Top Management Characteristics, Performance Measurement Systems Design and Strategic Change of Reformed Public Hospitals in Indonesia

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ABSTRACT
This study examined the impact of top management characteristics on strategic change in public hospitals in Indonesia, focusing on the mediating role of performance measurement system (PMS) design. Questionnaires were distributed to 157 top managers from Indonesian regional public hospitals undergoing reform. The findings indicate that younger, short-tenured top managers with business administration backgrounds are likelier to lead the strategic change, specifically the shift from a defender to a prospector strategy. Additionally, PMS design partially mediates the relationship between top managers' age, educational background, and strategic change. However, no significant mediation effect of PMS design was observed in the relationship between top managers' tenure and strategic change. These results suggest that healthcare organisations should consider their top managers' characteristics when planning and implementing strategic change. The role of PMS design in facilitating strategic change should also be carefully evaluated, especially when considering younger and less-tenured top managers as change leaders. [5]

KEYWORDS: Top Management Characteristics; Design of PMS; Strategic Change; Reformed Indonesian Public Hospitals

SDG & JEL Codes: SDG3, SDG3b, SDG3d, I18

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INTRODUCTION

In the realm of public hospital management reform, the quality of performance measurement systems (PMS) has emerged as a pressing concern on a global scale (Macinati, 2010; Mei & Kirkpatrick, 2019). It is widely acknowledged that an adaptable, accurate, and relevant PMS holds the potential to seamlessly accommodate changes in hospital strategy (Demartini & Trucco, 2017; Kirchhoff et al., 2019; World Health Organization, 2015). However, despite this recognition, persistent challenges continue to beset the design of PMS in public hospitals across various countries (Lewis & Pettersson, 2009). This challenge has contributed to the diminishing effectiveness of PMS, primarily due to performance metrics that no longer align with the evolving paradigms of autonomous organisational management (De Geyndt, 2017). For instance, recent research in the Czech Republic by Krupička (2021) highlighted the inadequate nature of PMS in public hospitals, which, despite reflecting clinical aspects, is perceived as unfit for the complex healthcare environment. Furthermore, the prevailing management focus on operational aspects over strategic considerations has exacerbated tensions between hospital administration and clinical staff.

This study explores the influence of top management characteristics on public hospital strategic change in Indonesia and how performance measurement systems (PMS) design plays a mediating role in this relationship. Indonesian public hospitals have experienced substantial institutional and financial transformations over the years (Basabih, 2017). In the 1980s, the Health Office budget included operational and investment budgets for Technical Implementation Units (UPT), encompassing public hospitals. However, in the early 1990s, the operational budget posts of public hospitals were separated, with some posts gaining independent financial management authority (Fahlevi, 2016). A Regional Self-financing unit (USD) was also established. The most pivotal transformation occurred after 2000 when public hospitals transitioned into regional technical institutions and public service agencies (Regional Public Service Agency—BLUD) (Harmadi & Irwandy, 2018). BLUD allowed hospitals to implement robust financial management practices, leading to more efficient goal achievement by Government Regulation No. 23 of 2005.

Despite these transformations, public hospitals in Indonesia have been grappling with PMS that still resemble traditional public service models (Mahendradhata et al., 2017; Wardhani et al., 2019). Recent research (Fahlevi et al., 2021; Nurkholis et al., 2023; Prayudi et al., 2023) highlights adopting financial management patterns similar to the private sector. However, the existing PMS remains decades old and may no longer align with contemporary corporate managerial strategies. Fahlevi (2016) observed that reformed public hospital managerial teams in Indonesia prioritise service quality and quantity over financial performance in their evaluations. Similarly, Sari (2017) found that weak routines and limited organisational learning hinder the effectiveness of financial performance measures in driving significant changes in service quality.

The focus on top management gains significance due to several factors. Morelli and Lecci (2014) contend that an organisation's reaction to external dynamics is influenced by intra-organizational factors, including interest, commitment, power, and the ability to take action. Therefore, organisational change can only materialise when a group of stakeholders possesses the authority, specifically the top management, to modify the organisation's objectives (Puspitasari & Pudjibudojo, 2022). Moreover, as reformed public hospitals increasingly incorporate private-sector managerial paradigms into their operations (Garengo & Sardi, 2020), top managers wield unparalleled influence and discretion in steering the organisation (Noordegraaf, 2015; Pettersen & Solstad, 2014). This shift entails a departure from traditional bureaucratic structures, empowering top managers to proactively establish performance targets, closely monitor key performance indicators (KPIs), and propel New Public Management (NPM)—oriented strategic changes (Ferlie et al., 2010; van der Kolk, 2022).

Understanding the characteristics of top management becomes particularly pivotal in comprehending the intricate dynamics of decision-making within public hospitals undergoing strategic change. Upper-echelon theory (Hambrick, 2013; Hambrick & Mason, 1984) suggests that diversity in demographic and non-demographic aspects significantly influences top managers' performance optimisation, affecting integration, social communication, competitive area selection, and decision-making (Busenbark et al., 2016). While literature explores how age, gender, expertise, education, and tenure impact strategic change and PMS, inconsistencies exist. Experience and healthcare expertise benefit change (Birken et al., 2017; Denis et al., 2013), but newer leaders can introduce innovation (Cummings et al., 2018). Additionally, the impact of specific educational backgrounds and gender

diversity of top management of public hospitals on PMS effectiveness varies (Chiniara & Bentein, 2016).

The following sections explore our literature review and hypothesis development, detail our methodology, present our findings, and provide a comprehensive discussion and analysis of the results. Additionally, we examine the implications of our research and conclude by offering recommendations for future studies.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The Upper-Echelon Perspective

The Upper-echelon (UE) perspective is a strategic management approach rooted in theoretical foundations such as bounded rationality (Simons, 1974) and dominant coalition (Cyert & March, 1963). According to UE, the complexities of governance demand a thorough assessment of top management members to accurately depict an organisation's strategic postures (Abatecola & Cristofaro, 2018). Executives' socio-demographic characteristics reflect their cognitive processes, shaping their strategic decision-making (Busenbark et al., 2016). The UE posits that top executives view their surroundings, including opportunities, threats, alternatives, and potential outcomes, through a highly personalised lens (Hambrick, 2007; Hambrick & Mason, 1984). Their comprehension of strategic situations is influenced by their experience, values, personality, and other individual factors (Hambrick, 2013). These distinct interpretations of reality, driven by personal factors, lead to diverse decision-making outcomes (Abatecola & Cristofaro, 2018).

Top Management Characteristics and Strategic Change

The age of top management plays a crucial role in deciding strategic change from a defender strategy, characterised by stability, efficiency, and risk aversion (Miles & Snow, 1978), to a prospector strategy, which focuses on innovation, exploration, and market expansion. Younger top managers, often more tech-savvy and open to innovation, are inclined to lead the adoption of a prospector strategy. They embrace new technologies, explore innovative healthcare practices, and adapt to changing market dynamics (Acemoglu et al., 2022). This group exhibits a higher tolerance for risk and a willingness to make strategic leaps, such as shifting from a defender to a prospector strategy. This shift involves taking calculated risks, exploring new service lines or partnerships, and investing in untested initiatives (Heyden et al., 2015).

Additionally, younger leaders are often more adaptable, open to change, and comfortable with rapid strategy and market dynamics shifts. These qualities are critical in the context of a prospector strategy (Hambrick & Mason, 1984). Furthermore, their better understanding of emerging healthcare trends, patient expectations, and technological advancements can inform the hospital's transition to a prospector strategy, identifying new opportunities for growth and innovation (Lunkes et al., 2018). Therefore, the hypothesis is stated as follows:

H_{1a}: Younger top managers are more likely to drive the strategic change from a defender to a prospector strategy

Leadership tenure also shapes strategic change responses. Longer-tenured top managers tend to become entrenched in existing routines and practices, fostering resistance to new strategies that challenge the status quo and exhibiting a higher aversion to risk due to potential losses in the event of unfavourable outcomes (Abatecola & Cristofaro, 2018). Conversely, shorter-tenured managers often display greater adaptability and openness to change (Galstian et al., 2018). Their fresh perspectives and reduced attachment to existing organisational culture make them well-suited to lead transitions toward a prospector strategy. In cases where reform efforts prompt leadership turnover, these newly appointed leaders are typically more ready to implement and champion the principles of a prospector strategy (Rashid et al., 2020). Therefore, the hypothesis is stated as follows:

H_{1b}: Shorter-tenured top managers are more likely to lead the strategic change from a defender to a prospector strategy

The educational background of top management, whether medical professionals or business administration, can significantly affect strategic change in public hospitals undergoing reform. It

impacts their approach to risk, priorities, and alignment with defender or prospector strategies, ultimately influencing the organisation's ability to adapt and innovate in the evolving healthcare landscape. Top managers with medical professional backgrounds contribute valuable clinical expertise and a deep understanding of healthcare operations (Sarto & Veronesi, 2016). Their proficiency in patient care, medical practices, and healthcare regulations is indisputable. However, their priorities often emphasise clinical quality and patient care over financial considerations, and they may exhibit a risk-averse mindset rooted in patient safety and established medical protocols (Crowe & Deane, 2018). Consequently, they may cautiously approach strategic change, particularly when it involves financial risk, aligning more closely with a defender strategy emphasising stability and risk minimisation (Miles & Snow, 1978).

On the other hand, top managers with business administration backgrounds tend to possess robust financial acumen, including budgeting, financial analysis, and strategic planning (Liem & Hien, 2020). They are more inclined towards financial risk-taking and excel in cost-effectiveness analysis. These leaders often prioritise innovation, market analysis, and business development in the health sector (Birken et al., 2015), making them more likely to champion a prospector strategy emphasising growth and diversification. Additionally, their ability to balance clinical quality and financial performance aligns with healthcare organisations' demands for strategic change (Naranjo-Gil & Hartmann, 2007). Therefore, the hypothesis is stated as follows:

H_{1c}: Top managers with business administration educational backgrounds are more inclined to spearhead the strategic change from a defender to a prospector strategy

The Mediating Role of Performance Measurement System Design

Performance Measurement System (PMS) represents a set of matrices used to quantify the efficiency and effectiveness of actions formulated from various specifically categorised performance metrics (Amhalhal et al., 2022). These matrices can be financial or non-financial, internal or external, short-term or long-term, and ex-post or ex-ante (Henri, 2006). The performance metrics design identifies critical objectives to be measured (Bourne et al., 2000), focusing mainly on what to measure and how to structure the PMS (Nudurupati et al., 2011). Over time, the design of PMS in public hospitals has increasingly focused on models and frameworks that aim to balance the composition of financial and non-financial performance measures (Spanò et al., 2018). Emphasising the diversity of performance measures based on financial and non-financial information is believed to guide healthcare organisations toward achieving higher performance levels (Elgazzar et al., 2019).

The age of top management in public hospitals undergoing reform can significantly influence the performance measurement system's (PMS) design. It can impact the strategic change decision, particularly the shift from a defender to a prospector strategy. Younger top managers tend to design PMS with a balanced mix of financial and non-financial metrics (Bedford et al., 2019). They recognise the value of a comprehensive approach, using financial metrics for cost-effectiveness and non-financial metrics to assess quality patient satisfaction and foster innovation. This approach aligns with a prospector strategy, emphasising innovation, exploration, and market expansion (Miles & Snow, 1978).

In contrast, older and more experienced managers often prioritise traditional financial metrics due to their extensive healthcare management background (Siam & Hussein, 2022). Their PMS design leans towards financial performance indicators, cost-efficiency, and risk aversion, aligning closely with a defender strategy focused on stability and risk minimisation. Consequently, organisations under their leadership may be less inclined to explore new opportunities, innovate, or expand into new markets as the PMS reinforces a focus on maintaining the status quo and financial stability (Edmonstone, 2020). Therefore, the hypothesis is stated as follows:

H_{2a}: Younger top managers are more likely to drive the strategic change from a defender to a prospector strategy through the design of the financial and non-financial PMS matrices

Managers with shorter tenures are often more receptive to change and innovation, as they have yet to become deeply ingrained in the existing organisational culture and practices (Bhardwaj, 2022). Their willingness to explore new approaches, including developing a PMS incorporating financial and non-financial metrics, is typically higher. Their shorter tenure also implies a lower level of commitment to the status quo, making them more adaptable to strategic changes (Galstian et al., 2018). This adaptability can be channelled into designing a well-balanced PMS to facilitate the transition to a

prospector strategy, emphasising innovation, exploration, and market expansion. In contrast, managers with longer tenure may resist change (Abatecola & Cristofaro, 2018). Their prolonged involvement in developing and implementing the existing PMS, which may heavily emphasise traditional financial metrics (Siam & Hussein, 2022), can result in a preference for a PMS design that reinforces the status quo. This alignment often corresponds with a defender strategy, which prioritises stability and risk minimisation (Miles & Snow, 1978). As a result, longer tenure managers may perpetuate a defender strategy, given that their PMS design further solidifies the organisation's focus on stability and risk reduction. Therefore, the hypothesis is stated as follows:

H_{2b}: Shorter-tenured top managers are more likely to lead the strategic change from a defender to a prospector strategy through the design of the financial and non-financial PMS matrices

The educational background of top management in public hospitals can significantly influence the design of the PMS and, consequently, the strategic change decision from a defender to a prospector strategy. Managers with medical professional backgrounds, such as doctors or nurses, often prioritise clinical expertise and patient care due to their deep understanding of healthcare operations (Zainal, 2022; Kwame & Petrucka, 2021). This background may lead them to design a PMS that heavily emphasises clinical quality and patient satisfaction, typically represented by non-financial metrics (Krenyácz, 2018). Their focus on patient safety and established medical protocols may make them more risk-averse, aligning with a defender strategy centred on stability and risk minimisation. Conversely, managers with a business administration background tend to possess strong financial acumen, including budgeting and financial analysis (Dewulf et al., 2020). They are comfortable with financial risk-taking and cost-effectiveness analysis, which may lead them to incorporate a balanced mix of financial and non-financial metrics into the PMS. Their background makes them more inclined to champion a prospector strategy, emphasising growth, diversification, and financial performance (Birken et al., 2015). Therefore, the hypothesis is stated as follows:

H_{2c}: Top managers with business administration educational backgrounds are more inclined to spearhead the strategic change from a defender to a prospector strategy through the design of the financial and non-financial PMS matrices

Figure 1 depicts the overall model, encompassing the hypotheses.

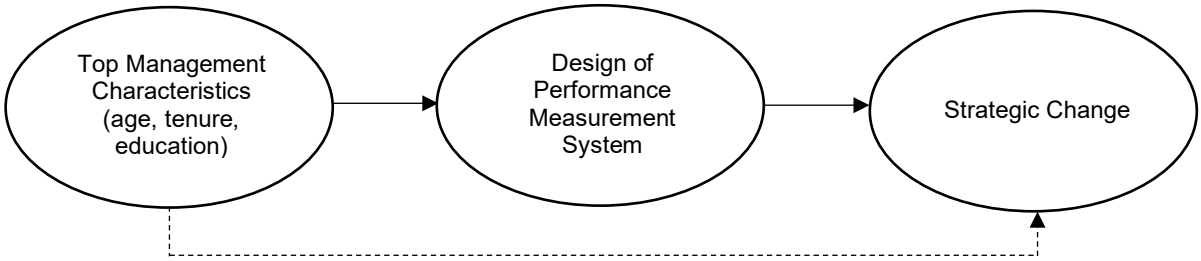


Figure 1. Research Model

RESEARCH METHOD

Data Collection

The sample was drawn from a public hospital database developed by the Association of Indonesian Regional Hospitals (ARSADA) and the Development Finance Comptroller of Indonesia (BPKP). We distributed self-administered questionnaires to 200 top managers of regional public hospitals in Indonesia, including directors, vice directors of healthcare operations, vice directors for organisational administration and financial management, and vice directors of support services affairs. Of the 200 questionnaires, 173 were returned, resulting in a satisfactory response rate of 86.5%. We excluded six questionnaires with significant missing data and ten questionnaires filled out by top managers with less than three years of tenure. Therefore, our final sample for hypothesis testing comprised 157 top managers (78.5%). To assess potential non-response bias, we compared survey

respondents with the original mailing list (Scott et al., 2011). We conducted Chi-square tests and independent-sample t-tests, which did not reveal any indications of non-response bias.

Measurement of Variables

Strategic Change

The instrument developed by Abernethy and Lillis (2001) was used to assess strategic changes. Based on its validity and relevance in the hospital context (Helmig et al., 2014), we adopted Miles and Snow's (1978) strategic typology. We provide managers with an explanation of organisations that tend to survive and organisations that are more proactive. Next, they were asked to assess how their organisation's strategic position had changed in the last three years. This assessment is carried out using a rating scale ranging from '1' for organisations that tend to survive to '5' for more proactive organisations. They were also asked to assess the current strategic position similarly, using the same scale. We then calculated the differences in ratings between the former and current time frames, using these discrepancies as proxies for changes in strategy, following the approach outlined by Abernethy and Brownell (1999).

Design of PMS

The term "design" pertains to the measurement variability of the content within the PMS (Henri, 2009). In the hospital context, it refers to the diversity of measures considered performance indicators and focuses on categorising financial and non-financial performance measures (Spanò et al., 2018). We used Naranjo-Gill and Hartmann's (2006) instrument, modified to comply with Minister of Health Regulation Number 63 of 2016 on Financial Management of Public Service Agencies. Respondents were asked to indicate on a five-point scale (‘1’ = not a priority and ‘5’ = essential) the extent to which they prioritised specific performance measures for designing the PMS. The questions regard two scope dimensions, which are financial (inventory turnover, receivables collection period, and current ratio) and non-financial (level of complaint handling; average length of stay (AvLoS); ease of service; and emergency response time rate).

Through exploratory factor analysis, we assessed the PMS design scale's factorial structure as a single dimension, which explained 69.32% of the variance. Confirmatory factor analysis further confirmed its unidimensionality, demonstrating reliability and convergent validity. All item reliabilities were ensured with factor loadings [ranging from 0.736 to 0.905] exceeding the 0.6 threshold (Kline, 1994). The composite reliability index [Cronbach’s alpha = 0.922; composite reliability = 0.932] exceeded the 0.7 threshold (Nunnally & Bernstein, 1994). The average variance extracted (AVE = 0.663) for convergent validity surpassed the 0.5 benchmark (Fornell & Larcker, 1981), confirming convergent validity.

Top Management Characteristics

TMT characteristics were measured with factual questions about managers' age, tenure, and professional or managerial educational background. Tenure was calculated based on the years a top manager had been in their current position. Regarding educational background, managers were asked about their university and postgraduate degrees. These led to business- or operations-oriented education (Naranjo-Gil et al., 2009). We then created educational background variables as sample variables for medical-oriented education (‘1’) and business-oriented education (‘2’).

Control Variable: Hospital Size

We implemented a rigorous methodology to account for the potential confounding effect of hospital size within our model. The inclusion of hospital size, measured by the number of beds, was motivated by the awareness that as an organisation grows, it tends to adopt more formalised and institutionalised structures. Consequently, this growth may diminish top-level managers' involvement in strategic decision-making (Naranjo-Gil et al., 2008).

RESULTS

Table 1 displays all study variables' means, standard deviations, and correlation coefficients. While some variables in the regression equations exhibit statistically significant correlations, VIF analysis reveals no evidence of multicollinearity. Table II presents the results of the hierarchical

regression analysis used to test our hypotheses, which enables us to assess mediation while controlling for hospital size (included in step 1 of the regressions). This procedure, following Baron and Kenny (1986), involves three regression equations: Model 1 regresses the mediating variable on independent and control variables, Model 2 regresses the dependent variable on independent and control variables, and Model 3 regresses the dependent variable on independent, mediating, and control variables.

Table I
Means, Standard Deviations and Correlations

		Mean	S.D	1	2	3	4	5	6
1	Age	47.47	6.93						
2	Tenure	11.22	8.06	0.33**					
3	Education	1.47	0.50	-0.03	-0.17*				
4	Design of PMS	4.33	0.58	-0.23**	-0.07	0.18*			
5	Strategic Change	0.83	1.51	-0.33**	-0.34**	0.24**	0.22**		
6	Hospital Size	214.98	106.07	0.18*	0.27**	0.03	0.02	-0.21**	

$n = 157$
$^*p < 0.05$, $^{**}p < 0.01$

Table II
Results of Regression Analysis

Variables	Design of PMS	Strategic Change	
	Model 1	Model 2	Model 3
Hospital Size	0.052 (0.674)	-0.125 (-1.671)	-0.133 (-1.791)
Age	-0.249 (-3.027)**	-0.235 (-3.088)**	-0.198 (-2.549)*
Tenure	0.019 (0.222)	-0.188 (-2.365)*	-0.190 (-2.424)*
Education	0.204 (2.548)*	0.188 (2.544)**	0.158 (2.110)*
Design of PMS			0.149 (2.000)*
R^2	0.105	0.234	0.254
Adjusted R^2	0.075	0.208	0.224
F	3.538**	9.216**	8.499**

Standardised coefficients are reported, with t values in parentheses; $n = 157$
$^*p < 0.05$, $^{**}p < 0.01$

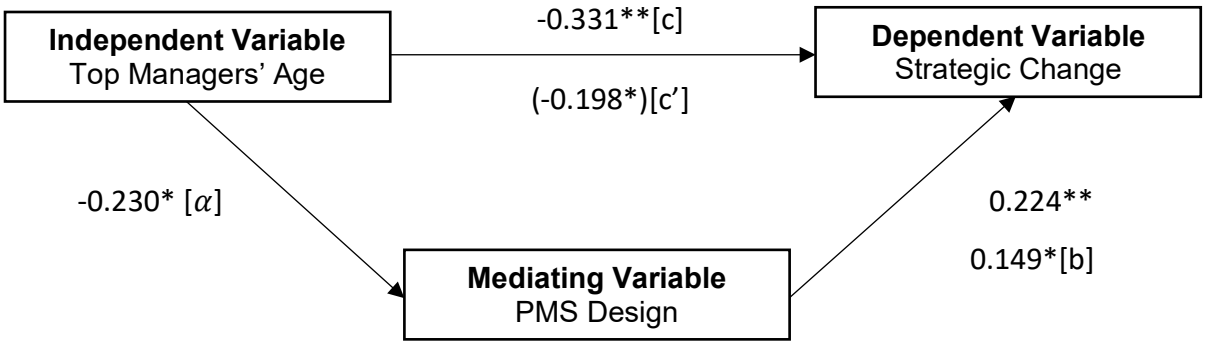
In Model 1, we found a significant negative relationship between manager age ($\beta = -0.249$, $p < 0.01$) and the PMS design incorporating financial and non-financial measures. Additionally, managers with business administration backgrounds were discovered to be more inclined towards a mixed-design PMS ($\beta = 0.204$, $p < 0.05$). However, manager tenure ($\beta = 0.019$, $p = 0.795$) and the control variable, hospital size ($\beta = 0.052$, $p = 0.502$), showed positive but insignificant relationships with the PMS design variable. That satisfies the first necessary condition for a mediating effect of PMS design on the relationship between top managers' age and educational background, but not tenure and strategic change.

In Model 2, when regressing the strategic change variable on control variables and the age, tenure, and educational background of hospital top managers, we found that age ($\beta = -0.235$, $p < 0.01$), tenure ($\beta = -0.188$, $p < 0.05$), and educational background ($\beta = 0.188$, $p < 0.01$) were all significantly related to strategic change. That supports hypotheses H_{1a}, H_{1b}, and H_{1c}, fulfilling the second condition for the mediating effect of PMS design on the relationship between top managers' age and educational background and strategic change.

In Model 3, the strategic change variable was regressed on control variables (hospital size), independent variables (age, tenure, and educational background of hospital top managers), and the mediating variable (PMS design). The results showed significant relationships between the independent and dependent variables in the mediator's presence, indicating partial mediation. Sobel tests confirmed significant partial mediation of the PMS design for both the influence of top manager age ($Z = -2.02$, $p < 0.05$) and top manager educational background ($Z = 2.16$, $p < 0.05$) toward strategic change. These results strongly support hypotheses H_{2a} and H_{2c}.

We finally used the MedGraph-I program (Jose, 2013) to investigate the amount of direct and indirect influence top managers' age and educational background have on strategic change to interpret the results better. As we can see in Figures 1 and 2, the size of the indirect effect on the direct effect indicates that the indirect effect is moderate. Specifically, indirect influence represented 13.63% of the total for top managers' age and 15.59% for top managers' educational background.

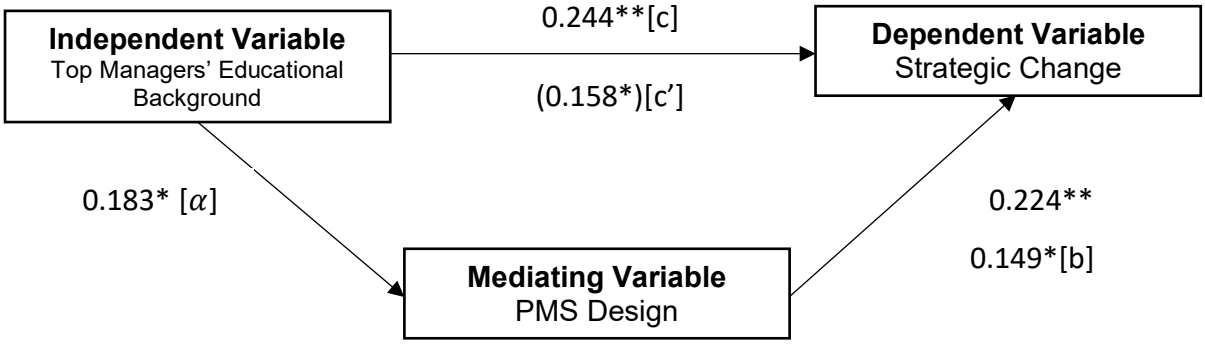
Standardised Coefficient of Top Managers' on Strategic Change
Direct: -0.19
Indirect: -0.03



Note: The numerical values in the parentheses are beta weights taken from the second regression, and the other values are zero-order correlations
*p < 0.05, **p < 0.01

Figure 1. Mediation of PMS Design on the Relationship between Top Managers' Age and Strategic Change

Standardised Coefficient of Top Managers' on Strategic Change
Direct: 0.158
Indirect: 0.027



Note: The numerical values in the parentheses are beta weights taken from the second regression, and the other values are zero-order correlations
*p < 0.05, **p < 0.01

Figure 2. Mediation of PMS Design on the Relationship between Top Managers' Educational Background and Strategic Change

DISCUSSION

This study delves into the relationship between top management characteristics in public hospitals, as viewed through the Upper-echelon perspective, and their influence on strategic change. We also examine how the performance measurement system (PMS) design mediates this relationship. Our findings indicate that younger top managers are more inclined to prioritise shifting from a defender

to a prospector strategy. This inclination can be attributed to their tech-savviness, willingness to take calculated risks, readiness to embrace strategic innovations, adaptability, and their profound understanding of evolving healthcare trends and technology (Acemoglu et al., 2022; Hambrick & Mason, 1984; Heyden et al., 2015; Lunkes et al., 2018). Furthermore, an alternative explanation for this preference could be that younger top managers are more focused on fostering innovation to maximise the long-term value of their organisations (Chuang et al., 2007), while their older counterparts may exhibit a more short-term perspective (Teles et al., 2019). It is essential to note that, within the context of hospitals, the outcomes of transitioning from a defender to a prospector strategy are generally viewed as beneficial in the long run (Naranjo-Gil, 2015).

Our results also indicate that shorter-tenured top managers with business administration backgrounds are more likely to lead the shift from a defender to a prospector strategy. Their limited immersion in the organisational culture is advantageous as they bring fresh, unburdened perspectives (Galstian et al., 2018). Additionally, they are more likely to recognise the need for advanced operational mechanisms and translate this into an innovative, prospector-oriented strategy (Naranjo-Gil et al., 2009). Furthermore, leaders with a business orientation prioritise innovation, market analysis, and business development in healthcare, aligning with the demands of a prospector strategy emphasising growth and diversification while effectively balancing clinical quality and financial performance (Birken et al., 2015; Naranjo-Gil & Hartmann, 2007).

We also found that the performance measurement system's (PMS) design partially mediates the relationship between top managers' age, educational background, and strategic change. Younger top managers, recognising the value of a comprehensive approach, prefer incorporating financial and non-financial measures into the PMS design. This approach enables them to use financial metrics for cost-effectiveness while using non-financial metrics to assess quality patient satisfaction and promote innovation (Bedford et al., 2019; Edmonstone, 2020; Siam & Hussein, 2022). In addition, top managers with business administration educational backgrounds tend to have robust financial skills, enabling them to incorporate a balanced mix of financial and non-financial metrics into the PMS due to their comfort with financial risk-taking and cost-effectiveness analysis (Birken et al., 2015; Dewulf et al., 2020). Langfield-Smith (2006) noted an increase in using a mix of financial and non-financial performance measures for managerial rewards in organisations following a prospector strategy. Since a prospector strategy is often associated with high environmental uncertainty, hospital managers rely more on subjective and advanced performance evaluation to adapt to their uncertain and complex environment (Demartini & Trucco, 2018).

Finally, no significant mediation influence was found for PMS design in the relationship between top managers' tenure and strategic change. While a mix of performance measures is crucial for supporting the shift from defender to prospector strategies, top managers' tenure may need to be more strongly linked to how they design the PMS (Demartini & Trucco, 2017). Bobe and Kober (2020) note that, in a newly corporatised environment, top managers with long-standing organisational positions may recognise the importance of using comprehensive (financial and non-financial) performance measurement to manage their current state. Furthermore, no evidence supports a relationship between organisation size and strategic change. While previous studies have often linked the size of healthcare organisations, measured by the number of beds, to strategic decision-making (Naranjo-Gil & Hartmann, 2006), other research suggests that organisation size and strategic change may not be correlated (Demartini & Trucco, 2017; Pavlatos, 2012).

CONCLUSION

The study results suggest that younger, less-tenured top managers with backgrounds in business administration are more prone to spearheading the shift from a defender to a prospector strategy, with the mediating effect of PMS design playing a partial role in the relationship between age and educational background of top managers and strategic change. These insights offer healthcare organisations guidance in selecting top management personnel, designing performance measurement systems, and understanding the dynamics of strategic change, which can lead to more effective and efficient strategic decision-making processes. Reformed public hospitals in Indonesia should consider top managers' age, tenure, and educational backgrounds when making leadership appointments. Hospitals should adopt a comprehensive PMS design approach, including financial and non-financial metrics. Additionally,

while more than tenure is needed to influence PMS design and strategic change strongly, it is essential to assess top managers' competencies and skills regardless of tenure. Hospitals in Indonesia should focus on managers' abilities to adapt, innovate, and foster strategic change rather than relying solely on their years of service.

Despite achieving its purposes, the current research, like any other empirical study, has several limitations that must be addressed. The use of perceptual measurements, purposive sampling (Choy, 2014), and the standard method bias (Fuller et al., 2016) are some of the inherent limitations of the survey method. In future studies, our research question could be investigated through experiments and alternative research techniques that provide a more robust means of establishing causal relationships. Also, in this paper, we examined the demographic data of top managers, which, while helpful in simplifying their unique characteristics that are expected to influence strategic change (Wally & Becerra, 2001), suggests that future research could explore the implications of top management diversity concerning managers' personality traits.

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