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Assessing the leadership competencies of directors of private healthcare facilities in the North Central Region using the gap model

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Abstract. This study assesses the leadership competencies of directors of private healthcare facilities in Vietnam's North Central region during 2020–2025 by integrating GAP analysis with partial least squares structural equation modeling (PLS-SEM). Data were collected from a survey of 496 respondents across five provinces in the region, complemented by in-depth expert interviews. The findings indicate that all competency domains are perceived as highly important, yet actual performance remains limited—particularly in digital competence and leadership skills. GAP and Importance–Performance Analysis (IPA) identify digital competence as the top improvement priority, whereas leadership attributes constitute a relatively stable strength. PLS-SEM results confirm that all four competency domains positively affect overall leadership competence, with digital competence exerting the strongest influence. Based on these findings, the paper proposes context-sensitive directions for leadership competency development tailored to local conditions to enhance governance effectiveness and promote the sustainable development of the region's private healthcare system.

Keywords. leadership competence; private healthcare facility director; North Central Vietnam; GAP analysis; PLS-SEM

1. Introduction

In the context of health-system reform and the continued promotion of socialization policies, Vietnam's private healthcare sector has expanded rapidly in scale, service types, and scope of provision. The 2023 Law on Medical Examination and Treatment and its implementing guidelines have further strengthened the legal framework, encouraging non-public healthcare providers to develop in a more professional, sustainable, and socially responsible manner. Within the national health system, private healthcare facilities not only play a complementary role but have increasingly become a major provider of healthcare services.

The North Central region is characterized by persistent socio-economic constraints and substantial disparities across localities. Between 2020 and 2025, the number of private healthcare facilities increased markedly; however, growth has been uneven and concentrated in provinces with larger populations and more favorable economic conditions. In practice, variations in operational outcomes and growth prospects among private providers stem not only

from market conditions and policy environments but also, to a significant extent, from the leadership and management capacities of facility directors.

Amid intensifying competition and increasing demands for health-sector digital transformation, directors of private healthcare facilities are expected to move beyond administrative and clinical management to assume strategic leadership roles, including resource and financial management, service-quality governance, and organizational innovation. Yet, many private facilities are led by physicians with strong clinical expertise but limited exposure to modern management knowledge, leadership skills, and digital capabilities. Against this backdrop, assessing directors' leadership competencies through a gap-based approach—comparing required versus actual competency levels—has clear scientific and practical value. Integrating the GAP model with PLS-SEM not only helps identify competency deficits but also clarifies the magnitude of each competency domain's influence on overall leadership competence, thereby providing an evidence base for designing development solutions tailored to the North Central context.

2. Research Methods

This study is grounded in contemporary leadership-competency theory and synthesizes competency frameworks from reputable sources. Specifically, the ASK model (Attitude–Skill–Knowledge)—comprising leadership attributes, leadership skills, and leadership knowledge—draws on foundational ideas associated with Bloom's taxonomy (Bloom, 1956). Transformational leadership theory by Burns (1978) and Bass (1985) is also used to emphasize inspiration and positive change in leadership (Burns, 1978; Bass, 1985). In addition, the study references the World Health Organization's healthcare leadership competency framework, which highlights the need to balance personal attributes, core leadership functions, and execution capability to ensure safe and effective healthcare services (World Health Organization [WHO], 2014). Similarly, the healthcare management competency framework released by the International Hospital Federation in collaboration with the American College of Healthcare Executives classifies competencies into five major domains, including leadership and business/management skills (International Hospital Federation [IHF], 2015). Based on this theoretical foundation, the study operationalizes four core competency domains for directors of private healthcare facilities: leadership knowledge, leadership skills, leadership attributes, and digital competence (i.e., the ability to apply information technology to healthcare governance).

GAP analysis is employed to measure the discrepancy between perceived importance (required level) and actual performance for each competency domain. This gap indicates areas of competency deficits and helps prioritize improvements in leadership development. Building on the GAP results, Importance–Performance Analysis (IPA) is used to classify competency domains into actionable priority zones, thereby supporting decision-making under constrained development resources.

The leadership competency measurement instrument specifies observable indicators for each competency domain. Each indicator is assessed using a five-point Likert scale (1 = strongly disagree/not important to 5 = strongly agree/very important) along two parallel dimensions: (i) perceived importance in the context of private healthcare development; and (ii) actual performance among current directors. This design enables the calculation of competency gaps and the identification of domains requiring priority intervention.

Before the large-scale survey, a qualitative phase was conducted to explore and refine the measurement instrument. The primary method was in-depth interviews with healthcare management experts and selected directors of private healthcare facilities across North Central

provinces. The interviews indicated that the initial instrument was broadly aligned with practice; however, experts recommended additional content, particularly regarding strategic management and financial governance (reflecting advanced management knowledge), as well as indicators related to healthcare digital transformation (e.g., health data governance and electronic medical record applications), which are increasingly essential in the current context.

Based on expert feedback, item wording was revised for clarity and comprehensibility, and new indicators related to data governance and technology application were added. These revisions improved the instrument's coverage of essential leadership competencies, spanning human factors (knowledge and attributes) and the technological innovation requirements of digital transformation.

Next, a quantitative survey was implemented. A pilot test with a small sample ($n = 50$) was first conducted to examine scale reliability. Results showed Cronbach's alpha values above 0.70 for all competency domains, exceeding commonly accepted thresholds (0.70–0.80 = good; ≥ 0.80 = very good for multi-item scales) (Nunnally, 1978). This indicates high internal consistency among indicators within each domain. No item exhibited an unacceptably low item–total correlation; therefore, no items were removed at this stage, and the instrument was deemed suitable for the main survey.

The main survey was conducted in five North Central provinces following administrative adjustments (Thanh Hóa, Nghệ An, Hà Tĩnh, Quảng Trị—merged with the former Quảng Bình—and Thừa Thiên Huế). Stratified convenience sampling was applied to ensure representation across leadership positions (e.g., director, deputy director) and localities. Of 530 questionnaires distributed, 496 valid responses were returned (response rate = 93.58%). The dataset supports simultaneous assessment of perceived importance and actual performance for each competency domain.

Based on the collected data, a GAP matrix was developed to identify priority areas for competency development. GAP scores were computed as the difference between importance and performance means for each competency indicator. Two benchmarks were applied: 4.00 (on a five-point scale) as the minimum expected performance level and 4.50 as the threshold for “very high” importance. Comparing mean scores with these benchmarks enables classification of competencies into priority groups (e.g., high importance but low performance indicates a priority for improvement).

All data were processed and analyzed using SPSS and SmartPLS, including descriptive statistics (means, standard deviations), reliability tests (Cronbach's alpha, composite reliability), exploratory factor analysis (EFA), GAP analysis, and group-difference tests (ANOVA or t-tests). Results are presented through tables and charts to facilitate interpretation (Hoàng Trọng & Chu Nguyễn Mộng Ngọc, 2008).

3. Results: Leadership Competency Assessment Using the GAP Model

3.1. Perceived importance of competency domains

As shown in Table 3.1, all leadership competency domains of private healthcare facility directors were rated highly in terms of importance. Mean importance scores range from 4.40 to 4.65 (five-point scale). Leadership attributes received the highest rating ($M = 4.65$), followed by leadership knowledge ($M = 4.58$) and leadership skills ($M = 4.52$). Although digital competence was the lowest among the four domains, it still achieved a high mean score ($M = 4.40$), indicating a growing recognition of its relevance. These results reflect consensus among respondents regarding the pivotal roles of knowledge, skills, and attributes in leading private

healthcare facilities. Notably, despite being a relatively new area, healthcare managers clearly acknowledge the importance of digital competence in modern healthcare development.

Table 3.1. Assessment of leadership competency domains of private healthcare facility directors

Competency domain	Importance	Performance	GAP	GAP matrix zone
Leadership knowledge	4.58	3.80	0.78	Monitor for improvement
Leadership skills	4.52	3.68	0.84	Monitor for improvement
Leadership attributes	4.65	4.00	0.65	On the right track
Digital competence	4.40	3.25	1.15	Priority for improvement

Source: Authors' survey results.

3.2. Actual performance of competency domains

Performance ratings represent directors' current competency levels relative to expectations. As Table 3.1 indicates, leadership attributes achieved the highest performance score ($M = 4.00$), suggesting relatively strong attitudes, ethics, and responsibility among current leaders. Leadership knowledge ($M = 3.80$) and leadership skills ($M = 3.68$) were rated at a moderate level. In contrast, digital competence received the lowest performance score ($M = 3.25$), indicating persistent challenges in applying information technology to facility governance and operations.

Competency gaps (GAP analysis)

GAP scores were calculated as the difference between importance and performance. Digital competence exhibited the largest gap ($GAP = 1.15$), signaling a substantial deficit in technology application capability. This was followed by leadership skills ($GAP = 0.84$) and leadership knowledge ($GAP = 0.78$). Leadership attributes showed the smallest gap ($GAP = 0.65$), reflecting a comparatively stable strength. These results imply that attributes such as professional ethics and responsibility form a solid foundation, while other domains—especially digital competence—require prioritized development to narrow the gaps.

IPA zoning of competency domains

Using an IPA matrix with thresholds of 4.50 (very high importance) and 4.00 (expected performance), competency domains can be classified as follows. Leadership attributes (4.65; 4.00) fall in the “on the right track” zone (high importance and adequate performance), suggesting that this domain should be maintained. Leadership knowledge (4.58; 3.80) and leadership skills (4.52; 3.68) fall in the “monitor for improvement” zone (high importance but suboptimal performance), indicating the need for targeted training. Digital competence (4.40; 3.25) falls in the “priority for improvement” zone, reflecting the largest deficit requiring intervention.

Summary of GAP-based competency assessment

Overall, Table 3.1 indicates that digital competence and leadership skills should be prioritized for development due to their relatively large gaps. Leadership knowledge also requires strengthening, albeit with a moderate gap. Leadership attributes represent a stable relative strength (smallest gap) and should be maintained and further leveraged as the

foundation for enhancing other competencies. These results underscore a clear need for leadership competency development among private healthcare facility directors in the North Central region, with particular emphasis on strengthening digital capability in healthcare governance.

GAP analysis by province

At the provincial level, competency profiles vary, implying the need for flexible training solutions. Thừa Thiên Huế stands out, with most competency domains positioned in the “on the right track” zone; directors’ knowledge, skills, and attributes are close to or above the expected threshold. Digital competence remains somewhat deficient (in the “monitor for improvement” zone), suggesting that Huế should consolidate its existing strengths while strengthening digital capability.

Thanh Hóa shows relatively strong leadership knowledge and attributes (at or near the expected threshold), moderate leadership skills (monitor for improvement), and a pronounced deficit in digital competence (priority for improvement). In Nghệ An, all domains fall in the “monitor for improvement” zone—each is important yet underperformed, with no domain appearing exceptionally strong or critically weak. This pattern suggests that Nghệ An may require a more comprehensive training program across all four domains with relatively balanced priorities.

Hà Tĩnh and Quảng Trị exhibit weaker overall profiles. In Hà Tĩnh, none of the domains meet the expected performance threshold; the largest deficits are in digital competence and leadership skills, reflecting limitations in strategic management and digital transformation capacity. Leadership knowledge and attributes are moderate but still insufficient, indicating the need for coordinated development in management knowledge, leadership skills, and digital transformation. In Quảng Trị, all domains fall in the “priority for improvement” zone, representing the lowest overall level in the region. In particular, digital competence and leadership skills show very large gaps (both exceeding 1.10), implying an urgent need for comprehensive, long-term interventions (potentially with targeted support) to build leadership capacity among private healthcare facility directors in Quảng Trị.

In summary, the provincial GAP analysis reveals substantial differentiation within the region. Provinces such as Thừa Thiên Huế and Thanh Hóa show comparatively strong competency profiles with relatively modest deficits in digital transformation. Nghệ An and Hà Tĩnh require strengthening of both leadership skills and digital competence. Quảng Trị shows the most severe deficits and thus should prioritize improvements across all domains, particularly leadership skills and digital competence. Accordingly, leadership development programs should be designed to address province-specific needs rather than applying a uniform regional approach.

Summary of provincial training priorities

The above results were synthesized to determine training priority levels for each province. Table 1.2 summarizes priority ratings by competency domain and overall training priority.

Table 1.2. Summary of training priorities for leadership competencies by province

Province	Leadership knowledge	Leadership skills	Leadership attributes	Digital competence	Overall training priority
Thanh Hóa	Low	Moderate	Low	High	Moderate

Nghệ An	Moderate	Moderate	Low	High	Moderate
Hà Tĩnh	Moderate	High	Moderate	Very high	High
Quảng Trị	High	Very high	Moderate	Very high	Very high
Thừa Thiên Huế	Low	Low	Low	Moderate	Low

Source: Authors' survey results.

Table 1.2 shows that Thừa Thiên Huế has the lowest overall training priority because most competencies are already at a relatively strong level (with digital competence rated as moderate). Thanh Hóa and Nghệ An have moderate overall priority: despite stronger knowledge and attributes (low priority), they exhibit deficits in skills and, especially, digital competence (high priority). Training in these provinces should therefore focus on digital transformation and strategic leadership skills. Hà Tĩnh has high overall priority, largely due to substantial gaps in skills and digital competence. Quảng Trị is the most urgent case (very high overall priority), particularly regarding leadership skills and digital competence, requiring immediate and comprehensive interventions. Overall, these patterns suggest that training should be differentiated by provincial clusters: Huế/Thanh Hóa as more advanced, Nghệ An/Hà Tĩnh as intermediate, and Quảng Trị requiring special support.

Based on the GAP analysis, three main directions for improving leadership competencies emerge: (1) maintain and disseminate leadership attributes as a key strength (ethics and professional responsibility); (2) strengthen training in strategic leadership skills and resource management; and (3) prioritize digital competence as a decisive factor for improving management effectiveness in the era of healthcare digital transformation. Linking quantitative GAP findings with training policy directions supports focused and feasible interventions.

Structural model and PLS-SEM testing

In addition to GAP analysis, the study estimated a partial least squares structural equation model (PLS-SEM) to examine the influence of competency domains on overall leadership competence. Each competency domain was measured by four observed indicators using a five-point Likert scale.

Table 1.3. Latent constructs and indicators in the PLS-SEM model

Competency domain	Code	Indicators	Measurement content
Leadership knowledge	KN	KN1–KN4	Knowledge of the health system, financial governance, law, and strategy
Leadership skills	KT	KT1–KT4	Planning, communication, delegation, and conflict management
Leadership attributes	PC	PC1–PC4	Ethics, responsibility, innovation, and accountability
Digital competence	NLS	NLS1–NLS4	IT application in management, data use, electronic medical records, and digital communication

Source: Authors' survey results.

Scale reliability and convergent validity were assessed using Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). As shown in Table 1.4, all

constructs have Cronbach's alpha and CR values above 0.80, indicating high internal consistency (IHF, 2015). AVE values exceed 0.50 for all constructs, supporting adequate convergent validity. Discriminant validity tests (Fornell–Larcker and HTMT) further indicate clear differentiation among the latent constructs.

Table 1.4. Reliability and convergent validity results

Competency domain	Cronbach's alpha	Composite reliability (CR)	Average variance extracted (AVE)
Leadership knowledge	0.848	0.898	0.687
Leadership skills	0.874	0.914	0.726
Leadership attributes	0.859	0.914	0.780
Digital competence	0.807	0.887	0.723

Source: Authors' data analysis results.

Structural model testing indicates that all four competency domains have positive and statistically significant effects on overall leadership competence (NL) among private healthcare facility directors ($p < .001$). The model achieves $R^2 = 0.654$, suggesting that the four domains explain 65.4% of the variance in overall leadership competence. Digital competence shows the strongest effect ($\beta = 0.772$), followed by leadership skills ($\beta = 0.739$) and leadership attributes ($\beta = 0.732$), while leadership knowledge has the smallest coefficient ($\beta = 0.527$) but remains highly significant.

Table 1.5. PLS-SEM structural model results

Relationship	β	t-value	p-value	Conclusion
KN \rightarrow NL	0.527	10.391	< .001	Significant
KT \rightarrow NL	0.739	20.127	< .001	Significant
PC \rightarrow NL	0.732	18.947	< .001	Significant
NLS \rightarrow NL	0.772	20.974	< .001	Significant
R^2 (NL)	0.654			

Source: Authors' survey results.

GAP and IPA results

Using the mean scores for importance and performance, the study further computed GAP values for each competency domain (Table 1.6). The results reaffirm earlier findings: digital competence exhibits the largest gap (1.15), representing the most salient weakness; leadership skills (0.91) and leadership knowledge (0.83) show moderately large gaps; and leadership attributes have the smallest gap (0.70).

Table 1.6. GAP between expectations and actual performance

Competency domain	Importance	Performance	GAP
Leadership knowledge	4.63	3.80	0.83
Leadership skills	4.59	3.68	0.91
Leadership attributes	4.75	4.05	0.70
Digital competence	4.55	3.40	1.15

Source: Authors' data analysis results.

To prioritize improvements, an IPA matrix was constructed (Table 1.7). Digital competence falls into an “urgent improvement” zone (Importance = 4.55; Performance = 3.40), requiring the most immediate intervention. Leadership knowledge and leadership skills are categorized as “priority for improvement” (high importance but inadequate performance). Leadership attributes fall into a “maintain and leverage” zone (Importance = 4.75; Performance = 4.05) and should be sustained given their relatively adequate performance.

Table 1.7. Coordinates of competency domains in the IPA matrix

Competency domain	Importance	Performance	IPA zone
Leadership knowledge	4.63	3.80	Priority for improvement
Leadership skills	4.59	3.68	Priority for improvement
Leadership attributes	4.75	4.05	Maintain and leverage
Digital competence	4.55	3.40	Urgent improvement

Source: Authors' survey results.

Overall, GAP and IPA analyses converge on the same conclusion: the highest priority is digital competence, followed by leadership skills and leadership knowledge, while leadership attributes represent a strength to be maintained. Combining GAP–IPA results supports evidence-based training policies by identifying competency gaps and linking them directly to actionable development priorities.

4. Discussion

The findings indicate a substantial gap between required and actual leadership competencies among directors of private healthcare facilities in Vietnam’s North Central region. GAP and IPA results show that all competency domains are perceived as highly important, reflecting strong awareness of leadership’s central role in healthcare governance. However, performance levels remain below expectations, particularly for digital competence and leadership skills.

Leadership attributes exhibit the highest performance and the smallest gap, suggesting a relatively solid foundation in professional ethics, responsibility, and social commitment. This is especially valuable in healthcare, where patient trust and social responsibility are crucial. Nonetheless, leadership attributes alone are insufficient to guarantee effective governance without complementary support from management knowledge, leadership skills, and digital capability.

Digital competence is the domain with the largest gap and occupies a high-priority zone in the IPA matrix. This pattern highlights the challenge of healthcare digital transformation in the North Central region, particularly given that many private providers are small-scale and resource-constrained. Limited capacity in information-technology application, data governance, and electronic medical record implementation may reduce management efficiency and constrain service-quality improvement and competitiveness.

PLS-SEM results provide additional quantitative evidence by confirming that all four domains positively and significantly influence overall leadership competence. Notably, digital competence has the strongest effect, underscoring the pivotal role of technology application and

digital governance in strengthening leadership effectiveness. This implies that investment in digital competence development for private healthcare facility directors should be treated as a strategic priority.

Provincial comparisons reveal marked heterogeneity in leadership competency profiles. Thừa Thiên Huế and Thanh Hóa perform relatively well, whereas Nghệ An and Hà Tĩnh require comprehensive capacity-building programs. Quảng Trị exhibits the most severe deficits across all domains—especially digital competence and leadership skills—calling for stronger and longer-term interventions.

Taken together, developing leadership competencies for private healthcare facility directors in the North Central region requires a differentiated and focused approach. Integrating GAP analysis with PLS-SEM not only identifies competency deficits but also supports evidence-based prioritization of training, thereby contributing to improved governance effectiveness and the sustainable development of the regional private healthcare system.

Conclusion

This study assessed the leadership competencies of directors of private healthcare facilities in Vietnam's North Central region (2020–2025) by combining GAP–IPA analysis and PLS-SEM. Survey evidence from 496 respondents and expert interviews shows that knowledge, skills, attributes, and digital competence are all rated highly important, yet current performance remains below expectations. Digital competence emerges as both the largest expectation–performance gap and the strongest predictor of overall leadership competence, highlighting the urgency of strengthening IT application, data governance, and digital health management. Leadership attributes constitute a comparative advantage that should be maintained while upgrading managerial knowledge and leadership skills through targeted, province-specific programs. Policymakers and training providers should prioritize modular, practice-oriented capacity building linked to local resource conditions and digital-transformation requirements. Such efforts may reduce disparities and improve service quality. Future studies could use longitudinal designs and objective performance indicators to validate causal pathways and assess the impact of competency-development interventions.

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