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Psychometric Validation of the Backbone Organizational Model Instrument for Assessing Organisational Health

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Abstract

The growing demand for culturally relevant organisational assessment tools in Indonesia highlights the importance of psychometric validation in instrument development. Existing diagnostic models, such as McKinsey's 7S Model and Weisbord's Six-Box Model, often lack cultural adaptation, creating a gap in reliable measurement. This study addresses this gap by validating the Backbone Organizational Model (BOM) instrument, designed to capture organisational health through 12 theoretically grounded dimensions, including mission, leadership, people, values, and structure. A quantitative approach was employed, with data collected through an online survey of 843 employees(600 men, 243 women; age range 20–58 years, M = 33.8, SD = 9.6)from a State-Owned Enterprise using convenience sampling. Confirmatory Factor Analysis (CFA) using Covariance-Based Structural Equation Modelling (CB-SEM) was employed to test construct validity and reliability. The initial measurement model required refinement, and indicators were iteratively evaluated based on factor loadings and conceptual redundancy.The refined measurement model demonstrated good overall fit ($\chi^2/df = 2.357$, CFI = 0.981, TLI = 0.975, RMSEA = 0.040. SRMR = 0.018). This process resulted in a parsimonious 29-item instrument while preserving the theoretical structure of the twelve BOM dimensions. These findings indicate that the BOM provides a psychometrically sound and contextually relevant tool for assessing organisational health in Indonesian organisational settings. However, the study is limited by its single cultural context and cross-sectional design. Future research should validate the BOM across different organisational sectors and cultural settings and employ longitudinal designs to assess its stability and applicability over time.

Keywords: Backbone Organizational model, CB-SEM, organisational health, psychometric validation

Abstrak

Tingginya kebutuhan akan instrumen asesmen organisasi yang relevan secara budaya di Indonesia menekankan pentingnya validasi psikometrik dalam pengembangan instrumen pengukuran. Model diagnostik yang ada, seperti McKinsey's 7S Model dan Weisbord's Six-Box Model, sering kali kurang memiliki adaptasi budaya sehingga menimbulkan kesenjangan dalam keandalan pengukuran. Penelitian ini bertujuan untuk mengisi kesenjangan tersebut dengan memvalidasi instrumen Backbone Organizational Model (BOM) yang dirancang untuk mengukur kesehatan organisasi melalui 12 dimensi teoretis, termasuk misi, kepemimpinan, people, values, dan struktur. Pendekatan kuantitatif digunakan dengan pengumpulan data melalui survei daring terhadap 843 karyawan (600 laki-laki, 243 perempuan; usia 20–58 tahun, M = 33,8, SD = 9,6) di sebuah Badan Usaha Milik Negara dengan teknik convenience sampling. Analisis Konfirmatori Faktor (CFA) menggunakan Covariance-Based Structural Equation Modeling (CB-SEM) dilakukan untuk menguji validitas konstruk dan reliabilitas. Model pengukuran awal memerlukan penyempurnaan, dan indikator dievaluasi secara iteratif berdasarkan muatan faktor serta redundansi konseptual. Model pengukuran yang disempurnakan menunjukkan kesesuaian keseluruhan yang baik(χ^2/df = 2,357, CFI = 0.981, TLI = 0.975, RMSEA = 0.04, SRMR = 0.018). Proses ini *menghasilkan instrumen yang hemat dengan 29 item, sambil tetap mempertahankan struktur teoretis 12 dimensi BOM. Temuan ini menunjukkan bahwa BOM menyediakan alat yang valid secara psikometrik dan relevan secara kontekstual untuk menilai kesehatan organisasi di Indonesia. Namun, penelitian ini dibatasi oleh konteks budaya tunggal dan desain lintas sektor. Penelitian selanjutnya harus memvalidasi BOM di berbagai sektor organisasi dan latar budaya yang berbeda serta menggunakan desain longitudinal untuk menilai stabilitas dan penerapannya dari waktu ke waktu.*

***Kata kunci**: Backbone Organizational model, CB-SEM, kesehatan organisasi, validasi psikometrik*

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Introduction

Organisational health assessment is widely recognised as essential in academic research and practice. Over the years, experts have developed numerous frameworks to understand organisational systems, identify challenges, and provide improvement solutions. Among the most well-known models are the 7-S Model by Pascale and Athos (Pascale & Athos, 1981) and Weisbord's Six-Box Model (Weisbord, 1976), and Porras's Stream Analysis (Porras, 1987). While these models offer valuable theoretical insights, they were developed primarily in Western cultural contexts, making them less applicable in non-Western settings such as Indonesia. The unique interplay of cultural norms, leadership practices, and organisational dynamics in Indonesia presents challenges these models must address. In today's global, technology-driven organisational environment, effective leadership increasingly depends on the ability to navigate cultural differences. As Jain and Ovais (2025) note, cultural intelligence and adaptability are essential for managing diverse teams, reinforcing the need for contextually grounded models that capture such complexities.

More recently, researchers have emphasised the importance of multidimensional, psychometrically validated tools to capture organisational health behaviours in specific cultural and sectoral contexts. For example, Jaafari et al. (2023) developed the Organisational Health Behavior Index (OHBI), a mixed-method instrument validated across five industries, integrating behavioural, relational, and cultural indicators. In parallel, McKinsey's latest findings reinforce that organisational health remains the best predictor of long-term value creation and a sustainable source of competitive advantage in today's global marketplace (McKinsey & Company, 2023). Supporting this strategic relevance, Hagl et al. (2024) highlighted the need for diagnostic frameworks that can inform evidence-based and context-sensitive change management interventions. Together, these developments point to an urgent need for diagnostic tools that bridge global theoretical frameworks with culturally grounded realities and support practical organisational goals such as internal alignment, performance improvement, and sustainable change. However, despite their strategic relevance, many organisational health models have rarely undergone rigourous psychometric validation, particularly in non-Western contexts. This limits their reliability and applicability for organisations operating in diverse cultural settings.

Organisational models are essential for representing systems and providing insights into organisational effectiveness. Cummings and Worley (2014) emphasise that diagnostic models serve as structured tools for identifying dimensions or variables critical to organisational success. These tools explain how organisations operate and pinpoint areas requiring improvement. However, despite their conceptual robustness, existing models often face criticism for lacking alignment with practical settings, particularly in diverse cultural environments. One primary issue is the inconsistent terminology used to describe organisational components. For instance, *organisational mission* is often misunderstood as a work program or strategy, while *organisational culture* is often reduced to organisational values (Tadesse Bogale & Debela, 2024). This disconnect has led to miscommunication in organisational diagnostics, limiting the practical utility of these frameworks. Furthermore, cultural insensitivity in these models has produced tools that fail to reflect the nuances of local organisational dynamics, especially in regions where culture plays a central role in shaping behaviour and outcomes. In developing new diagnostic models, scholars emphasise parsimony—ensuring frameworks remain simple enough to be practical while remaining comprehensive enough to capture complex organisational dynamics (MacCallum et al., 1993).

In response to the need for culturally grounded and intervention-relevant diagnostic frameworks, the Backbone Organizational Model (BOM) was introduced by Riyono (2022) as a synthesised tool designed to support organisational change, internal alignment, and performance improvement in culturally specific contexts. The BOM integrates and simplifies key elements from established models—such as the 7-S Model (Pascale & Athos, 1981), Weisbord's Six-Box Model (Weisbord, 1976), and Porras's Stream Analysis (Porras, 1987)—while adapting them to the sociocultural dynamics of Indonesian organisations. Rather than a direct adaptation, the BOM is an original conceptual framework developed through a systematic process, including expert reviews, pilot testing, and preliminary conceptual validation. This

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process identified twelve critical components of organisational health, including mission, leadership, culture, performance, and vision. A recurring challenge in organisational diagnostics is ensuring that instruments demonstrate not only cultural relevance but also psychometric rigour in terms of validity and reliability (Hair, Page, et al., 2019).

The BOM's initial conceptual framework has also received informal feedback through its use in academic field-based exercises and structured reflections, offering early indications of its practical relevance for organisational diagnosis. However, although the conceptual framework has been established, the psychometric properties of the BOM instrument—including its reliability and validity as a diagnostic tool—have not yet been systematically tested. This study aims to fill this gap by rigourously validating the BOM instrument to ensure it meets established criteria for construct validity, reliability, and practical applicability. By validating the instrument, this research aims to provide organisations with a robust, reliable, and culturally relevant tool to diagnose and improve organisational health in Indonesia.

Building on Riyono's (2022) conceptual development of the BOM, the model's theoretical foundation draws on well-established organisational concepts that support its validity and relevance as a diagnostic tool. Each BOM component synthesises globally recognised theories while addressing Indonesia's unique organisational dynamics. The mission component draws on strategic management theories, positioning the mission as the organisation's fundamental purpose and strategic direction (Bowen, 2018). Leadership operationalises the mission and aligns culture and performance, informed by transformational and transactional leadership theories (Bass & Bass, 2008; Northouse, 2019). Evidence also supports leadership as a core component of BOM: a large-scale cross-national study found that transformational leadership behaviours are perceived and valued similarly across cultures (Caza et al., 2021).

Meanwhile, organisational behaviour theories underpin culture (Hofstede et al., 2010), emphasising shared values, norms, and behaviours as key influences on organisational identity. Recent critical perspectives also highlight that organisational culture should not only be treated as a set of shared meanings but must be understood within broader power relations, ambiguity, and resistance to change (Alvesson & Sveningsson, 2015), reinforcing the need for context-sensitive frameworks such as BOM. Lastly, performance refers to the alignment of organisational activities with goals and outcomes, as outlined in performance management frameworks (Robbins & Judge, 2013). These theoretical foundations ensure that the BOM reflects both global best practices and local contextual nuances, bridging the gap between theoretical rigour and practical applicability.

Despite the rich theoretical underpinnings of existing global frameworks, a disconnect remains between established organisational models and local realities. Indonesia's organisational landscape, characterised by rich cultural diversity, demands a diagnostic tool that is both culturally sensitive and practically relevant. Conventional models often fail to capture these nuances, making it difficult for organisations to derive actionable insights to improve organisational health. Cummings and Worley (2014) emphasise that diagnostic models must effectively represent organisational dynamics while remaining adaptable to specific cultural contexts. The BOM addresses this gap by integrating global theoretical insights with Indonesia's local organisational realities, providing a framework that enables organisations to diagnose challenges effectively and design targeted interventions.

To ensure the BOM's practical and scientific utility, this study focuses on developing a valid and reliable measurement instrument. This includes psychometric testing of internal consistency, construct validity through CFA, and an exploration of measurement invariance across respondent groups. While the current manuscript focuses on psychometric validation, the study is built on expert-based development, pilot feedback from academic exercises, and grounded insights from prior organisational studies in Indonesia. This layered foundation justifies the relevance and urgency of validating BOM within its intended cultural context. By developing a concise measurement instrument that retains the psychometric strength of the original model, this research offers a practical solution for organisations navigating cultural complexity. Through systematic empirical testing, the BOM is positioned as a tool that aligns academic rigour with practical utility, ensuring its relevance for both researchers and

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practitioners. Ultimately, this study contributes to organisational diagnostics by introducing a framework that balances theoretical soundness with operational applicability, providing a culturally tailored solution for assessing and enhancing organisational health within Indonesia's dynamic and evolving environment. At the same time, the study advances the broader field of psychological and educational measurement in Indonesia by offering a psychometrically validated, culturally relevant instrument. This contribution helps reduce reliance on translated tools and enriches the repertoire of indigenous measurement instruments available to researchers and practitioners.

Methods

Participants

The study involved 843 employees from an Indonesian State-Owned Enterprise (SOE). Table 1 presents the participants' demographic characteristics, including gender, education level, and age distribution.

Table 1. Participants' Demographic Characteristics

Characteristic	Category	n	%
Gender	Male	600	71.2
	Female	243	28.8
Education Level	Junior High School	2	0.2
	Senior High School / Equivalent	288	34.2
	Diploma 1 (D1)	120	14.2
	Diploma 3 (D3)	157	18.6
	Diploma 4 / Bachelor (D4/S1)	259	30.7
	Master's Degree	17	2.0
Age	< 31 years	439	52.1
	31–40 years	191	22.7
	41–50 years	74	8.8
	> 50 years	139	16.5

Sources : Personal data.

The diverse participant profile allowed testing the instrument's applicability across different educational and age groups, which is essential for generalizability.

Instruments

The study utilised a self-report, Likert-scale-based questionnaire consisting of 60 items developed to measure the 12 components of the Backbone Organizational Model (BOM). Conceptually, the BOM defines organisational health as the degree of alignment between mission, leadership, people, structure, values, and other core elements that support adaptability and sustainability. It integrates theoretical foundations from McKinsey's 7S Model, Weisbord's Six-Box Model, and Porras's Stream Analysis, and organises them into 12 components (see Table 2). Each component was measured using five items on a 5-point Likert scale, with responses ranging from 1 (strongly disagree) to 5 (strongly agree). Operationally, higher scores on each component indicate stronger perceptions of organisational health in the respective dimension, making the BOM a measurable and comparable framework in the Indonesian context.

Before the main data collection, a panel of six organisational psychology experts conducted content validation. The experts reviewed each item for clarity, relevance, and representativeness with respect to the intended construct. The feedback from this process was used to revise ambiguous items and ensure that all 60 items aligned theoretically with the components of the Backbone Organizational Model.

Table 2 provides the psychometric framework for the Backbone Organizational Model (BOM), detailing the conceptual domain, operational definition, and item structure for each component. We

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defined constructs as employees' perceived evaluations of the corresponding organisational dimensions, each assessed using five Likert-scale items.

Table 2. Blueprint of Backbone Organizational Model

Component	Code	Construct domain	Operational definition	Example item	Item codes	Total item
Mission	A	Alignment between organisational mission and company activities	How strongly the mission inspires employees and how well the company's activities fit the mission	*"Aktivitas utama di perusahaan ini berorientasi untuk memajukan bangsa."*	A1, A2, A3, A4, A5	5
Leadership	B	Leadership effectiveness in guiding the organisation	How effective the leader is in carrying out the mission and motivating employees	*"Pimpinan perusahaan mengerti apa yang harus dilakukan untuk membawa perusahaan menjadi lebih baik."*	B1, B2, B3, B4, B5	5
People	C	Workforce composition and diversity	How proportional is the distribution of members based on gender, age, education, and background?	*"Asal daerah dari karyawan di perusahaan ini cukup beragam sehingga kami bisa saling mengisi."*	C1, C2, C3, C4, C5	5
Values	D	Organisational values guiding employee behavior	How strong are the values to guide employee behaviour?	*"Saya merasa perusahaan ini memiliki nilai-nilai yang kuat."*	D1, D2, D3, D4, D5	5
Strategi	E	Strategic clarity of the organisation	How precise and effective the company's strategy is?	*"Menurut saya perusahaan ini memiliki strategi yang jelas dalam mencapai tujuannya."*	E1, E2, E3, E,4 E5	5
Goal	F	Organisational performance targets	How clear are the performance targets, and how strong is the pull on morale?	*"Program-program yang diselenggarakan oleh perusahaan ini memiliki tujuan yang jelas."*	F1, F2, F3, F4, F5	5
Performance	G	Organisational performance monitoring	To what extent are the quality and quantity of the company's performance tangible and intangible?	*"Secara periodik pencapaian prestasi perusahaan disosialisasikan kepada karyawan."*	G1, G2, G3, G4, G5	5
Vision	H	Organisational future direction	How clear and inspiring are the company's vision and its motivational power?	*"Cita-cita luhur perusahaan ini membuat saya tergerak untuk*	H1, H2, H3, H4, H5	5

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				berjuang mewujudkannya."		
Structure	I	Organisational structure and task division	How efficient and effective is the division of tasks within the company?	*"Struktur yang ada di perusahaan ini menunjang berjalannya program kerja perusahaan."*	I1, I2, I3, I4, I5	5
System	J	Organisational work processes and communication systems	How smooth are the daily work processes, and how accessible and accurate are the information and communication?	*"Proses pengambilan keputusan di perusahaan ini berjalan efektif."*	J1, J2, J3, J4, J5	5
Skills	K	Alignment of competencies with job demands	How appropriate is the placement of workers according to their competencies, and how appropriate are the employee's competencies with the company's strategy?	*"Perusahaan memiliki program peningkatan kompetensi yang efektif."*	K1, K2, K3, K4, K5	5
Style	L	Organisational climate and leadership style	How conducive are the working atmosphere and interpersonal relationships in the company?	*"Saya merasa cocok dengan gaya kepemimpinan atasan saya."*	L1, L2, L3, L4, L5	5
		Total item				60

Sources : Personal data.

Research design

This study employed a quantitative research design utilising Confirmatory Factor Analysis (CFA) within a Covariance-Based Structural Equation Modelling (CB-SEM) framework to validate the Backbone Organizational Model (BOM) as a diagnostic tool for organisational health. We selected CB-SEM because it can thoroughly assess the construct validity of complex models and provide detailed insights into model fit, including residual analysis (Sarstedt et al., 2017).

Before this validation phase, we conducted preliminary reliability and content validation by involving six organisational psychology experts to evaluate the clarity, relevance, and representativeness of each item. This pilot process led to several refinements, including rewording overlapping items and simplifying phrasing for accessibility across education levels. Although this stage did not include statistical analysis, expert feedback was instrumental in enhancing the instrument's face validity and conceptual clarity.

Procedure

Data were collected through an online survey using Google Forms. Participants were informed about the study's purpose and provided informed consent before participating. Ethical clearance for the study was obtained from the relevant institutional review board (No. 7816/UN1/FPSi.1.3/SD/PT.01.04/2022, ensuring that the research adhered to ethical guidelines for research involving human participants.

To accommodate participants with diverse educational and technological backgrounds, we pre-tested the survey with a pilot group to assess item clarity and accessibility. We made adjustments to ensure comprehension across demographic profiles.

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Descriptive analysis: Assumption of Normality

Before the CB-SEM analysis, we evaluated normality by examining skewness and kurtosis statistics for each observed variable. Because Maximum Likelihood (ML) estimation requires multivariate normality, assessing data distribution is a critical preliminary step in SEM analysis. Kline (2015) suggests that skewness values within ±3 and kurtosis values within ±10 represent acceptable thresholds of normality for SEM applications. These criteria were applied to determine whether the data met the normality assumption required for Maximum Likelihood estimation in CB-SEM analysis.

Data analysis

The data were prepared in Microsoft Excel and saved as a CSV file for use in SmartPLS. Covariance-Based Structural Equation Modelling (CB-SEM) was conducted using SmartPLS 4, which now supports CB-SEM procedures in addition to its traditional variance-based PLS-SEM. CB-SEM was chosen to validate the measurement model because it supports theory confirmation and rigorous model fit assessment.

The Maximum Likelihood (ML) estimator was selected for its statistical efficiency and suitability for factor-based measurement models (Kline, 2015). ML estimation facilitates the assessment of global model fit indices, standardised factor loadings, and residuals, all of which are critical for evaluating construct validity in psychometric validation studies. This methodological choice aligns with Dash and Paul (2021), who state that covariance-based structural equation modelling (CB-SEM) is particularly suitable for theory testing and confirmatory measurement modelling.

To establish the instrument's construct validity, this study applied the following criteria: factor loadings, composite reliability (CR), average variance extracted (AVE), and discriminant validity. This approach follows best practices in construct validation as outlined by Lambert and Newman (2023), which emphasise clear construct definition, alignment between operational indicators and theoretical meaning, and empirical testing across relevant populations. We considered Cronbach's Alpha values above 0.70 satisfactory (Raykov & Marcoulides, 2011), while CR values exceeding 0.70 indicated acceptable construct reliability (Hair et al., 2014). We used AVE values exceeding 0.50 to confirm internal consistency and convergent validity. Factor loadings were evaluated, and items with loadings below 0.70 were considered for removal to ensure strong convergent validity, following established guidelines in (Hair et al., 2014) and (Brown, 2015). We conducted CFA using Covariance-Based Structural Equation Modelling (CB-SEM), which is suitable for validating complex measurement models (Kline, 2015). We evaluated construct reliability using both Composite Reliability (CR) and Cronbach's alpha. CR values exceeding 0.70 indicated internal consistency, confirming that the constructs are measured reliably. To address potential common method bias (CMB), this study implemented procedural remedies, including ensuring anonymity and separating items by construct to reduce response set and evaluation apprehension. Although this study did not apply a statistical test such as Harman's single-factor test, we acknowledge its diagnostic value for detecting common method variance and recommend its inclusion in future research (Podsakoff et al., 2003).

Additionally, we assessed discriminant validity using the Heterotrait-Monotrait Ratio (HTMT < 0.85) and the Fornell-Larcker Criterion to ensure each construct is distinct and does not overlap with others. Together, these analyses demonstrate that the instrument meets the requirements for construct reliability and validity. Average Variance Extracted (AVE) values exceeding 0.50 indicated that the constructs explained more than 50% of the Variance in their respective indicators. Discriminant validity was evaluated using two methods: the Heterotrait-Monotrait Ratio (HTMT < 0.85) and the Fornell-Larcker Criterion. To further ensure reliability, Cronbach's alpha was calculated; values exceeding 0.70 indicate acceptable internal consistency. While CFA formed the core of the validation approach, future studies are encouraged to expand psychometric testing using item-level techniques such as Differential Item Functioning (DIF), which can detect whether individuals from different demographic groups (e.g., gender, age, education) respond differently to specific items despite having similar levels of the underlying construct. This helps identify measurement non-invariance and supports fairness across populations

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(Zumbo, 1999). Standardised residuals above 0.150 were also reviewed, and items with high residuals were considered for removal to enhance model fit while maintaining the conceptual integrity of the Backbone Organizational Model (BOM). These criteria align with established best practices in psychometric validation, ensuring that the final model achieved statistical robustness, reliability, and theoretical coherence. Together, using CB-SEM for theory-driven validation and acknowledging future DIF analysis strategies provide a solid foundation for advancing the psychometric rigour and cross-group applicability of the BOM instrument.

Results and Discussion

Results

Initial CFA and model refinement process

The primary objective of this study was to validate the Backbone Organizational Model (BOM) as a reliable and effective tool for assessing organisational health within the Indonesian context. The initial Confirmatory Factor Analysis (CFA), conducted using Covariance-Based Structural Equation Modelling (CB-SEM), evaluated the factor loadings of 60 items measuring 12 core dimensions: *mission, leadership, people, values, strategy, goals, performance, vision, structure, system, skills, and style*.

We conducted an initial confirmatory factor analysis (CFA) to assess the adequacy of the measurement model. The 60-item measurement model exhibited an acceptable yet suboptimal fit: $\chi^2(1645) = 5932.193$, $p < .001$; $\chi^2/df = 3.606$; RMSEA = 0.055 (90% CI [0.054, 0.057]); SRMR = 0.170; CFI = 0.912; TLI = 0.905; NFI = 0.882; GFI = 0.798; and AGFI = 0.775. Although several indices indicated reasonable model adequacy, the elevated SRMR value and the model's complexity suggested potential redundancy among certain indicators. Therefore, we refined the model further to improve parsimony and measurement clarity.

The initial CFA comprised 60 items representing the twelve conceptual dimensions of the Backbone Organizational Model. Although most items exhibited acceptable factor loadings, the overall model fit indicated redundancy and conceptual overlap among several indicators. Consequently, we iteratively refined the model by examining factor loadings, standardised residuals, and conceptual alignment to achieve a more parsimonious and theoretically coherent measurement model.

To ensure robust psychometric properties, items with factor loadings below the 0.70 threshold (Brown, 2015; Hair et al., 2014) and standardised residuals exceeding 0.15 (Lambert & Newman, 2023) were considered for removal.

After the initial confirmatory factor analysis (CFA), the measurement model was iteratively refined to enhance model fit and parsimony. Indicators exhibiting low standardised loadings or conceptual redundancy were systematically removed, provided that each latent construct remained sufficiently represented. The refinement proceeded stepwise, with model fit reassessed after each adjustment to maintain theoretical consistency. This process yielded a more parsimonious measurement model consisting of 29 items distributed across the twelve dimensions of the Backbone Organizational Model. Both statistical criteria and theoretical interpretability guided the refinement to ensure conceptual clarity for each construct. All theoretical dimensions were retained, and the remaining items exhibited strong standardised loadings, confirming adequate construct representation.

Notably, several indicators from constructs such as skills and vision were removed during the refinement process due to cross loadings or conceptual overlap with related dimensions, while other items from these constructs were retained in the final measurement model. For example, some 'skills' items overlapped with 'people' and 'strategy' dimensions, and certain vision items demonstrated weaker alignment across organisational levels. These adjustments enhanced the clarity of the measurement structure while maintaining adequate representation of the underlying constructs.

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The refined model demonstrated strong psychometric properties. All retained items achieved factor loadings above 0.70, indicating strong convergent validity (Hair, Risher, et al., 2019)(see Table 3). Factor loadings of this magnitude indicate that the retained indicators reliably represent their respective latent constructs and account for a substantial proportion of the variance.

Beyond factor loadings, the overall model fit indices also supported the adequacy of the refined BOM. The final measurement model, comprising 29 items, demonstrated good overall fit. Specifically, the model achieved$\chi^2(311) = 732.947$, $p < .001$; $\chi^2/df = 2.357$; RMSEA = 0.040 (90% CI [0.036, 0.044]); SRMR = 0.018; CFI = 0.981; TLI = 0.975; NFI = 0.968; GFI = 0.944; AGFI = 0.922. These indices meet commonly recommended thresholds for structural equation modelling, indicating that the refined BOM measurement model provides an adequate representation of the data(Hu & Bentler, 1998; Kline, 2015). The very low SRMR value further indicates minimal discrepancies between the observed and model-implied covariance matrices, supporting the model's overall fit.

Throughout the refinement process, the focus was on preserving the theoretical integrity of all twelve dimensions of the Backbone Organizational Model (BOM). While several indicators were removed to enhance parsimony and clarify the measurement model, each dimension was retained to maintain the conceptual framework. This approach was especially important for dimensions addressing relational and structural dynamics within organisations. For instance, the 'people' dimension encompasses interpersonal relationships and collaborative processes, which are particularly significant in collectivist cultural contexts such as Indonesia(Hofstede et al., 2010). Similarly, the 'structure' dimension denotes formal arrangements and coordination mechanisms that facilitate organisational alignment. Structural contingency theory underscores the ongoing relevance of these arrangements for effective organisational functioning, even in adaptive environments (Adiati et al., 2021; Donaldson, 2015). By integrating statistical refinement with theoretical priorities, the final BOM instrument achieves both psychometric rigour and conceptual comprehensiveness in evaluating organisational health.

Table 3. Factor loading of the final measurement model

Code	Construct	Items	Outer loadings (standardized)
A2	Mission	Aktivitas utama di perusahaan ini berorientasi untuk memajukan bangsa.	0.914
A3	Mission	Perusahaan ini berdiri untuk alasan-alasan yang mulia.	0.824
B1	Leadership	Pimpinan perusahaan mengerti apa yang harus dilakukan untuk membawa perusahaan menjadi lebih baik.	0.885
B2	Leadership	Kebijakan yang ditetapkan oleh pimpinan selalu relevan dan selaras dengan misi perusahaan.	0.851
B3	Leadership	Saya terinspirasi untuk bekerja lebih baik setelah mendapatkan masukan dari atasan saya.	0.854
C4	People	Asal daerah dari karyawan di perusahaan ini cukup beragam sehingga kami bisa saling mengisi.	0.814
C5	People	Keberagaman yang ada dalam perusahaan ini terasa positif dampaknya.	0.925
D2	Values	Saya merasa perusahaan ini memiliki nilai-nilai yang kuat.	0.855
D3	Values	Saya merasa cocok dengan nilai-nilai yang dijunjung tinggi oleh perusahaan ini.	0.893
D4	Values	Saya merasa suasana kerja yang dimiliki oleh perusahaan ini sehat.	0.887
D5	Values	Saya merasa bangga dengan apa yang diperjuangkan oleh perusahaan.	0.885
E2	Strategy	Saya merasakan kebijakan yang diambil adalah yang terbaik dalam rangka mencapai tujuan jangka panjang.	0.867
E3	Strategy	Menurut saya perusahaan ini memiliki strategi yang jelas dalam mencapai tujuannya.	0.885
F1	Goal	Program-program yang diselenggarakan oleh perusahaan ini memiliki tujuan yang jelas dan memotivasi saya untuk mewujudkannya.	0.904
F2	Goal	Pekerjaan saya memiliki kontribusi penting pada kinerja perusahaan.	0.848

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Code	Construct	Items	Outer loadings (standardized)
G1	Performance	Secara periodik pencapaian prestasi perusahaan disosialisasikan kepada karyawan.	0.890
G2	Performance	Evaluasi prestasi perusahaan dilakukan secara sistemik dan periodik.	0.884
H3	Vision	Cita-cita luhur perusahaan ini membuat saya tergerak untuk berjuang mewujudkannya.	0.898
H4	Vision	Saya selalu ingat cita-cita luhur perusahaan ini ketika bekerja.	0.955
H5	Vision	Ketika mengingat cita-cita luhur perusahaan ini, semangat saya bangkit kembali.	0.934
I2	Structure	Struktur yang ada di perusahaan ini menunjang berjalannya program kerja perusahaan.	0.899
I4	Structure	Saya merasa jabatan yang ada dalam struktur perusahaan ini semuanya berjalan efektif.	0.848
J2	System	Proses pengambilan keputusan di perusahaan ini berjalan efektif.	0.923
J3	System	Di perusahaan ini data-data yang dibutuhkan mudah diakses.	0.885
K3	Skills	Perusahaan memiliki program peningkatan kompetensi yang efektif.	0.912
K4	Skills	Para pegawai di perusahaan ini memiliki keterampilan yang sesuai dengan tanggung-jawab pekerjaanya.	0.858
L3	Style	Saya merasa cocok dengan gaya kepemimpinan atasan saya.	0.883
L4	Style	Gaya kerja dalam perusahaan ini mendukung tercapainya prestasi yang diharapkan.	0.930
L5	Style	Gaya kerja di perusahaan ini seharusnya selalu dipertahankan dan diajarkan pada karyawan-karyawan baru.	0.899

Sources : Personal data.

Reliability of the constructs

The final model demonstrated strong construct validity and reliability (see Table 4). Reliability analysis demonstrated satisfactory internal consistency, with Cronbach's Alpha values exceeding 0.70. However, Cronbach's alpha relies on the restrictive tau-equivalence assumption, which is rarely met in practice (McNeish, 2018). For this reason, we report alpha for comparability but emphasise Composite Reliability (CR) as the more robust indicator.CR values also exceeded the acceptable threshold (Raykov & Marcoulides, 2011). By not requiring tau-equivalence, CR provides a more accurate estimate of construct reliability. These results align with established psychometric standards for construct reliability (Kline, 2015). For instance, *leadership* ($\alpha = 0.897$, CR = 0.888) and *performance* ($\alpha = 0.881$, CR = 0.880) displayed strong reliability, reflecting consistent measurement across items.

Convergent validity was further supported by Average Variance Extracted (AVE) values greater than 0.50, indicating that over 50% of the variance in each construct's indicators was explained by the latent construct itself(Hair, Risher, et al., 2019). For example, the *mission* construct demonstrated an AVE of 0.756, underscoring its clear and focused measurement. These findings confirm that the refined BOM instrument is both statistically sound and theoretically grounded, ensuring that each construct accurately reflects its intended organisational dimension. However, Cronbach's alpha relies on the restrictive tau-equivalence assumption, which is rarely met in practice (McNeish, 2018).

Table 3 reports both standardised and unstandardised Cronbach's alpha. The unstandardised alpha is calculated from the covariance matrix, whereas the standardised alpha is based on the inter-item correlation matrix. Because all BOM items were measured using the same Likert scale, the two values are nearly identical. We report both for completeness and transparency, while emphasising CR as the more robust estimate of internal consistency.

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Table 4. Construct reliability

Construct	Cronbach's alpha (standardized)	Cronbach's alpha (unstandardized)	Composite reliability (rho_c)	Average variance extracted (AVE)
Goal	0.867	0.867	0.868	0.768
Leadership	0.897	0.897	0.897	0.746
Mission	0.859	0.859	0.863	0.757
People	0.859	0.859	0.860	0.759
Performance	0.881	0.880	0.880	0.787
Skills	0.878	0.878	0.880	0.784
Strategy	0.868	0.868	0.869	0.768
Structure	0.865	0.863	0.863	0.764
Style	0.931	0.931	0.931	0.818
System	0.899	0.899	0.900	0.818
Values	0.932	0.932	0.932	0.775
Vision	0.949	0.949	0.950	0.863

Sources : Personal data.

Discriminant validity

We assessed discriminant validity using the Fornell-Larcker Criterion and the Heterotrait-Monotrait ratio of correlations (HTMT). The Fornell-Larcker Criterion requires that the square root of the Average Variance Extracted (AVE) of each construct exceed its correlations with other constructs (Fornell & Larcker, 1981). As shown in Table 5, this condition was satisfied for all constructs, indicating that each dimension explains more variance in its own indicators than in other constructs within the model.

In addition, discriminant validity was evaluated using the HTMT ratio, a more sensitive method for detecting discriminant validity problems in structural equation modelling (Henseler et al., 2015). As shown in Table 6, all HTMT values were below the conservative threshold of 0.85 (Hair, Risher, et al., 2019), further supporting discriminant validity among the BOM constructs. For example, the *mission* constructs showed an HTMT value of 0.466, well below the acceptable threshold. This result shows that these two constructs are empirically distinct, with no multicollinearity issues that could compromise measurement clarity.

Although the correlation between the Goal and Strategy constructs is relatively high, the HTMT value (0.823) remains below the recommended threshold, indicating that the two constructs remain empirically distinguishable. This relationship is theoretically expected because organisational strategies typically define the pathways through which goals are operationalised. In this sense, strategy represents the directional framework guiding organisational action, whereas goals represent the specific performance targets derived from that strategy (Kaplan & Norton, 2008; Porter, 1996). Therefore, while closely related, these constructs capture different levels of organisational planning and should not be collapsed into a single construct within the Backbone Organizational Model.

From a theoretical perspective, the low HTMT value reinforces the distinction between Leadership and Mission within the Backbone Organizational Model (BOM). *Leadership* reflects how leaders operationalise the organisational mission, align culture, and manage performance, while *mission* provides the strategic foundation that gives the organisation direction and purpose (Bass & Bass, 2008; Bowen, 2018; Northouse, 2019). This finding highlights that while *leadership* and *mission* are interrelated, they measure fundamentally different dimensions of organisational health.

The clear separation between *leadership* and *mission* aligns with prior research, which emphasises the importance of distinguishing between leadership functions and mission formulation in diagnosing

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organisational effectiveness. This outcome further strengthens the reliability and theoretical integrity of the BOM instrument, ensuring that it captures key organisational dimensions with precision.

Table 5. Fornell-Larcker Criterion discriminant validity

No	Construct	1	2	3	4	5	6	7	8	9	10	11	12
1	Goal	0.876											
2	Leadership	0.736	0.863										
3	Mission	0.455	0.472	0.870									
4	People	0.512	0.493	0.299	0.871								
5	Performance	0.764	0.653	0.456	0.505	0.887							
6	Skills	0.648	0.627	0.270	0.585	0.659	0.886						
7	Strategy	0.826	0.722	0.415	0.511	0.736	0.626	0.876					
8	Structure	0.716	0.621	0.263	0.540	0.675	0.780	0.724	0.874				
9	Style	0.716	0.624	0.308	0.523	0.691	0.806	0.678	0.750	0.904			
10	System	0.595	0.565	0.295	0.447	0.634	0.631	0.919	0.634	0.636	0.904		
11	Values	0.769	0.651	0.496	0.516	0.712	0.576	0.763	0.603	0.628	0.528	0.880	
12	Vision	0.775	0.622	0.429	0.412	0.751	0.583	0.716	0.646	0.675	0.603	0.647	0.929

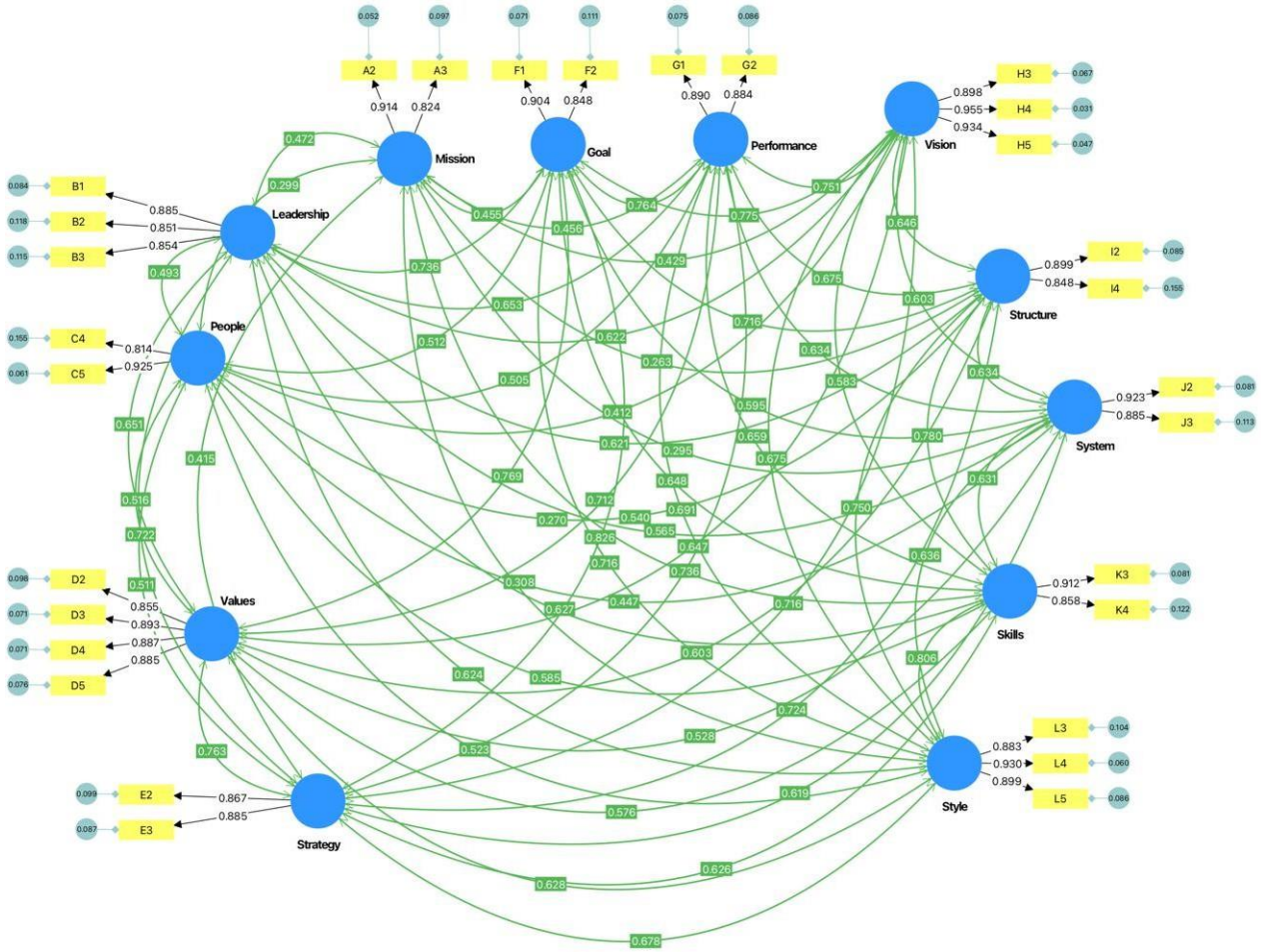
Sources : Personal data.

Table 6. HTMT discriminant validity

No	Construct	1	2	3	4	5	6	7	8	9	10	11	12
1	Goal												
2	Leadership	0.739											
3	Mission	0.446	0.466										
4	People	0.506	0.496	0.297									
5	Performance	0.766	0.654	0.456	0.510								
6	Skills	0.658	0.626	0.268	0.592	0.662							
7	Strategy	0.823	0.725	0.408	0.504	0.735	0.628						
8	Structure	0.719	0.623	0.251	0.538	0.672	0.784	0.719					
9	Style	0.723	0.629	0.300	0.529	0.689	0.807	0.678	0.749				
10	System	0.592	0.563	0.288	0.458	0.633	0.632	0.621	0.637	0.636			
11	Values	0.767	0.654	0.497	0.518	0.713	0.578	0.764	0.601	0.627	0.525		
12	Vision	0.783	0.629	0.433	0.421	0.756	0.588	0.724	0.652	0.678	0.609	0.654	-

Sources : Personal data.

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Sources : Personal data.

Figure 1. Final model of Backbone Organizational Model

Discussion

The primary objective of this study was to validate the Backbone Organizational Model (BOM) as a robust diagnostic framework for assessing organisational health in the Indonesian context. The findings confirm that the BOM meets the required psychometric standards, including strong construct validity, convergent validity, discriminant validity, and reliability. These results establish the BOM as a reliable and comprehensive tool for diagnosing organisational health.

The CFA results demonstrated strong construct validity and reliability, as indicated by factor loadings exceeding 0.70 and satisfactory reliability indices (Brown, 2015; Hair et al., 2014). These findings affirm that the BOM meets established psychometric standards for structural equation modelling (Kline, 2015). The final measurement model also demonstrated strong overall fit (CFI = 0.981; TLI = 0.975; RMSEA = 0.040; SRMR = 0.018), indicating that the refined BOM structure adequately represents the multidimensional nature of organisational health. These indices fall well within commonly recommended thresholds for good model fit (Hu & Bentler, 1998; Kline, 2015), suggesting that the model captures the complex relationships among the twelve BOM dimensions in a statistically robust manner. Together, these indices indicate that the refined model adequately captures the multidimensional structure of organisational health represented in the BOM.

Additionally, the relatively strong association observed between the Goal and Strategy constructs reflects the hierarchical relationship between strategic direction and operational targets within organisations. Strategic management literature indicates that organisational strategies define an organisation's broad direction and competitive positioning, whereas goals represent the specific objectives

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through which these strategies are implemented and evaluated (Kaplan & Norton, 2008; Porter, 1996). Thus, strategy serves as the overarching framework guiding organisational action, while goals translate this direction into measurable performance targets. The relatively high correlation between these constructs is therefore theoretically anticipated. However, the HTMT value (0.823) remains below the recommended threshold, demonstrating that the two constructs, although closely related, are empirically distinguishable within the BOM framework.

While the statistical model fit indices indicated an excellent fit, we acknowledge that theoretical fit remains the primary consideration in CB-SEM (MacCallum et al., 1993). The BOM integrates 12 dimensions derived from established frameworks (McKinsey's 7S, Weisbord's Six-Box, and Porras's Stream Analysis), which explains its relative complexity. This multidimensionality inevitably increases the number of estimated parameters, yet it reflects the conceptual richness of organisational health rather than statistical overfitting. Thus, the model balances parsimony with theoretical comprehensiveness.

These findings highlight the BOM's utility as a culturally responsive diagnostic framework for assessing organisational health in Indonesian organisations. The statistical significance of the factor loadings ($p < 0.05$) reinforces the BOM's accuracy in measuring organisational constructs that are both theoretically sound and practically relevant. Specifically, within the Indonesian context, the BOM successfully integrates traditional and contemporary organisational dynamics, where cultural norms—such as collectivist values and adaptive structures—play a significant role in shaping organisational behaviour (Hofstede et al., 2010; Pesurnay, 2018; Thamrin & Kadarudin, 2023). By validating the BOM's psychometric strength, this study contributes a culturally adaptive framework that can diagnose organisational health with precision. This result aligns with the study's overarching objective of providing a reliable, practical diagnostic model tailored to Indonesia's unique organisational landscape.

These results are consistent with prior psychometric research in Indonesia, which emphasises the importance of culturally contextualised measurement validation. For instance, Latifa et al. (2023) successfully validated the WHO-5 well-being index using CFA and Item Response Theory (IRT) approaches for Indonesian populations during the COVID-19 pandemic, highlighting the instrument's appropriateness in high-stress settings. Similarly, Fauziah (2018) confirmed the construct validity of Allen and Meyer's organisational commitment scale using CFA among Indonesian educators. These examples reinforce the methodological rigour and contextual alignment of the current validation approach using CB-SEM and CFA for the BOM instrument. At the same time, alternative psychometric approaches such as Rasch modelling or IRT could provide additional item-level insights. These methods allow researchers to examine item functioning more granularly and detect potential sources of bias or misfit, thereby complementing the CFA results reported in this study (DeMars, 2010; Embretson & Reise, 2000).

Cultural Context and Model Refinement

The refinement process of the Backbone Organizational Model (BOM) removed two items—one from the 'skills' construct and the other from the 'vision' construct—because of low factor loadings and overlap with related constructs. Excluding these items ensures the model's statistical robustness while maintaining theoretical integrity. The first item, associated with the 'skills' construct, demonstrated significant overlap with related constructs such as 'people' and 'strategy'. This result aligns with findings in collectivist cultural contexts like Indonesia, where skills development is often embedded within group-oriented strategies and leadership rather than seen as an isolated organisational competency (Hofstede et al., 2010; Pesurnay, 2018). In such environments, individual skill development is closely tied to team harmony and leadership processes, making it difficult to disentangle this dimension statistically without undermining its conceptual meaning.

The second removed item pertained to the 'vision' construct, which exhibited alignment inconsistencies across organisational levels. Prior studies emphasise that achieving vision clarity depends on effective leadership communication and employee buy-in (Bass & Bass, 2008; Robbins & Judge, 2013). In practice, the ability to articulate and align strategic aspirations across hierarchical levels can vary, particularly in dynamic organisational settings. Excluding this item reflects its limited

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discriminative power while reinforcing the importance of retaining only the most reliable indicators within the construct. These adjustments align with psychometric best practices that prioritise both validity and reliability in measurement development (Lambert & Newman, 2023).

Furthermore, the findings underscore the theoretical nuances of organisational constructs in culturally specific environments like Indonesia. By removing these items, the model ensures a cleaner statistical structure while retaining constructs that are most representative of the BOM's conceptual framework. This process highlights the nuanced relationships between skills, vision, and their theoretical dimensions, which may manifest differently in collectivist settings such as Indonesia. In collectivist settings, constructs such as 'skills' and 'vision' are inherently multidimensional, influenced by leadership dynamics and shared organisational values. By refining these items, the BOM retains its conceptual strength while remaining statistically sound and practically relevant. Future studies may explore the potential adaptation of these constructs in different cultural contexts to address their multidimensionality and enhance their validity across diverse organisational environments

In a collectivist culture such as Indonesia, the 'people' dimension, which emphasises interpersonal relationships and group harmony, is central to organisational functioning. Group cohesion and social harmony often take precedence over formal, individual performance indicators, reflecting the cultural tendency to prioritise relationships over rigid structures (Hofstede et al., 2010). Similarly, the 'structure' dimension highlights the adaptive and often informal nature of Indonesian organisational systems. While formal structures exist, they are frequently applied flexibly to accommodate relational dynamics and contextual demands (Adiati et al., 2021).

The refinement process accounted for both statistical criteria and theoretical integrity. When validating multidimensional frameworks such as the BOM, model refinement should not depend exclusively on statistical indicators but must also maintain the conceptual representation of key organisational dimensions (McNeish & Wolf, 2020). This dual emphasis ensures that the BOM remains psychometrically robust and theoretically meaningful as a diagnostic tool for assessing organisational health in the Indonesian context.

Practical Implications and Theoretical Contributions

Recent research by McKinsey emphasises that organisational health remains a primary driver of performance improvement and long-term advantage. Organisations that invest in their internal health—measured by elements such as leadership, culture, and accountability—consistently outperform peers in sustained outcomes (Gagnon et al., 2021).

This study's findings offer both theoretical and practical contributions. The BOM bridges the gap between global diagnostic frameworks (e.g., the 7-S Model, Six-Box Model) and Indonesia's unique cultural and organisational dynamics. By validating the BOM's psychometric properties, this study shows that all 12 dimensions—*mission, leadership, people, values, strategy, goals, performance, vision, structure, system, skills,* and *style*—are critical to understanding organisational health.

From a theoretical perspective, this research highlights the importance of developing culturally adaptable assessment tools. Retaining culturally relevant constructs, such as 'people' and 'structure,' underscores the need for diagnostic frameworks to remain sensitive to cultural contexts while adhering to global psychometric standards. This balance ensures that the BOM provides meaningful insights into organisational dynamics without being constrained by purely statistical criteria.

Practically, the BOM offers a parsimonious yet comprehensive tool for organisations to diagnose their health and identify targeted areas for improvement. By integrating theoretical rigour with practical application, the BOM enables organisations to focus on actionable strategies that align with their cultural and strategic priorities. For instance, including 'people' as a core dimension reflects the emphasis on group harmony and relationships, while 'structure' addresses the need for flexibility within formal systems. These implications align with recent findings that emphasise stakeholder involvement, communication, and shared vision in facilitating successful organisational change (Chowdhury &

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Chandra Shil, 2022; Phillips & Klein, 2023). Moreover, Hagl et al. (2024) underscore the value of structured diagnostic frameworks in guiding evidence-based, context-sensitive change management interventions.

Ultimately, this study validates the BOM as a reliable and effective framework that balances theoretical soundness and practical applicability. Its ability to integrate global best practices with cultural adaptations makes the BOM an invaluable tool for organisations seeking to enhance performance, cohesion, and sustainability in complex, dynamic environments. Practitioners may use the BOM as a diagnostic baseline to guide organisational restructuring, assess alignment between culture and strategic goals, or monitor post-intervention changes over time. The 12-dimension structure also enables leadership teams and consultants to identify which areas require developmental focus—whether that be clarifying mission, realigning systems, or improving people–structure dynamics. In addition, this study makes a broader contribution to psychological and educational measurement in Indonesia. The BOM provides a rare example of an indigenous instrument that has undergone rigorous psychometric validation, thereby complementing the dominance of translated scales and strengthening the local repertoire of culturally relevant tools.

Limitations and Recommendations

Despite its significant contributions, this study has several limitations worth considering. First, the research was conducted within the Indonesian context, which may limit the generalizability of the Backbone Organizational Model (BOM) to other cultural or regional settings. While the decision to retain constructs such as 'people' and 'structure' was grounded in theoretical and cultural relevance, these dimensions may operate differently in other organisational cultures.

Second, the study employed a cross-sectional design, which limits the ability to draw causal inferences about the relationships between the BOM constructs. Organisational health is inherently dynamic, and the influence of dimensions such as 'people' and 'structure' may change over time. To address this limitation, future studies could adopt longitudinal research designs to capture temporal changes in organisational dynamics and provide deeper insights into the BOM's long-term applicability.

Another limitation pertains to the sample composition. While the sample size of 843 participants was sufficient for robust statistical analysis, the data came from employees within a single organisational type (State-Owned Enterprises). Expanding the sample to include multiple organisations across varied sectors and industries would enhance the BOM's generalizability and allow for comparative analyses of organisational health in different contexts. Additionally, further refinement of constructs such as 'people' and 'structure' may help improve measurement precision across different cultural contexts.

Finally, another limitation relates to the number of indicators per construct. Although CFA guidelines recommend at least three items per construct(Hair, Page, et al., 2019), two dimensions in the refined BOM contained only two items. We retained these items because of their theoretical and cultural significance in the Indonesian context, but future research should expand item development to strengthen measurement precision. Additionally, although the refinement process improved overall measurement, these results should be interpreted with caution and require replication across samples to confirm stability. Complementary approaches such as Rasch modelling or Item Response Theory (IRT) may also be employed to examine item functioning at a more granular level and provide additional evidence of validity.

Conclusion

The Backbone Organizational Model (BOM) is validated as a reliable and culturally adaptive framework for assessing organisational health within the Indonesian context. The refined measurement model meets established psychometric standards, demonstrating strong construct validity, internal consistency, and discriminant validity. All twelve BOM dimensions were retained, underscoring the significance of preserving theoretically meaningful aspects of organisational functioning in Indonesia's collectivist organisational environment.

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The findings indicate that the BOM effectively integrates established organisational diagnostic frameworks with local organisational dynamics. By capturing key features of Indonesian organisational behaviour, such as relational harmony and adaptive formal systems, the model serves as a practical tool for diagnosing organisational health and identifying areas for improvement.

Theoretically, this research advances culturally responsive organisational diagnostic models by demonstrating the need to incorporate contextually embedded dimensions into measurement frameworks. Practically, the BOM offers organisations a parsimonious yet comprehensive tool for evaluating alignment among mission, leadership, systems, and performance.

Future research should examine the BOM's applicability across diverse organisational sectors and cultural contexts. Additional validation studies could explore alternative reliability estimators and longitudinal approaches to strengthen the model's robustness and applicability further.

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