR; moreover, confirming the validity of the BIMAS framework and the proposed DRI, offering a reliable foundation for guiding DT in IHEIs.

Keywords— Digital Transformation; Digital Readiness Assessment; BIMAS Framework; Digital Readiness Index; Islamic Higher Education Institutions

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I. INTRODUCTION

Digital transformation (DT) has become a strategic imperative for Higher Education Institutions (HEIs) worldwide, reshaping governance, teaching and learning, quality assurance, and institutional sustainability. In response, digital readiness assessment (DRA) has emerged as a critical instrument to inform institutional evaluating the extent to which organizations possess the technological, and organizational, capacities required to implement digital initiatives effectively [1]. However, digital readiness (DR) is increasingly recognized not merely as a technological condition, but also as a multidimensional organizational state that integrates strategic alignment, governance structures, and continuous quality assurance mechanisms [2].

Despite the growing adoption of digital technologies across Islamic Higher Education Institutions (IHEIs), related to DT remains fragmented and intuition-driven [3]. Institutional leaders frequently rely on partial indicators such as infrastructure availability without a comprehensive assessment of organizational readiness across interdependent dimensions. This situation is exacerbated by the absence of standardized internal audit instruments that integrate strategic, managerial, technological, and sustainability-oriented considerations [4]. However, despite this conceptual advancement, empirical digital readiness assessment in Islamic Higher Education Institutions (IHEIs) remains fragmented, lacks integrated measurement frameworks, and is often based on partial and intuition-driven indicators.

Various previous studies have examined technology adoption and digital readiness from various perspectives. A study by [5] investigated the factors influencing Mobile ID adoption in Kuwait using the TOE framework with a quantitative, survey-based approach, and found that most TOE factors had a significant influence, except for technology readiness and innovation [5]. This study contributes to identifying adoption determinants in the context of e-government and smart cities, but still focuses on adoption behavior without developing a comprehensive readiness measurement model. Furthermore, Bhuiyan (2024) explored industry readiness in facing the Industrial Revolution 4.0 through an extended TOE framework using SmartPLS-based SEM, with results showing a positive relationship between technology factors, government support, and innovation on industry readiness [6]. However, this study emphasizes the relationships between variables without providing an index measurement mechanism for strategic prioritization. Meanwhile, Safie (2025) developed an integrative TAM–TOE model using PLS-SEM to analyze the adoption of the ISO 27037 standard, which highlights the role of organizational readiness as a mediator, but has not integrated index-based readiness measurement and priority analysis into a single integrated framework [7].

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Moreover, from the three main existing readiness assessments tend to emphasize Technology, Organization and Environment (TOE) [5], [8] . As a result, institutions struggle to answer critical managerial questions, such as which dimensions are relatively more prepared. For example, institutions demonstrate systemic readiness rather than isolated strengths. The lack of an integrated, empirical assessment model with definitive framework limits the capacity of IHEIs to translate readiness evaluation. The most essential of DR frameworks are developed for general higher education contexts and insufficiently account for the governance structures, organizational cultures, and value-based missions characterizing IHEIs [9]. Second, while numerous studies propose readiness indicators, relatively few provide a validated, multi-level measurement model that combines dimensional hierarchy, and causal dependency analysis within a single analytical framework. In addition, prior studies generally employ four to five levels to measure digital readiness, which limits the ability to capture more granular variations in readiness levels. Therefore, a more refined measurement scale is required to enhance sensitivity and provide a more accurate evaluation of readiness conditions. Third, current assessments rarely operationalize DR as a capable of informing prioritization, benchmarking, and internal quality assurance mechanism. In particular, structural equation modeling, and index-based readiness computation remains underexplored in the context of IHEIs. Consequently, institutional leaders with staff lack empirically validated tools that not only measure readiness but also reveal the structural relationships among readiness dimensions and their relative strategic importance. The difference between this research and previous research lies in the development of an integrated and empirically validated digital readiness assessment model that combines a multidimensional framework, refined multi-level measurement, index-based evaluation, and causal dependency analysis, specifically tailored to Islamic Higher Education Institutions (IHEIs).

Although Structural Equation Modeling (SEM) has been widely used to analyze causal relationships and determine the significance and strength of influence between constructs, this approach still has limitations in providing practical guidance for strategic decision-making. SEM focuses on structural relationships but does not integrate information regarding the actual performance levels of each dimension. As a result, even if a dimension is proven significant, this approach is not able to directly indicate which dimensions need to be prioritized for improvement. This limitation indicates a methodological gap, where existing approaches are not able to combine causal analysis with performance evaluation to support operational strategic priority setting.

The purpose of this research is to implement a digital readiness assessment model for Islamic Higher Education Institutions (IHEIs) through the empirical application of the BIMAS framework. Although the BIMAS framework appears structurally similar to the general higher education model, its contextualization within Islamic Religious Higher Education Institutions

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(IHEI's) is reflected in the operationalization of each dimension. This framework integrates value-based principles, governance norms, and the unique institutional mission of IHEI's. For example, the business model dimension emphasizes not only financial sustainability but also alignment with Islamic values and ethics. The management and organization dimension considers aspects of value-based leadership, while auditing and quality control accommodate accountability aligned with value compliance. Furthermore, the sustainability dimension encompasses social and ethical responsibility. Thus, the uniqueness of BIMAS lies in the contextual interpretation and measurement of indicators tailored to the characteristics of IHEIs [10].

Specifically, the objectives of this study are to (1) Construct and Operationalize the BIMAS framework, comprising five dimensions, twenty-two sub-dimensions, as a comprehensive digital readiness measurement instrument for IHEIs. (2) Compute a Digital Readiness Index (DRI) using a refined multi-level measurement scale to identify which BIMAS dimensions demonstrate the highest and lowest readiness levels. (3) Analyze causal dependencies among BIMAS dimensions using Structural Equation Modeling (SEM), and provide insights for strategic prioritization.

II. RESEARCH METHOD

This study adopts a methodological approach to assess digital readiness IHEIs through the empirical implementation of the BIMAS framework in Fig 1. Digital readiness is operationalized as a multi-dimensional construct encompassing hierarchically structured dimensions, and sub-dimensions, which are measured using quantitative data systematically collected via a cross-sectional survey of institutional employees.

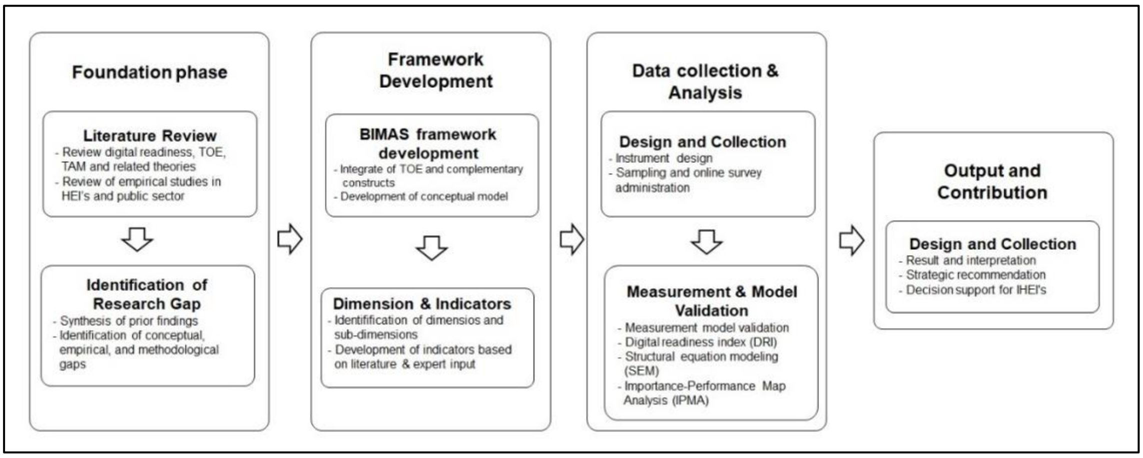

Fig 1. Research methodology workflow (adopted from [11], [12])

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A. Adopting and operationalizing the dimensions of readiness

Several dimensions of readiness in this study are explicitly developed which called BIMAS framework. This framework posits that DR constitutes a multidimensional institutional condition that is embedded in strategic orientation, technological capacity, organizational governance, quality assurance mechanisms, and long-term sustainability. In other words, the BIMAS framework is characterized by five interrelated dimensions (i.e. Business Model, Infrastructure and Technology, Management and Organizations, Audit and Quality Control, and Sustainability and Environment). The construction of BIMAS framework was presented in the Table 1. The BIMAS Framework was supported by 22 the sub-dimensions in the Table 2.

Table 1. BIMAS Framework Dimensions for Readiness

Dimensions of BIMAS	References
Business Model	[13]
Infrastructure and Technology	[6]
Management and Organizations	[14]
Audit and Quality Control	[15]
Sustainability and Environment	[16]

B. Collecting Data

On the one hand, the data collection method was conducted using a rigorously designed quantitative cross-sectional survey, forming an empirically grounded dataset of employee-based institutional readiness perceptions, that systematically examines how organizational actors interpret DR within IHEIs [17]. Data were extensively collected across IHEIs throughout Indonesia between 2024 and 2025, resulting in a nationally representative sample of regionally distributed IHEIs, when institution-wide DT initiatives were progressively unfolding. The study employed a stratified random sampling technique, generating a proportionally balanced respondent composition across organizational strata. A total of 670 valid and analytically reliable responses were obtained.

Table 2. BIMAS Framework Sub-dimensions for readiness

Dimensions	Sub-Dimensions	Ref.
(B) Business Model	[B1] Business structure	[18]
	[B2] products and services	[11]
	[B3] innovation	[19]
	[B4] Business process integration	[20]
(I) Infrastructure and Technology	[I1] Digital Infrastructure	[21]
	[I2] Information Sharing & Integration	[18]
	[I3] IT Resources availability	[22]

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Dimensions	Sub-Dimensions	Ref.
	[I4] Digital Transformation Architecture	[12]
	[I5] Intelligent Decision-making	[23]
(M) Management and Organization	[M1] Management and Leadership Skills	[24]
	[M2] Development of digital environment	[25]
	[M3] Innovation-based mindset	[26]
	[M4] Organizational capabilities	[27]
	[M5] Change management	[28]
(A) Audit and Quality Control	[A1] Scope of investigation	[29]
	[A2] Documentation of investigation procedures	[30]
	[A3] Governance	[31]
	[A4] Transparency of investigation	[32]
(S) Sustainability and Environment	[S1] Quality of life	[33]
	[S2] Contribution to sustainability	[34]
	[S3] Realization of sustainability	[35]
	[S4] Impact of sustainability research	[11]

C. Calculating the readiness index

The DRI is utilized in this study as a composite measurement tool to assess institutional digital readiness within IHEIs [12]. Conceptually, the index is based on the BIMAS framework, where readiness is viewed as a cumulative reflection of employees' perceptions across various institutional dimensions, rather than being limited to standalone technological capabilities. Furthermore, the levels of readiness are presented in Table 3. From a procedural standpoint, the DRI is derived through a structured aggregation process, following the normalization and weighting of individual indicators to ensure comparability across dimensions and institutions. Initially, each indicator is standardized to prevent variations in measurement scales from biasing the overall composite index [36] .

Table 3. Readiness Level and Index [37]

Sequence of Level	Level
Level 6	Optimized Readiness
Level 5	Quantifiable Readiness
Level 4	Definite Readiness
Level 3	Manageable Readiness
Level 2	Initial Readiness
Level 1	Unstructured Readiness
Level 0	Immature Readiness

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D. Hypothesis development for analysis

Structural Equation Modeling (SEM) is employed to analyze causal dependencies among the BIMAS dimensions, thereby extending the assessment from hierarchical prioritization to structural explanation [6]. SEM is applied to validate the BIMAS framework conceptualizes digital readiness as an interdependent system, furthermore, theoretically assumed to exert both direct and indirect influences on overall institutional readiness. Table 4 presents the proposed hypothesis tests with 8 indicative parameters.

Table 4. Proposed Hypothesis for testing

Code	Description of hypotheses
H1	The Business Model dimension has a positive and significant effect on Management and Organizations
H2	The Business Model dimension has a positive and significant effect on Infrastructure and Technology
H3	Management and Organizations has a positive and significant effect on Infrastructure and Technology
H4	Management and Organizations have a positive and significant effect on Audit and Quality Control
H5	Audit and Quality Control has a positive and significant effect on Sustainability and Environment
H6	Infrastructure and Technology has a positive and significant effect on Sustainability and Environment
H7	Sustainability and Environment has a positive and significant effect on Overall Digital Readiness
H8	Management and Organization has a direct positive effect on Overall Digital Readiness

Operationally, the SEM analysis specifies a BIMAS-based structural model, in which exogenous and endogenous dimensions are linked through hypothesized directional paths, so that the magnitude and significance of causal relationships can be empirically estimated.

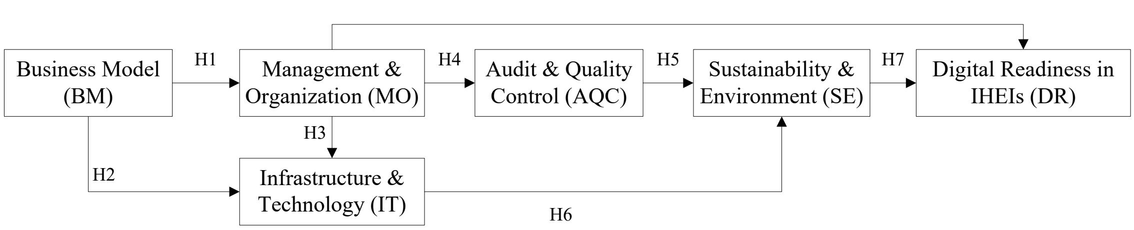

Fig 2. BIMAS–SEM Causal Model for Assessment of Readiness

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Path coefficients (β) are estimated using covariance-based SEM, allowing the study to identify which BIMAS dimensions function as primary drivers of DR and which operate as mediating or outcome constructs [38]. According to BIMAS framework, DR in IHEIs is conceptualized as an interdependent system of institutional dimensions, in which strategic orientation, organizational governance, technological capacity, audit mechanisms, and sustainability considerations are structurally connected. Accordingly, the following causal hypotheses are proposed.

Fig 2 illustrates the BIMAS-based structural equation model, in which DR is conceptualized as an interdependent system of five latent dimensions. The Business Model dimension functions as a strategic antecedent influencing Management and Organizations and Infrastructure and Technology. Organizational readiness mediates the relationship between strategic orientation and both technological readiness and audit mechanisms. Audit and Quality Control and Infrastructure and Technology contribute to Sustainability and Environment, which represents the integrative outcome dimension leading to overall DR in IHEIs.

E. The importance-performance map analysis

In this study, Importance–Performance Map Analysis (IPMA) is used as a complement to Structural Equation Modeling (SEM) to evaluate the gap between the level of importance and actual performance in digital readiness at IHEIs, with the procedure referring to [39] and [40]. The results show that the constructs in the high importance–low performance quadrant are the main priority for improvement, while the high importance–high performance construct needs to be maintained [39], and the low importance, high performance construct indicates the potential for over-investment, so that overall IPMA provides more focused strategic direction in improving digital readiness [41].

III. RESULT AND DISCUSSION

Data analysis and hypothesis testing were conducted using partial least squares–structural equation modeling (PLS-SEM), which is increasingly employed in digital readiness and organizational transformation research [42]. The selection of PLS-SEM was methodologically justified by several considerations inherent to the BIMAS framework. First, because BIMAS conceptualizes digital readiness as a multidimensional and interdependent construct comprising five dimensions and sub-dimensions, PLS-SEM was deemed appropriate given its suitability for theory-driven yet relatively underexplored structural models [42]. Second, given that the analysis relied on perceptual data collected through a cross-sectional survey across heterogeneous IHEIs, and PLS-SEM offered adequate statistical power [43].

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A. Digital Readiness Level Profile

The Fig 3 presents an aggregated depiction of overall DR levels across IHEIs which disaggregated by the five BIMAS dimensions; moreover, across seven ordinal readiness stages ranging from Immature to Optimized. What is visually conveyed is that each readiness level comprises varying contributions from all BIMAS dimensions, which indicates that institutional readiness is inherently multidimensional rather than driven by a single dominant capability. The stacked horizontal bars systematically illustrate how the distribution of institutions across readiness stages differs by dimension, thereby providing a structured overview of the extent to which each dimension is represented at successive levels of digital maturity.

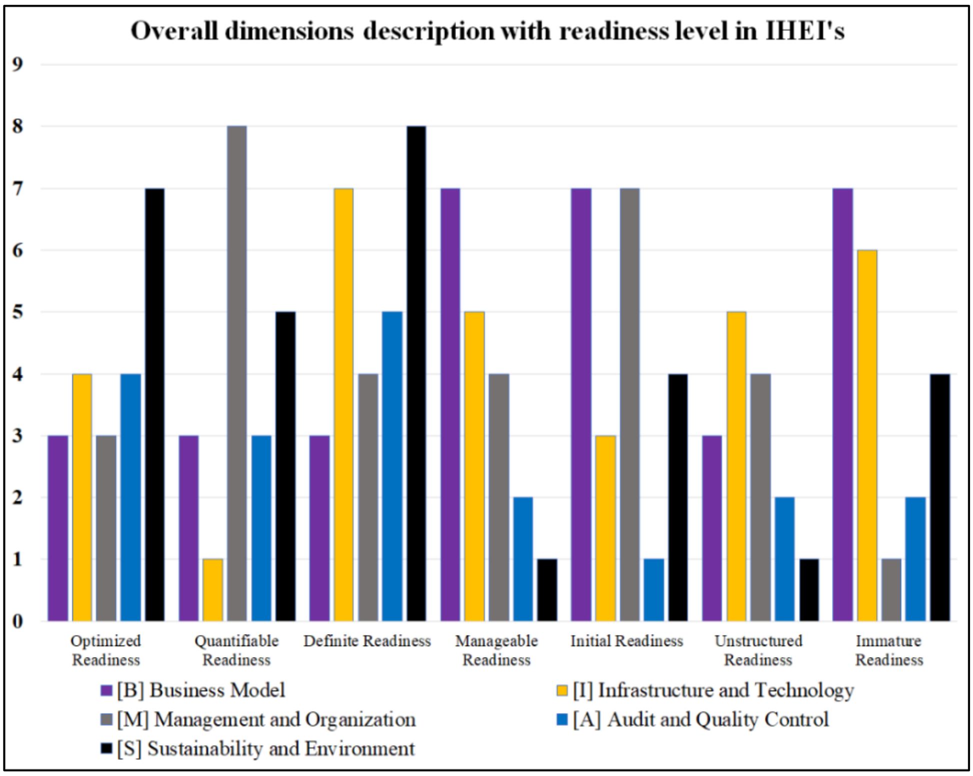

Fig 3. Dimensions in Level Readiness with BIMAS

From an interpretative clarification, the Fig. 3 suggests that lower readiness categories, particularly Immature and Unstructured Readiness, are characterized by uneven and relatively fragmented dimensional contributions, which implies that foundational digital capabilities remain inconsistently developed across BIMAS dimensions. As readiness progresses toward Initial and Manageable levels, a more balanced presence of Business Model, Infrastructure and Technology, and Management and Organization becomes evident, indicating that institutions increasingly align strategic, technological, and managerial elements in a more coordinated manner. This pattern reflects the notion that DR advances incrementally, in which improvements in one

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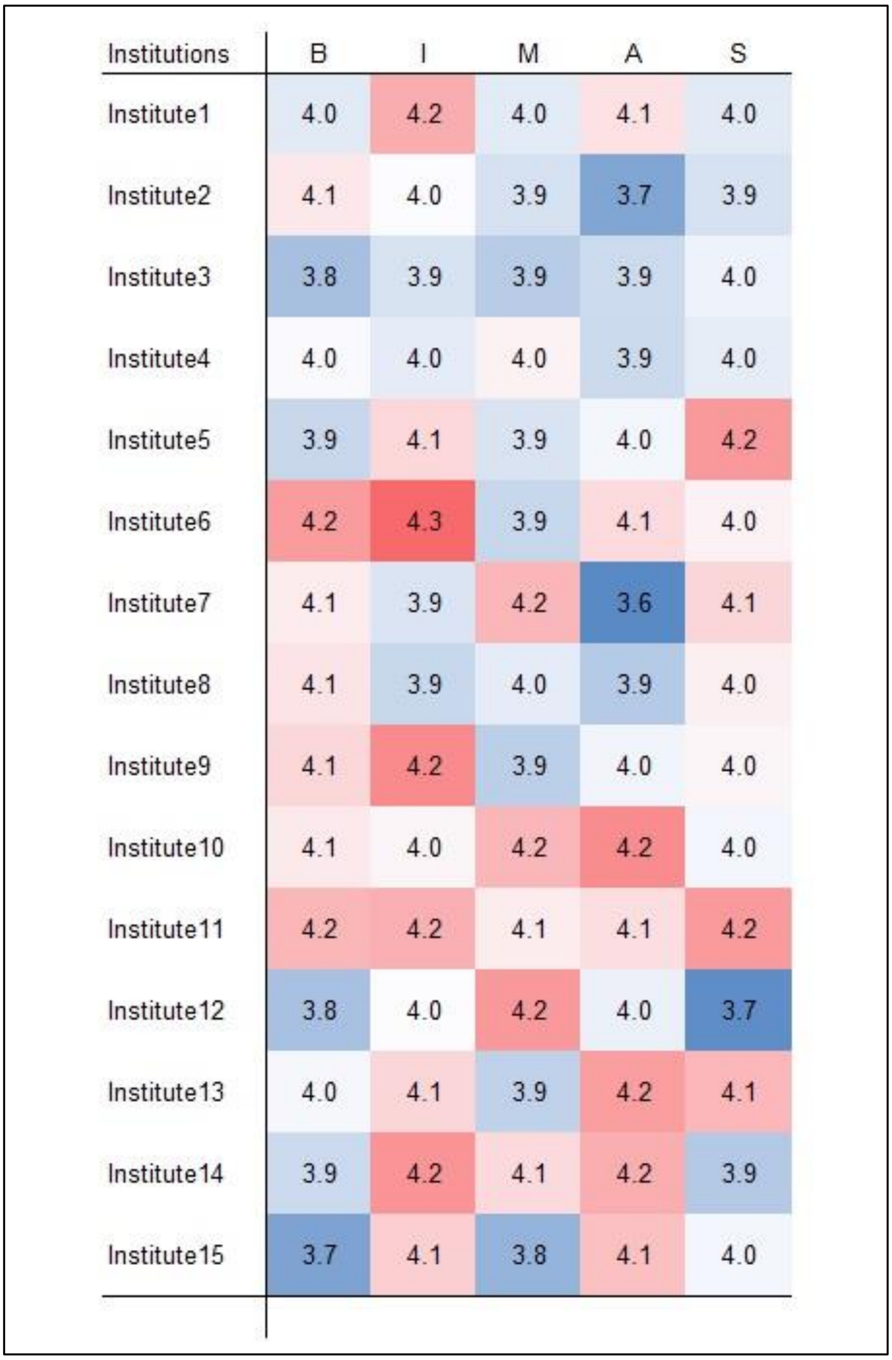
dimension tend to be accompanied by gradual reinforcement of other dimensions, rather than abrupt or isolated transformations.



Institutions	B	I	M	A	S
Institute1	4.0	4.2	4.0	4.1	4.0
Institute2	4.1	4.0	3.9	3.7	3.9
Institute3	3.8	3.9	3.9	3.9	4.0
Institute4	4.0	4.0	4.0	3.9	4.0
Institute5	3.9	4.1	3.9	4.0	4.2
Institute6	4.2	4.3	3.9	4.1	4.0
Institute7	4.1	3.9	4.2	3.6	4.1
Institute8	4.1	3.9	4.0	3.9	4.0
Institute9	4.1	4.2	3.9	4.0	4.0
Institute10	4.1	4.0	4.2	4.2	4.0
Institute11	4.2	4.2	4.1	4.1	4.2
Institute12	3.8	4.0	4.2	4.0	3.7
Institute13	4.0	4.1	3.9	4.2	4.1
Institute14	3.9	4.2	4.1	4.2	3.9
Institute15	3.7	4.1	3.8	4.1	4.0

Fig 4. Institutions in Level Readiness with BIMAS

The radar chart in Fig 4 depicts the comparative quality readiness levels of all BIMAS dimensions across the sampled IHEIs, in which each institutional unit is plotted against two concentric performance profiles representing the derived score and the current score. What the visualization explicitly shows is that the derived scores consistently form an outer contour, while

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the current scores delineate an inner contour, thereby illustrating the relative gap between targeted readiness and existing institutional conditions. This graphical configuration provides a concise yet comprehensive overview of how readiness levels vary across institutions, while also indicating that quality readiness is unevenly distributed rather than uniformly achieved

B. Region-level (representative) readiness

On the one hand, the Fig 5 clearly illustrates region-level (representative) DR across major areas in Indonesia, as measured by a readiness index encompassing Sumatera, Java, Kalimantan, Sulawesi, Maluku, Nusa Tenggara, and Papua. Descriptively, Java records the highest readiness score (5.6), followed by Kalimantan (4.6), while Sumatera and Nusa Tenggara demonstrate comparable levels (both at 4.2). Lower scores are observed in Maluku (3.9) and Sulawesi (3.7), with Papua exhibiting the lowest level of readiness (3.4). This distribution indicates that, when readiness levels are aggregated at the regional scale, substantial numerical variation emerges, suggesting uneven patterns of DR across geographic contexts.

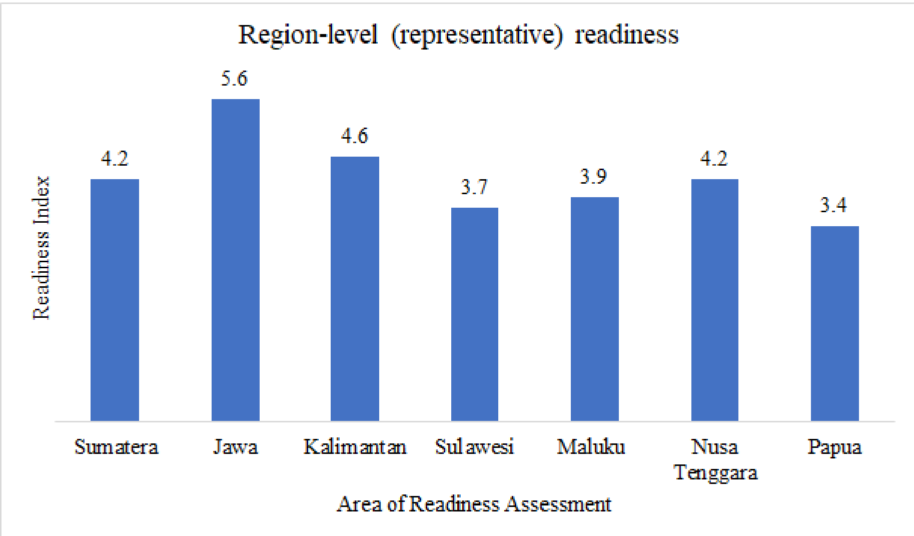

Fig 5. Region in Level Readiness with BIMAS

The observed regional disparities in digital readiness indicate that the variation reflects underlying structural differences rather than merely numerical gaps. The higher readiness level in Java suggests a more developed digital ecosystem, supported by stronger infrastructure, institutional capacity, and policy environments, while lower scores in regions such as Papua, Sulawesi, and Maluku point to challenges related to geographical constraints, limited technological access, and uneven resource distribution. This pattern highlights that digital readiness in IHEIs is highly context-dependent, where institutional capability is closely tied to

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regional development conditions. Consequently, these findings imply the need for differentiated and context-sensitive policy interventions, particularly in strengthening infrastructure, enhancing institutional capacity, and reducing regional disparities, to prevent the widening of the digital divide across higher education institutions in Indonesia.

D. Assessment of the measurement model

To establish the consistency of measurement structure, reliability and validity assessments were conducted in Table 5. Cronbach's alpha coefficients, which ranged from 0.752 to 0.824 with composite reliability values spanning from 0.746 to 0.989, consistently exceeded the recommended threshold of 0.70, thereby indicating that the measurement scales exhibited satisfactory reliability. Convergent validity was further confirmed by Average Variance Extracted (AVE) values, all of which surpassed the minimum criterion of 0.50, suggesting that a substantial proportion of variance was captured by the underlying constructs. In addition, standardized factor loadings varied from 0.646 to 0.877, exceeding the accepted cutoff value of 0.50, which indicates that the observed indicators adequately represented their corresponding latent constructs.

E. Assessment of the structural model

The structural model assessment demonstrates a coherent pattern of causal relationships among the core constructs and this was illustrated in Table 6. The results indicate that BM exerts a significant and positive influence on MO ($\beta = 0.296$, $t = 2.511$, $p = 0.012$), suggesting that articulated and aligned business models operationally. In contrast, the direct effects of BM on IT and SE remain non-significant, indicating that structural design alone is insufficient to directly enhance technological capability. Furthermore, MO emerges as a pivotal driver of downstream outcomes within the model. A significant positive effect is observed on AQC ($\beta = 0.243$, $t = 2.504$, $p = 0.010$), implying that heightened management facilitates the quality of control. More importantly, MO exhibits the strongest direct influence on DR (DR) ($\beta = 0.378$, $t = 4.298$, $p = 0.001$), underscoring that management and organization focus constitute critical determinants of organizational readiness for DT.

Table 5. Assessment of Measurement Models

Dimensions	Loadings	α	CR	AVE	Dimensions	Loadings	α	CR	AVE
(B)		0.817	0.746	0.825	(A)		0.726	0.943	0.793
B1	0.703				A1	0.646			
B2	0.828				A2	0.766			
B3	0.812				A3	0.846			
B4	0.781				A4	0.612			
(I)		0.752	0.952	0.991	(S)		0.824	0.886	0.957
I1	0.812				S1	0.877			

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Dimensions	**Loadings**	**α**	**CR**	**AVE**	**Dimensions**	**Loadings**	**α**	**CR**	**AVE**
I2	0.701				S2	0.697			
I3	0.673				S3	0.756			
I4	0.831				S4	0.789			
I5	0.842								
(M)		0.757	0.989	0.987					
M1	0.685								
M2	0.782								
M3	0.835								
M4	0.825								
M5	0.812								

Table 6. Assessment of Structural Models

Path	Effect			95%BCB-BI	
	Coefficient	t-value	p	Lower	Upper
BM → MO	0.296 **	2.511	0.012	0.065	0.267
BM → IT	0.183 *	1.876	0.063	0.042	0.368
MO → IT	0.092	0.745	0.448	-0.282	0.146
MO → AQC	0.243 **	2.504	0.01	0.055	0.315
AQC → SE	0.044	0.772	0.309	-0.263	0.124
IT → SE	0.066	0.691	0.441	-0.256	0.239
SE → DR	0.352 ***	3.429	0.001	0.176	0.517
MO → DR	0.378 ***	4.298	0.001	0.207	0.512
Control variable					
Institutional Type → BM	0.061	0.671	0.409	-0.162	0.101
Institutional Type → IT	0.072	0.448	0.109	-0.217	0.113
Institutional Type → MO	0.067	0.572	0.419	-0.152	0.125
Institutional Size → BM	0.034	0.736	0.374	-0.225	0.119
Institutional Size → IT	0.412 ***	4.412	0.002	0.262	0.329
Institutional Size → MO	0.064	0.225	0.314	-0.049	0.235
Institutional Age → BM	0.108	0.109	0.329	-0.025	0.109
Institutional Age → IT	0.061	0.213	0.332	-0.059	0.184
Institutional Age → MO	0.091	0.324	0.315	-0.041	0.201
Institutional Age → AQC	0.315 ***	4.317	0.001	0.196	0.475
Region → MO	0.063	0.653	0.287	-0.243	0.107
Region → IT	0.076	0.396	0.352	-0.055	0.145
Employment Role → MO	0.101	0.239	0.331	-0.211	0.128
Employment Role → BM	0.149	0.276	0.304	-0.221	0.192

The finding from Table 6 indicated that the Business Model (BM) does not have a statistically significant direct effect on Infrastructure and Technology (IT) suggests that strategic or financial planning alone may not be sufficient to drive technological capability within Islamic Higher Education Institutions (IHEIs). In the Indonesian context, this may be attributed to structural and bureaucratic constraints, where investment decisions and technological implementation are often mediated by organizational processes rather than directly influenced by strategic business considerations. Furthermore, institutional priorities in IHEIs are frequently shaped by regulatory compliance and value-based missions, which may limit the immediate translation of business

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strategies into technological development. This indicates that the relationship between BM and IT is likely indirect and contingent upon organizational readiness and managerial effectiveness.

The strong direct effect of Management and Organization (MO) on Digital Readiness ($\beta = 0.378$) highlights the critical role of organizational capacity in driving digital transformation. This finding suggests that leadership, governance structures, and internal coordination mechanisms are key determinants of readiness, particularly in IHEIs where institutional change is highly dependent on managerial commitment and organizational alignment. In the Indonesian context, effective management practices facilitate the integration of technological, strategic, and operational dimensions, thereby enabling a more cohesive and sustainable digital transformation process. This underscores that digital readiness is not solely a technological issue, but fundamentally an organizational capability.

The results of this research are in line with prior studies emphasizing the importance of organizational and environmental factors in shaping digital readiness. For instance, the finding that Management and Organization (MO) exert a strong influence on digital readiness is consistent with Bhuiyan (2024), who highlights the significant role of organizational and external support factors in enhancing readiness. Similarly, this finding is also supported by Safie (2025), which demonstrates that organizational readiness acts as a critical driver in technology adoption processes. However, the result contrasts with [5], where technology readiness was found to be less influential, indicating that in the context of IHEIs, technological factors alone are insufficient without strong organizational alignment. Furthermore, while previous studies primarily focus on identifying determinants and relationships among variables, this study extends the existing literature by integrating index-based measurement and causal analysis within a unified framework, thereby providing a more comprehensive assessment of digital readiness.

F. Importance-Performance Analysis

Based on the results of the Importance–Performance Map Analysis (IPMA) presented in Fig. 5, there is a difference between the level of importance and performance of each construct in explaining Digital Readiness. The Business Model (BM) and Audit & Quality Control (AQC) constructs are in the upper right quadrant, indicating that both have a high level of importance accompanied by good performance, so they need to be maintained as key factors that have been optimized. This finding indicates that although in the SEM analysis BM does not show a significant direct influence on Infrastructure and Technology (IT), its role in the overall context remains relevant when viewed from the total effects in the IPMA.

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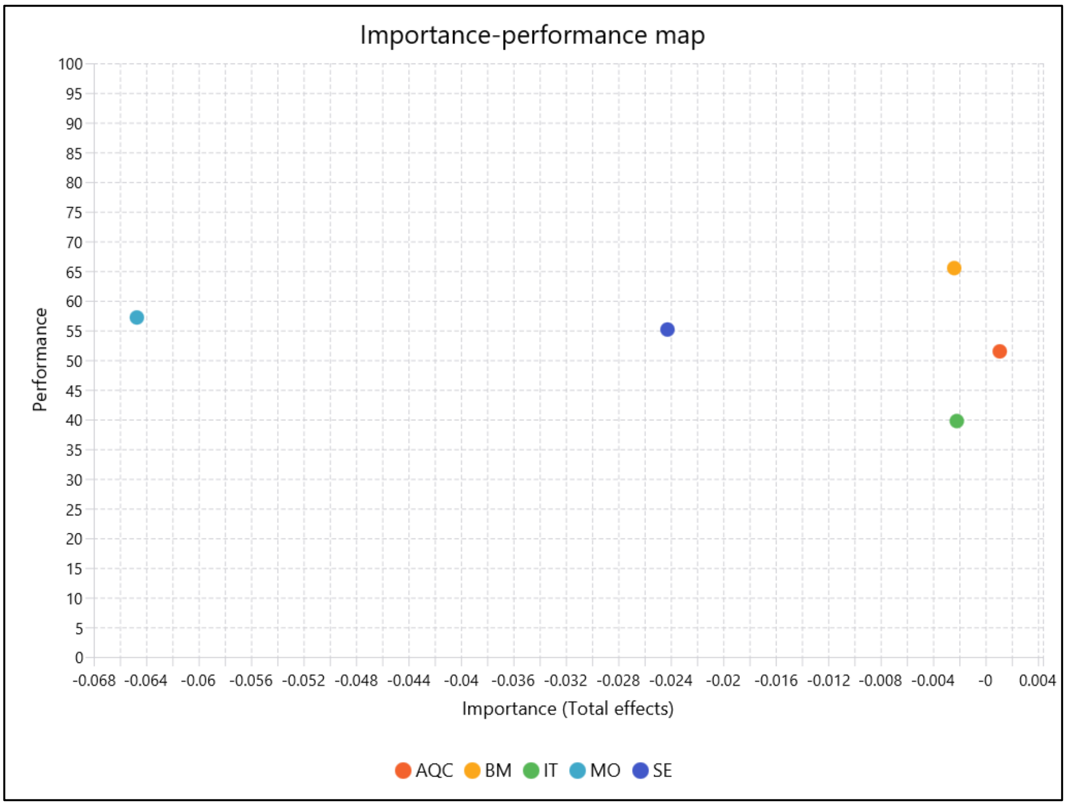

Fig 5. IPMA Results of BIMAS Construct on Digital Readiness at IHEIs

In contrast, the Infrastructure and Technology (IT) construct is located in the bottom right quadrant (Fig 5), indicating that despite its high level of importance, its performance is still relatively low. Therefore, IT is a top priority that requires strategic intervention to improve its contribution to Digital Readiness, in line with SEM findings that emphasize that digital readiness is determined not only by technological aspects, but also by effective integration with organizational dimensions. Meanwhile, the Management and Organization (MO) and Sustainability and Environment (SE) constructs are located on the left side of the map (Fig 5), reflecting their relatively lower levels of importance. MO tends to be in the low priority quadrant in the IPMA context, although SEM results indicate that this construct has a significant direct influence on Digital Readiness. This difference can be explained by the IPMA approach that considers total effects (a combination of direct and indirect influences), so that the overall contribution of MO in the model is relatively smaller compared to other constructs. On the other hand, SE approaches the over-invested quadrant, indicating that the performance has been achieved relatively well but its contribution to Digital Readiness is not as large as other constructs. Thus, as shown in Fig 5, the IPMA findings confirm that improving Digital Readiness should be focused on optimizing the Infrastructure and Technology dimensions, while maintaining performance in the Business Model and Audit & Quality Control. This way, resource allocation

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can be carried out more effectively and based on priorities, while still considering the strategic role of organizational capacity as identified in the SEM results.

IV. CONCLUSION

This study examined digital readiness (DR) in Islamic Higher Education Institutions (IHEIs) by proposing, operationalizing, and empirically validating the BIMAS framework, which integrates five core dimensions. By decomposing these dimensions into 22 theoretically grounded sub-dimensions and embedding them within a seven-level readiness scale, this study contributes to DR scholarship through the development of a validated Digital Readiness Index (DRI) tailored to the institutional and normative characteristics of Islamic higher education. The findings suggest that aligning digital initiatives with strategic intent, governance structures, quality assurance mechanisms, and sustainability-oriented values can significantly enhance the attainment of optimized digital readiness. Consequently, the BIMAS-based DRI provides a credible foundation for both future research and institutional evaluation practices in higher education contexts.

Despite these contributions, this study has several limitations. First, the analysis is limited to Islamic Higher Education Institutions (IHEIs) in Indonesia, which may restrict the generalizability of the findings to other institutional and geographical contexts. Second, the study relies on self-reported survey data, which may introduce potential response bias. Third, the cross-sectional design does not fully capture the dynamic and evolving nature of digital readiness over time. Finally, based on the findings, several practical recommendations can be proposed, particularly for institutions in lower-scoring regions. Institutional leaders are encouraged to prioritize the development of digital infrastructure, strengthen managerial and organizational capacity, and implement targeted training programs to enhance digital competencies. In addition, a phased and priority-based digital transformation strategy should be adopted, focusing on high-impact dimensions identified in the analysis to ensure more effective resource allocation and sustainable improvement. Future research is encouraged to explore longitudinal designs and extend the application of the BIMAS framework across different institutional settings to further validate and refine the model.

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