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LINKING STRATEGIC VIGILANCE TO COMPETITIVE ADVANTAGE THROUGH CRISIS MANAGEMENT: EVIDENCE FROM HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

Purpose – This study investigates the role of strategic vigilance in enhancing competitive advantage, while examining the mediating effect of crisis management within higher education institutions (HEIs). Grounded in the Resource-Based View, Dynamic Capabilities Theory, and Organizational Resilience, the study develops and tests a model that links foresight capabilities to sustainable competitiveness in turbulent environments.

Design/ Methodology/ Approach – A cross-sectional survey was administered to 1,232 academic and administrative leaders across HEIs. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via Smart PLS 4. Measurement validity and reliability were assessed, and hypotheses were tested through bootstrapping procedures.

Findings – The results demonstrate that strategic vigilance has a strong positive effect on both competitive advantage and crisis management. Crisis management was also found to significantly enhance competitive advantage and to mediate the relationship between vigilance and competitiveness. These findings suggest that foresight capabilities, when operationalized through structured crisis responses, are critical for sustaining institutional resilience and long-term competitiveness.

Practical Implications – For HEI leaders, the findings underscore the importance of institutionalizing vigilance practices, such as systematic environmental scanning and technology monitoring, while simultaneously strengthening crisis management frameworks, including preparedness plans, adaptive governance, and recovery strategies. Together, these capabilities enable universities to navigate turbulence, safeguard reputation, and maintain stakeholder trust.

Originality/ Value – This study extends the literature by integrating vigilance, crisis management, and competitive advantage into a single framework and empirically validating their interrelationships in the underexplored higher education context. The findings advance theoretical understanding of how intangible resources and dynamic capabilities interact, while offering actionable insights for enhancing resilience and competitiveness in academic institutions facing persistent disruption.

Keywords: *Strategic Vigilance; Crisis Management; Competitive Advantage; Higher Education Institutions; Dynamic Capabilities; Organizational Resilience*

INTRODUCTION

Higher education institutions (HEIs) worldwide are operating in a turbulent and increasingly competitive environment where knowledge production, student recruitment, technological advancement, and international partnerships define institutional success (Waller et al., 2019). Globalization, digital transformation, rising stakeholder expectations, and socio-political uncertainties have collectively reshaped the academic landscape, compelling universities and colleges to adopt strategic approaches that extend beyond traditional academic and administrative practices (Romero-Sánchez et al., 2024). The competitive pressure is not confined to rankings or reputation alone; rather, it reflects the ability of institutions to anticipate challenges, adapt swiftly to disruptions, and secure their long-term sustainability (Nyakotyo & Goronga, 2024). In this dynamic context, strategic vigilance has emerged as a pivotal managerial practice that equips institutions with the foresight necessary to navigate uncertainty and secure a sustainable competitive advantage (Pucciarelli & Kaplan, 2016).

Strategic vigilance refers to the systematic process of scanning, analyzing, and interpreting signals from both the internal and external environment in order to inform strategic decisions (Kanabi et al., 2025). Unlike conventional environmental scanning, which often adopts a passive stance, strategic vigilance emphasizes continuous monitoring, critical interpretation of weak signals, and proactive adaptation to emerging realities (Selatnia, 2023). For higher education, such vigilance entails anticipating shifts in student demographics, recognizing the implications of digital education platforms, understanding funding dynamics, and preparing for socio-political disruptions (Haleem et al., 2022; Timotheou et al., 2022; Matsieli & Mutula, 2024). By integrating strategic vigilance into institutional culture and governance, universities can position themselves not merely as reactors to change, but as proactive shapers of their competitive space.

Yet, vigilance in itself does not guarantee competitive advantage (Ouali & Ouali, 2024). The mere detection of threats or opportunities remains ineffective without the capacity to transform awareness into concrete action (Heino et al., 2022). This is where crisis management assumes critical importance. Effective crisis management provides the institutional mechanisms to convert environmental awareness into resilience, enabling universities to mitigate the impact of unforeseen disruptions while safeguarding their reputation, continuity, and stakeholder trust

(Mizrak, 2024). Crises in higher education may range from financial downturns, cybersecurity threats, public health emergencies, and political instability, to reputational scandals (Hill-Berry & Burris-Melville, 2024; Sott & Bender, 2025). Institutions with robust crisis management frameworks can respond not only to limit damage but also to leverage crises as opportunities for renewal and innovation (Hu et al., 2022). In this sense, crisis management functions as the mediating bridge that links strategic vigilance to sustained competitive advantage.

Theoretically, this intersection draws support from the Resource-Based View (RBV) and Dynamic Capabilities Theory. The RBV posits that unique and valuable resources, such as vigilant leadership and strategic foresight, serve as the foundation of competitive advantage (Mailani et al., 2024). However, in turbulent environments like Yemen, these resources must be complemented by dynamic capabilities, which enable institutions to integrate, reconfigure, and renew competencies in response to external shocks (Mufudza, 2019). Strategic vigilance may be understood as an antecedent capability that identifies and interprets environmental signals (Haarhaus & Liening, 2020), while crisis management represents the dynamic capability that operationalizes this foresight, allowing HEIs to adapt effectively and protect their strategic position (Hussin & Mussahib, 2024).

Despite its conceptual relevance, the interplay between strategic vigilance, crisis management, and competitive advantage remains underexplored in higher education literature particularly in low-income and limited resources setting like Yemen. Existing research often treats environmental scanning and crisis response as separate streams, with limited attention to their integrated role in shaping institutional competitiveness. Moreover, much of the scholarship on competitive advantage in higher education is framed within Western contexts, with insufficient focus on regions facing systemic vulnerabilities such as political instability, resource constraints, or fragile governance structures. This gap is particularly significant for developing countries, where HEIs operate under heightened uncertainty and where strategic vigilance coupled with effective crisis management may constitute not only a driver of competitiveness but also a necessity for institutional survival.

Accordingly, this study seeks to contribute to the literature by examining the role of strategic vigilance in enhancing competitive advantage, while highlighting the mediating role of crisis management within higher education institutions in the Yemeni context. By empirically

investigating this relationship, the study advances theoretical understanding of how vigilance and resilience interact as dynamic capabilities, while offering practical insights for university leaders on building proactive and adaptive strategies in an increasingly turbulent academic environment.

THEORETICAL LENS

The relationship between strategic vigilance, crisis management, and competitive advantage can be best understood through the integrative application of the Resource-Based View (RBV), the Dynamic Capabilities Theory, and the concept of Organizational Resilience.

From the perspective of the Resource-Based View (RBV), organizations achieve competitive advantage when they possess valuable, rare, inimitable, and non-substitutable resources (Barney, 1991). In the context of higher education institutions, strategic vigilance represents a strategic resource that enhances decision-making by enabling institutions to detect opportunities and threats in their internal and external environment. Vigilance provides foresight, allowing universities to anticipate demographic shifts, technological disruptions, or policy reforms before they fully materialize. However, RBV alone is insufficient in environments characterized by volatility, as resources must be mobilized and reconfigured to maintain relevance (Kero & Bogale, 2023).

This limitation is addressed by the Dynamic Capabilities Theory (Teece, Pisano & Shuen, 1997), which extends RBV by emphasizing an organization's ability to sense opportunities and threats, seize them through timely action, and transform its resource base in response to changing conditions. Within this framework, strategic vigilance corresponds to the "sensing" capability, while crisis management constitutes a critical "seizing and transforming" capability. Crisis management operationalizes the insights derived from vigilance, ensuring that institutions can adapt their structures, strategies, and processes to mitigate risks and capitalize on opportunities emerging from crises. In this sense, crisis management acts as a mediator, bridging foresight with actionable transformation, thus reinforcing competitive positioning (Sun et al., 2024).

The Organizational Resilience perspective further complements these theories by highlighting the institution's capacity not only to withstand shocks but also to emerge stronger after

disruptions (Lengnick-Hall et al., 2011). For higher education institutions, resilience is manifested in the ability to sustain academic continuity, preserve stakeholder trust, and adapt pedagogical and administrative models in times of crisis. Strategic vigilance equips institutions with the foresight to prepare for disruptions, while crisis management ensures resilience through structured, coordinated, and adaptive responses. Together, they enhance the institution's agility and long-term competitiveness (Chatzipanagiotou & Katsarou, 2023; Nyakotyo & Goronga, 2024).

Therefore, by integrating RBV, Dynamic Capabilities, and Organizational Resilience, this study conceptualizes strategic vigilance as a vital intangible resource, crisis management as the dynamic capability that mobilizes and reconfigures this resource, and competitive advantage as the outcome of this synergy. This theoretical lens not only explains the mechanisms linking vigilance and competitiveness but also positions crisis management as the mediating construct that transforms environmental awareness into sustained institutional success.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Strategic Vigilance and Competitive Advantage

Strategic vigilance refers to the systematic ability of organizations to continuously monitor, interpret, and respond to signals from both internal and external environments (Lesca & Caron-Fasan, 2008; Zouarqui & Mouzaoui, 2024). Unlike traditional environmental scanning, vigilance emphasizes early detection of weak signals and emerging trends that may affect organizational sustainability (Rohrbeck & Bade, 2012). In higher education, vigilance enables institutions to anticipate shifts in student preferences, evolving accreditation standards, technological disruptions in teaching and research, and funding or policy reforms (Bani-Hani, 2023).

The literature has consistently highlighted the role of vigilance in strengthening competitive positioning. By proactively interpreting environmental cues, organizations are able to seize opportunities, mitigate risks, and differentiate themselves from competitors (Ouali & Ouali, 2024; Kanabi et al., 2025; Alkhazraje, 2024; (Zouarqui & Mouzaoui, 2024). However, most studies have focused on corporate or industrial settings, with limited application to higher education institutions (Musaed, 2023), especially in developing countries where resource

constraints heighten the need for anticipatory strategies (Elbanna & Child, 2007). Thus, empirical evidence regarding the direct influence of strategic vigilance on the competitive advantage of HEIs remains limited.

Hypothesis 1 (H1): *Strategic vigilance has a positive and significant effect on competitive advantage in higher education institutions.*

Strategic Vigilance and Crisis Management

The literature recognizes vigilance as an antecedent to effective crisis management. Organizations that actively engage in environmental scanning and interpretation are better positioned to detect early warning signals of crises (Pearson & Clair, 1998 (Al-Tanayeeb, 2020). For instance, research demonstrates that firms with established vigilance systems responded more effectively to financial shocks and technological disruptions (Coombs, 2015). In the context of higher education, vigilance allows institutions to prepare for diverse crises such as cyberattacks, public health emergencies, political instability, or reputational threats.

Scholars argue that while crises cannot be entirely prevented, their impact can be significantly reduced through proactive anticipation and preparedness (Boin & Van Eeten, 2013). Strategic vigilance thus creates a foundation for crisis management by transforming environmental insights into contingency planning, risk assessment, and adaptive strategies (Obeidat, 2022). Yet, the literature has seldom examined this relationship in higher education settings, where crises often carry heightened reputational and operational risks.

Hypothesis 2 (H2): *Strategic vigilance has a positive and significant effect on crisis management in higher education institutions.*

Crisis Management and Competitive Advantage

Crisis management involves the identification, assessment, and coordinated response to events that threaten organizational viability (Mitroff, 2016). While crises are often perceived as threats, effective management can transform them into opportunities for renewal and innovation (Bundy et al., 2017). Studies have shown that organizations with strong crisis management capabilities not only mitigate reputational and financial damage but also

strengthen trust with stakeholders, thereby achieving sustainable competitive advantage (Coombs & Holladay, 2012).

In higher education, crisis management is essential for safeguarding academic continuity, maintaining student and faculty trust, and protecting institutional reputation (Wang & Hutchins, 2010). For example, the COVID-19 pandemic demonstrated that universities with robust crisis response mechanisms, rapid digital transition, flexible academic policies, and strong communication systems, were more likely to sustain their competitiveness compared to less prepared institutions (Kanwar & Carr, 2020). This highlights crisis management not merely as a defensive tool, but as a proactive driver of institutional resilience and long-term success (Rosenthal & Kouzmin, 1996). However, the link between crisis management and competitive advantage still scarce in the developing countries.

Hypothesis 3 (H3): *Crisis management has a positive and significant effect on competitive advantage in higher education institutions.*

Mediating Role of Crisis Management

Although strategic vigilance provides foresight, the realization of competitive advantage often depends on the institution's ability to act upon this knowledge (Capatina et al., 2024). Vigilance without effective crisis management may result in unexploited opportunities or unmanaged risks (Sattar & Hassan, 2024). Literature on dynamic capabilities (Teece, 2007) suggests that sensing capabilities (vigilance) must be complemented by seizing and transforming capabilities (crisis management) in order to yield sustainable advantage (Dias et al., 2022).

Empirical research has shown that organizations that combine foresight with structured crisis management achieve superior performance outcomes compared to those relying solely on environmental scanning (Keinänen et al., 2025; Iftikhar et al., 2023; Williams et al., 2017). In the higher education context, this means that the insights generated by vigilance systems must be operationalized through crisis preparedness, rapid response mechanisms, and adaptive governance to secure competitive positioning. Thus, crisis management can be seen as the mediating mechanism that translates strategic vigilance into tangible competitive advantage.

Hypothesis 4 (H4): *Crisis management mediates the relationship between strategic vigilance and competitive advantage in higher education institutions*

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Conceptual Model

As shown in Figure 1, the study model illustrates the relationships among Strategic Vigilance, Crisis Management, and Competitive Advantage. This conceptual framework aims to explore how proactive strategic practices can enhance an organization's resilience and positioning in the market through effective crisis response.

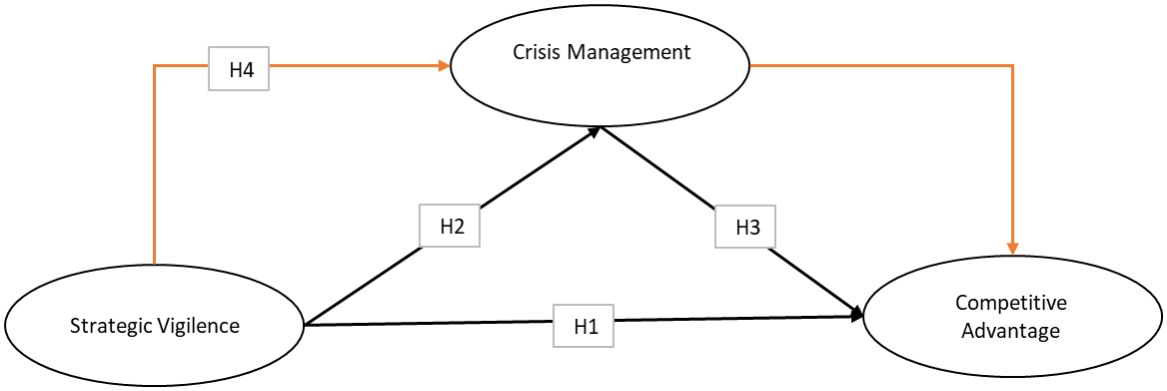

Figure 1: Study Conceptual Model

METHODOLOGY

Research Design

This study adopted a quantitative, cross-sectional survey design to empirically examine the relationship between strategic vigilance and competitive advantage, with the mediating role of crisis management in higher education institutions (HEIs). This design was appropriate given the study's objective to test theoretically grounded hypotheses using standardized measurement scales and advanced statistical modeling.

Population and Sampling

The target population comprised academic and administrative leaders from higher education institutions. These respondents were selected because of their direct involvement in strategic decision-making and crisis response, making them well-positioned to assess the constructs under investigation. Using purposive sampling, the study obtained 1,232 valid responses, which exceeded the minimum sample size required for structural equation modeling (Hair et al., 2019). The sample included 81.5% male and 18.5% female respondents, with the majority holding doctoral or master's degrees and extensive leadership experience (see Table 1). This

demographic distribution reflects a highly knowledgeable group of participants across academic and administrative domains.

Instrument Development

The study instrument was a structured questionnaire composed of three multi-dimensional constructs:

- ***Strategic Vigilance:*** Measured across five dimensions (technological, competitive, business, social, and environmental vigilance), adapted from (Al-Tanayeeb, 2020; Mesaadah & Miqdadi, 2025)
- ***Crisis Management:*** Measured across five dimensions (prediction and early warning, preparedness and prevention, adaptation and damage containment, recovery and continuity, and learning and lesson extraction), adapted from Mitroff (2005) and Coombs (2015) and Sallam & Alhakimi (2025).
- ***Competitive Advantage:*** Measured across five dimensions (cost, quality, innovation, flexibility, and efficiency), adapted from Barney (1991).

All items were rated on a 7-point Likert scale ranging from 1 (“strongly disagree”) to 7 (“strongly agree”). The questionnaire was pre-tested for clarity and face validity with a panel of experts in strategic management and higher education. Minor revisions were made to ensure contextual relevance.

Data Collection Procedures

Data were collected using both online and paper-based survey methods to maximize reach and participation. Respondents were assured of confidentiality and anonymity to minimize response bias. Participation was voluntary, and informed consent was obtained from all participants prior to completing the survey.

Data Analysis

The statistical analysis was conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique with SmartPLS 4 software. PLS-SEM is particularly appropriate in this study context given its ability to handle complex models with multiple constructs, its suitability for prediction-oriented research, and its relaxed assumptions regarding data normality (Hair, et al. 2017; Hair, Sarstedt, et al., 2018). The analysis followed the two-step procedure recommended by Hair et al. (2019), which involves (1) evaluation of the measurement model to ensure reliability and validity of the constructs, and (2) assessment of the structural model to test hypothesized relationships among latent variables. Prior to model estimation, descriptive statistics (means, standard deviations, skewness, and kurtosis) were computed to examine the central tendency and dispersion of the study variables, as well as to provide preliminary insights into the dataset's characteristics (Byrne, 2016).

In the measurement model assessment, construct reliability and validity were evaluated using multiple criteria. Internal consistency reliability was confirmed as all constructs achieved Cronbach's alpha and Composite Reliability (CR) values above the threshold of 0.70 (Nunnally & Bernstein, 1994; Hair et al., 2019). Convergent validity was assessed using the Average Variance Extracted (AVE), with all values exceeding the recommended cutoff of 0.50, thereby confirming that constructs explained more than half of the variance in their indicators (Fornell & Larcker, 1981). Discriminant validity was examined using the Heterotrait-Monotrait ratio of correlations (HTMT), which has been shown to be a more reliable criterion than the traditional Fornell-Larcker approach (Henseler, et al., 2015). All HTMT values were below the conservative threshold of 0.90, providing evidence of adequate discriminant validity.

Upon confirmation of the adequacy of the measurement model, the structural model was evaluated by examining path coefficients, coefficient of determination (R^2), effect sizes (f^2), and predictive relevance (Q^2) following guidelines by Hair et al. (2017, 2019). Bootstrapping with 5,000 resamples was performed to assess the significance of path coefficients (Hair et al., 2019).

*Common **Method Bias Assessment***

Given the use of self-reported survey data, the study assessed the potential for common method variance (CMV) using the full collinearity VIF approach recommended by Kock (2015). All variance inflation factor (VIF) values for the latent constructs were found to be below the

conservative threshold of 3.3, indicating that common method bias is not a major concern in this study. This supports the robustness of the model's structural relationships and construct validity.

RESULTS

Sample Characteristics

Table 1 Sample characteristics

Variable	Category	Frequency	Percentage
Gender	Male	1004	81.5%
	Female	228	18.5%
	Total	**1232**	**100%**
Educational Level	High school or below	16	1.3%
	Post-secondary diploma	49	4.0%
	Bachelor's degree	440	35.7%
	Postgraduate diploma	28	2.3%
	Master's degree	212	17.2%
	Doctoral degree	487	39.5%
	Total	**1232**	**100%**
Job Title	Academic leadership	495	40.2%
	Administrative leadership	737	59.8%
	Total	**1232**	**100%**
Years of Experience	Less than 5 years	202	16.4%
	5 to less than 10 years	346	28.1%
	10 to less than 15 years	356	28.9%
	15 years and above	328	26.6%
	Total	**1232**	**100%**

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Table 1 shows that the study sample consisted of 1,232 respondents. In terms of gender, a large majority were male (81.5%), while females represented 18.5%. Regarding educational attainment, the highest proportion held doctoral degrees (39.5%), followed by bachelor's degrees (35.7%) and master's degrees (17.2%). Only a small fraction had a high school education or lower (1.3%) or a postgraduate diploma (2.3%). Concerning job titles, 59.8% held administrative leadership positions, while 40.2% were in academic leadership roles. As for years of experience, most respondents had between 10 to less than 15 years (28.9%) or 5 to less than 10 years (28.1%), while 26.6% had 15 years or more, and 16.4% had less than 5 years of experience. This demographic distribution reflects a well-educated and experienced leadership group across both academic and administrative domains.

Descriptive Statistics

Table 2: Descriptive Statistics

Main Variable	Dimension	Mean	Standard Deviation
Strategic Vigilance	Technological Vigilance	4.707	1.510
	Competitive Vigilance	4.675	1.537
	Business Vigilance	4.671	1.555
	Social Vigilance	4.581	1.548
	Environmental Vigilance	4.470	1.441
	Overall Mean	**4.621**	**1.421**
Crisis Management	Prediction & Early Warning	4.388	1.488
	Preparedness & Prevention	4.486	1.523
	Adaptation & Damage Containment	4.458	1.538
	Recovery & Continuity	4.460	1.567

	Learning & Lesson Extraction	4.499	1.563
	Overall Mean	**4.458**	**1.443**
Competitive Advantage	Cost	4.517	1.495
	Quality	4.572	1.559
	Innovation	4.480	1.589
	Flexibility	4.465	1.580
	Efficiency	4.448	1.561
	Overall Mean	**4.497**	**1.450**

Table 2 presents the descriptive statistics were calculated to determine participants' perceptions across the main study variables: Strategic Vigilance, Crisis Management, and Competitive Advantage. The results indicate that Strategic Vigilance scored the highest overall mean (M = 4.621, SD = 1.421), with Technological Vigilance being the most emphasized dimension (M = 4.707). Crisis Management followed with an overall mean of 4.458 (SD = 1.443), where the Learning & Lesson Extraction dimension had the highest average (M = 4.499). Competitive Advantage showed a slightly lower overall mean (M = 4.497, SD = 1.450), with Quality (M = 4.572) being the most prominent component. These findings reflect generally high levels of agreement among respondents across all dimensions, indicating strong perceptions of strategic preparedness and performance.

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Measurement Model Assessment

Reliability, Internal Consistency, and Convergent Validity

Table 3: Measurement Model Assessment

Construct	Items	Loading	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Strategic Vigilance					
	IV1.1	0.865	0.947	0.948	0.792
	IV1.2	0.887			
Technological Vigilance	IV1.3	0.916			
	IV1.4	0.914			
	IV1.5	0.885			
	IV1.6	0.870			
	IV2.1	0.880	0.943	0.944	0.779
	IV2.2	0.910			
Competitive Vigilance	IV2.3	0.913			
	IV2.4	0.904			
	IV2.5	0.850			
	IV2.6	0.833			
	IV3.1	0.925	0.946	0.948	0.823
Business Vigilance	IV3.2	0.921			
	IV3.3	0.924			
	IV3.4	0.914			
	IV3.5	0.850			
	IV3.6	*Removed due to cross-loading and discriminant validity issues*			
	IV4.1	0.891	0.952	0.952	0.805
Social Vigilance	IV4.2	0.920			
	IV4.3	0.890			
	IV4.4	0.899			

	IV4.5	0.891			
	IV4.6	0.894			
	IV5.1	0.626	0.878	0.909	0.626
Environmental Vigilance	IV5.2	0.601			
	IV5.3	0.889			
	IV5.4	0.865			
	IV5.5	0.863			
	IV5.6	0.847			
Crisis Management					
	MV1.1	0.686	0.895	0.931	0.702
	MV1.2	0.763			
Prediction & Early Warning	MV1.3	0.914			
	MV1.4	0.917			
	MV1.5	0.885			
	MV1.6	Removed due to cross-loading with second dimension			
	MV2.1	0.875	0.943	0.944	0.779
	MV2.2	0.879			
Preparedness & Prevention	MV2.3	0.915			
	MV2.4	0.917			
	MV2.5	0.866			
	MV2.6	0.841			
	MV3.1	0.904	0.929	0.932	0.779
	MV3.2	0.897			
Adaptation & Damage Containment	MV3.3	0.875			
	MV3.4	0.872			
	MV3.5	Removed due to cross-loading with fourth dimension			
	MV4.1	0.904	0.944	0.945	0.817

	MV4.2	0.919			
Recovery & Continuity	MV4.3	0.910			
	MV4.4	0.894			
	MV4.5	0.892			
	MV4.6	Removed due to cross-loading			
	MV5.1	0.863	0.951	0.952	0.805
	MV5.2	0.908			
Learning & Lesson Extraction	MV5.3	0.925			
	MV5.4	0.902			
	MV5.5	0.886			
	MV5.6	0.898			
Competitive Advantage					
	DV1.1	0.868	0.939	0.942	0.768
	DV1.2	0.856			
Cost	DV1.3	0.911			
	DV1.4	0.912			
	DV1.5	0.889			
	DV1.6	0.819			
	DV2.1	0.889	0.950	0.950	0.799
	DV2.2	0.907			
Quality	DV2.3	0.916			
	DV2.4	0.903			
	DV2.5	0.878			
	DV2.6	0.868			
	DV3.1	0.884	0.955	0.955	0.815
Innovation	DV3.2	0.903			
	DV3.3	0.916			

	DV3.4	0.924			
	DV3.5	0.899			
	DV3.6	0.890			
	DV4.1	0.897	0.954	0.955	0.814
	DV4.2	0.918			
Flexibility	DV4.3	0.914			
	DV4.4	0.914			
	DV4.5	0.882			
	DV4.6	0.889			
	DV5.1	0.880	0.948	0.951	0.793
	DV5.2	0.894			
Efficiency	DV5.3	0.906			
	DV5.4	0.906			
	DV5.5	0.896			
	DV5.6	0.861			

Table 3 shows that the measurement model was assessed using indicator loadings, Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE), following established criteria (Hair et al., 2019). All constructs, Strategic Vigilance, Crisis Management, and Competitive Advantage, demonstrated satisfactory reliability (α and CR > 0.70) and convergent validity (AVE > 0.50). Most item loadings exceeded 0.70, except for a few in Environmental Vigilance (0.601 and 0.626), which were retained due to acceptable AVE. Several items were removed due to cross-loadings that affected discriminant validity. Overall, the measurement model met the recommended thresholds, confirming its reliability and validity for structural model analysis (Fornell & Larcker, 1981; Hair et al., 2019).

Table 4: Discriminant validity using HTMT

	Cost	Quality	**Innovation**	Flexibility	Efficiency	**TV**	**CV**	**BV**	**SV**	**EV**	**ED**	**PP**	**HC**	**RE**	**LE**
Cost															
Quality	0.834														
Innovation	0.839	0.845													
Flexibility	0.798	0.81	0.898												
Efficiency	0.744	0.724	0.813	0.873											
TV	0.67	0.664	0.677	0.677	0.663										
CV	0.706	0.703	0.72	0.723	0.686	0.887									
BV	0.744	0.701	0.736	0.73	0.704	0.847	0.885								
SV	0.735	0.701	0.729	0.745	0.722	0.83	0.872	0.896							
EV	0.778	0.703	0.715	0.7	0.684	0.735	0.779	0.832	0.854						
ED	0.753	0.674	0.761	0.703	0.67	0.666	0.754	0.752	0.733	0.771					
PP	0.793	0.723	0.791	0.783	0.719	0.675	0.74	0.77	0.756	0.721	0.888				
HC	0.775	0.726	0.813	0.757	0.686	0.712	0.736	0.781	0.754	0.751	0.807	0.832			
RE	0.773	0.713	0.82	0.815	0.723	0.698	0.722	0.726	0.738	0.719	0.789	0.83	0.89		
LE	0.804	0.715	0.814	0.81	0.737	0.689	0.75	0.737	0.756	0.733	0.806	0.828	0.837	0.882	

Table 4 shows that the discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT) criterion, as recommended by Henseler et al. (2015). All HTMT values were below the conservative threshold of 0.90, indicating adequate discriminant validity among all constructs. The highest HTMT value observed was 0.896 between Business Vigilance and

Social Vigilance, which remains within acceptable limits, confirming that each construct is empirically distinct from the others.

Structural Model Assessment

Table 5: Structural Model Assessment

	R^2	f^2	Q^2
Crisis Management	0.697	**0.503**	**0.579**
Competitive Advantage	0.780		**0.637**
Strategic Vigilance		**0.134**	

As presented in Table 5, the structural model was evaluated using the coefficient of determination (R^2), effect size (F^2), and predictive relevance (Q^2), in accordance with the guidelines of Hair et al. (2019). The model showed substantial explanatory power, with Crisis Management achieving an R^2 of 0.697, and Competitive Advantage an R^2 of 0.780, indicating that the model explains 69.7% and 78.0% of the variance in these constructs, respectively. The predictive relevance (Q^2) values were also above the threshold of 0.35 (Hair et al., 2019), confirming strong predictive capability (0.579 for Crisis Management and 0.637 for Competitive Advantage). The effect size (F^2) of Strategic Vigilance on Competitive advantage was 0.134, reflecting a small to medium effect (Cohen, 1988), while Crisis Management had a large effect on Competitive Advantage (F^2 = 0.503). These results support the model's adequacy in explaining and predicting the key endogenous variables.

Bootstrapping (Hypotheses Testing)

Table 6: Bootstrapping (Hypotheses testing

	Path	**β**	**(STDEV)**	**T statistics**	**P values**
H1	SV→CA	0.818	0.013	63.843	0.000
H2	SV→CM	0.835	0.012	68.390	0.000
H3	CM→CA	0.605	0.032	18.964	0.000
H4	SV→CM→CA	0.505	0.027	18.462	0.000

Note: SV= Strategic Vigilance; CM= Crisis Management; CA= Competitive Advantage

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The structural model hypotheses were tested using the bootstrapping procedure with 5,000 subsamples to evaluate the significance of path coefficients (Hair et al., 2019). All proposed hypotheses were supported, as detailed in Table (Table 6). The direct effect of Strategic Vigilance on Competitive Advantage was significant ($\beta = 0.818$, $t = 63.843$, $p < 0.001$), supporting H1. H2 was also confirmed, with Strategic Vigilance significantly predicting Crisis Management ($\beta = 0.835$, $t = 68.390$, $p < 0.001$). Furthermore, Crisis Management had a significant positive effect on Competitive Advantage ($\beta = 0.605$, $t = 18.964$, $p < 0.001$), supporting H3. H1, H2, and H3 are shown also in Figure 2.

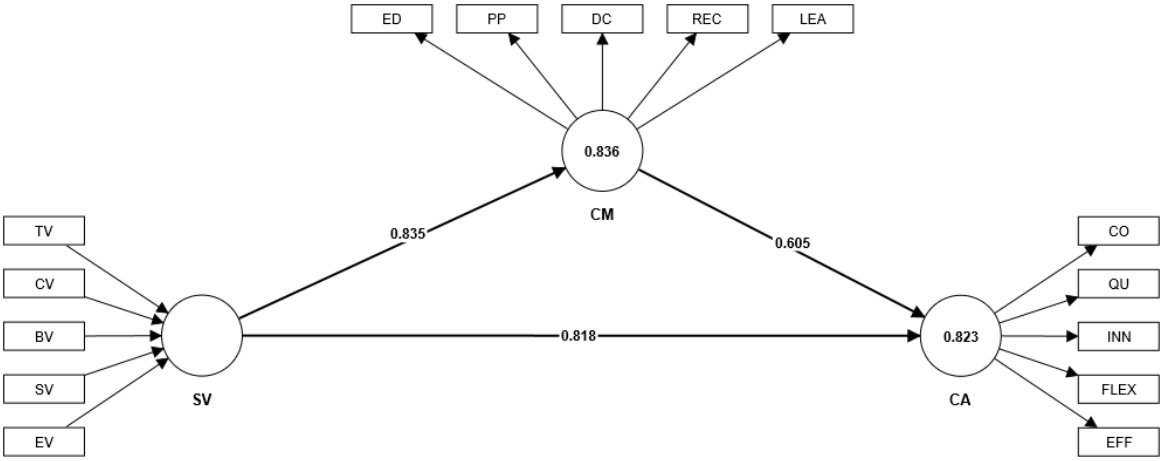

Figure 2: Total Direct Effect

The mediation hypothesis (H4) was also supported, indicating a significant indirect effect of Strategic Vigilance on Competitive Advantage through Crisis Management ($\beta = 0.505$, $t = 18.462$, $p < 0.001$). These findings highlight the mediating role of crisis management in enhancing the influence of strategic vigilance on competitive advantage. H4 is graphically shown in Figure 3.

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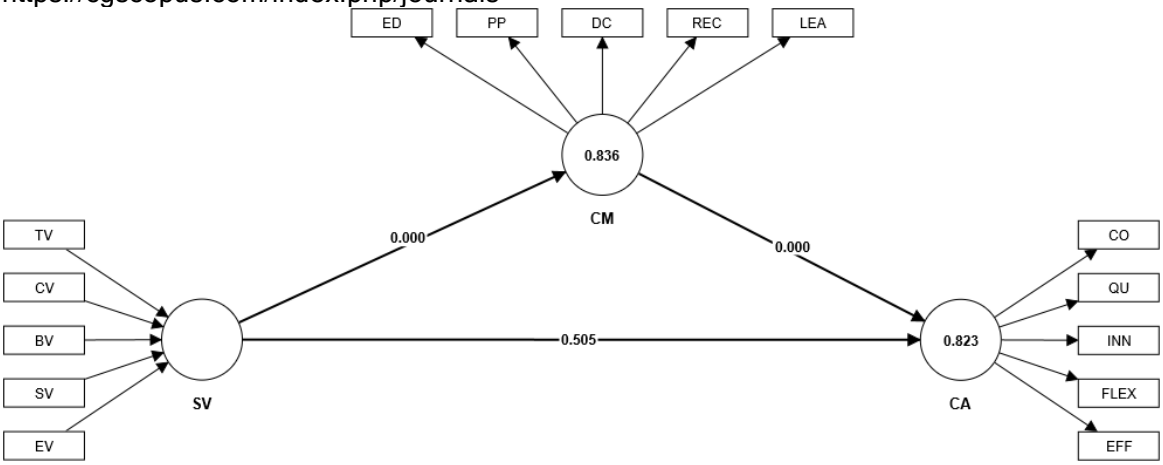

Figure 3: Indirect Effect (Mediation)

DISCUSSION

The purpose of this study was to investigate the role of strategic vigilance in enhancing competitive advantage, with crisis management serving as a mediating mechanism in higher education institutions (HEIs). Using PLS-SEM, the findings provided robust empirical support for all hypothesized relationships, offering both theoretical and practical contributions.

Strategic Vigilance and Competitive Advantage

The results confirmed a strong positive effect of strategic vigilance on competitive advantage. This finding aligns with the Resource-Based View (Barney, 1991), which posits that valuable and inimitable resources contribute to sustainable competitive positioning (Chigara, 2021). Vigilance, as an intangible resource, enables HEIs to proactively identify opportunities and mitigate threats in areas such as student recruitment, funding, technological innovation, and accreditation standards. The result corroborates prior studies in corporate contexts (Calof & Wright, 2008; Secundo et al., 2010) and extends their relevance to higher education, particularly in environments characterized by turbulence (Patnaik et al., 2022). Importantly, the high mean values for vigilance dimensions, especially technological vigilance, suggest that universities recognize digital transformation as a key lever for sustaining competitiveness.

Strategic Vigilance and Crisis Management

The study also found that strategic vigilance strongly predicts crisis management capabilities. This result supports the argument that organizations with greater foresight and systematic

scanning are better prepared to handle crises (Pearson & Clair, 1998; Boin & Van Eeten, 2013). In HEIs, vigilance acts as the sensing mechanism in the Dynamic Capabilities framework (Teece, 2007), enabling institutions to identify weak signals of crises such as cyber threats, financial downturns, or sociopolitical instability. This finding adds to the limited empirical research linking vigilance to structured crisis preparedness in higher education and highlights the importance of embedding vigilance in governance and leadership processes.

Crisis Management and Competitive Advantage

The results further demonstrated that crisis management positively influences competitive advantage. This finding underscores the idea that crises, while disruptive, can become catalysts for institutional renewal when managed effectively (Bundy et al., 2017). HEIs that demonstrate strong crisis management are more likely to preserve reputation, sustain academic continuity, and maintain stakeholder trust, critical components of competitive positioning. The experience of the COVID-19 pandemic provides a practical illustration, where institutions with robust crisis response strategies (e.g., rapid digital transition, flexible policies, and effective communication) maintained or even strengthened their competitiveness (Marinoni et al., 2020). These findings also reinforce the Organizational Resilience perspective (Lengnick-Hall et al., 2011), positioning crisis management as a capability that transforms disruption into long-term advantage.

Mediating Role of Crisis Management

Finally, the mediation analysis confirmed that crisis management significantly mediates the relationship between strategic vigilance and competitive advantage. This highlights that vigilance alone, while valuable, is insufficient unless operationalized through structured crisis response mechanisms. The result aligns with the Dynamic Capabilities view, where sensing (vigilance) must be complemented by seizing and transforming (crisis management) to achieve competitive outcomes (Teece et al., 1997). In practical terms, this implies that universities cannot rely solely on foresight; they must institutionalize response systems that translate awareness into actionable strategies. This finding extends prior research (Williams et al., 2017) by empirically validating crisis management as the critical bridge between vigilance and competitiveness in the higher education context.

The study contributes to theory by integrating RBV, Dynamic Capabilities, and Organizational Resilience into a coherent model that explains how intangible resources (vigilance) are transformed into sustained competitive advantage through dynamic capabilities (crisis management). Empirically, it extends the largely corporate-focused literature on vigilance and crisis management to the underexplored higher education sector, particularly in contexts marked by instability and resource constraints.

Practically, the findings suggest that university leaders should invest in developing vigilance systems (e.g., environmental scanning units, technology monitoring, stakeholder engagement mechanisms) while simultaneously building crisis management frameworks (e.g., risk registers, continuity plans, training drills, and communication strategies). Together, these capabilities foster resilience and enable institutions not only to survive crises but to emerge stronger, more adaptive, and more competitive.

Limitations and Future Research Directions

While this study offers important theoretical and practical contributions, it is not without limitations. First, the research adopted a cross-sectional design, which captures perceptions at a single point in time. This approach limits the ability to draw causal inferences regarding the dynamic relationship between strategic vigilance, crisis management, and competitive advantage. Future research could employ longitudinal designs to capture how vigilance and crisis management evolve over time, especially during prolonged or recurring crises. Second, the study relied on self-reported survey data from academic and administrative leaders. Although steps were taken to mitigate common method bias, including anonymity assurances and statistical checks, the possibility of perceptual bias cannot be fully ruled out. Future studies could integrate multi-source data, such as performance indicators, archival data, or third-party evaluations, to triangulate findings and enhance validity. Third, the research was conducted within the context of higher education institutions in a single country, which may limit the generalizability of results to other cultural, economic, or institutional contexts. Since crisis management and vigilance practices are shaped by national governance, cultural norms, and resource availability, comparative studies across countries or regions would provide valuable insights into contextual influences. Fourth, the study examined crisis management as a single

mediating construct, without exploring other potential mediators or moderators. Future research could investigate the role of organizational learning, leadership styles, digital transformation, or institutional culture as additional mechanisms that strengthen or condition the relationship between vigilance and competitiveness. Exploring multi-level effects, for example, how individual leader vigilance interacts with organizational systems, would also enrich understanding. Finally, the research employed PLS-SEM, which is well-suited for prediction and exploratory analysis, but future work could use covariance-based SEM (CB-SEM) or multi-group analysis to provide complementary insights, particularly in testing measurement invariance across different institutional types (public vs. private universities, research-intensive vs. teaching-focused). In summary, addressing these limitations opens promising avenues for future research, enabling scholars to deepen theoretical understanding and provide more context-sensitive, evidence-based recommendations for higher education institutions facing turbulent environments.

CONCLUSION

This study examined the role of strategic vigilance in enhancing competitive advantage, with a particular focus on the mediating role of crisis management in higher education institutions (HEIs). Drawing on the Resource-Based View, Dynamic Capabilities Theory, and the concept of Organizational Resilience, the findings provide robust empirical support for the proposed model. Strategic vigilance was shown to directly strengthen competitive advantage, while also significantly enhancing crisis management capabilities. In turn, crisis management not only exerted a direct positive effect on competitiveness but also served as a crucial mediating mechanism that translated environmental foresight into actionable strategies and sustained institutional performance. These results highlight that vigilance alone is insufficient unless complemented by structured crisis management frameworks that operationalize foresight into adaptive responses. The integration of these capabilities allows HEIs to safeguard their reputation, ensure academic continuity, and seize opportunities even in times of disruption. For leaders and policymakers in higher education, the findings underscore the need to institutionalize vigilance practices, such as systematic environmental scanning and stakeholder engagement, while simultaneously strengthening crisis management systems through risk assessment, continuity planning, and adaptive governance structures. In conclusion, the findings affirm that the path to competitive advantage in higher education lies not in isolated

practices but in the synergy between vigilance and resilience. Institutions that anticipate change through strategic vigilance and effectively operationalize this foresight through crisis management will be better equipped not only to withstand turbulence but also to emerge stronger, more adaptive, and more competitive in the global academic arena.

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