

Strategic Management and HRM Development in Fragile Contexts: Evidence from Yemeni Pharmaceutical Manufacturing Companies

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Paper Number: 240461

<https://doi.org/10.68089/202609240461>

Abstract:

Purpose: This study examines the impact of strategic management on human resource management (HRM) development in a fragile state context, where evidence remains scarce.

Design/methodology/approach: Drawing on the resource-based view (Barney, 1991), dynamic capabilities theory (Teece et al., 1997), and strategic HRM theory (Wright & McMahan, 2011), a quantitative descriptive-analytical approach was employed. Data were collected via a 7-point Likert questionnaire (51 items) from 222 usable responses (92.5% response rate) of administrative leaders in nine Yemeni pharmaceutical manufacturing companies. Analysis was performed using IBM SPSS Statistics 27. **Findings:** Strategic management is high ($M = 5.31$, $SD = 1.02$), while HRM development is moderately high ($M = 4.76$, $SD = 1.35$). The model is significant, $R = .788$, $R^2 = .621$, $F(5, 216) = 70.84$, $p < .001$. Environmental analysis ($\beta = .37$, $p < .001$) and strategy monitoring and evaluation ($\beta = .40$, $p < .001$) significantly predict HRM development. **Originality/value:** Extends SHRM theory to conflict-affected pharmaceutical firms, revealing a capability-outcome gap.

Keywords: strategic management, strategic human resource management, fragile contexts, pharmaceutical industry, Yemen.

1. Introduction

1.1. Global Context: Pharmaceutical Industry and Strategic HRM

The global pharmaceutical industry is a knowledge-intensive, highly regulated, and strategically critical sector for public health and national security. It contributes approximately 1.5 trillion to the global economy and employs over 5.5 million people directly (IQVIA, 2023). The industry's competitive advantage increasingly depends on intangible resources, particularly human capital and strategic human resource management (SHRM) practices, which are recognized as valuable, rare,

inimitable, and non-substitutable (VRIN) resources under the resource-based view (Barney, 1991; Wright & McMahan, 2011). Strategic management, defined as the process of determining strategic direction, analyzing environments, formulating, implementing, and evaluating strategies (Wheelen et al., 2018), is a dynamic capability that enables firms to sense, seize, and reconfigure resources to achieve sustained advantage (Teece et al., 1997; Hanelt et al., 2021). Effective SHRM involves vertical alignment between business strategy and HRM practices including recruitment, training, incentives, and performance appraisal (Jackson & Schuler, 2000; Al Adresi & Darun, 2017). Prior meta-analyses in developed economies confirm a positive strategic management-HRM-performance link (Wright & McMahan, 2011).

1.2. Yemeni Pharmaceutical Industry Context: A Fragile State

In contrast, Yemen represents a fragile state context where institutional voids and protracted conflict severely challenge strategic management. While prior Yemeni evidence on strategic management has focused on Islamic banks (Al-Amiri, 2006) and total quality management in pharmaceutical firms (Al-Ma'khathi, 2022), no study has examined its impact on HRM development in the pharmaceutical manufacturing sector. Yemen's local pharmaceutical manufacturing covers less than 10% of domestic drug demand, with over 85% reliance on imports, exacerbated by currency collapse (YER depreciated 300% since 2015), supply chain disruptions, and closure of 40% of health facilities (Ministry of Industry and Trade, 2023; World Bank, 2023; WHO, 2022). The sector comprises approximately 10 manufacturing companies concentrated in Sana'a, employing around 2,500 workers (Bin Yahya, 2022). Since the outbreak of conflict in 2015, the sector has experienced severe brain drain, with an estimated 40% of qualified pharmacists and 35% of industrial pharmacists emigrating to GCC countries (Bin Yahya, 2022; World Bank, 2023). This talent exodus directly threatens product quality and regulatory compliance, as pharmaceutical manufacturing requires highly qualified personnel (e.g., holders of master's or doctoral degrees) for good manufacturing practices (Bin Yahya, 2022).

Organizations in Yemen operate under extreme environmental uncertainty characterized by political instability, security risks, funding uncertainty, and workforce discontinuity. Organizational information processing theory (OIPT) posits that environmental uncertainty increases information-processing demands, requiring firms to develop superior scanning and monitoring capabilities (Galbraith, 1974; Tushman & Nadler, 1978). In such contexts, strategic management practices that reduce uncertainty (environmental analysis, monitoring

and evaluation) may become more salient than those requiring stable resources (formulation, implementation) (Haug et al., 2024).

1.3. Importance of the Study

Despite its strategic importance, the Yemeni pharmaceutical sector remains under-researched. Prior Yemeni studies have examined total quality management principles (Al-Ma'khathi, 2022) and the impact of good manufacturing practices on product quality (Bin Yahya, 2022), highlighting weak commitment to employee participation, lack of highly qualified personnel, and traditional management approaches. However, no prior study has examined how strategic management dimensions influence HRM development in this sector, nor explained the observed phenomenon where firms exhibit high strategic intent but moderate HRM development. This phenomenon represents a capability-outcome gap, where technological and strategic resources fail to generate full organizational value without complementary human and institutional capabilities (Hanelt et al., 2021; Verhoef et al., 2021).

2. Problem Statement and Research Gaps

2.1. Practical Problem

Yemeni pharmaceutical companies report high strategic orientation (preliminary observations indicate mean >5.3 on 7-point scale) yet continue to suffer from deficiencies in HRM practices: weak incentive structures (Al-Ma'khathi, 2022), limited recruitment of postgraduate holders (Bin Yahya, 2022), and inequitable training opportunities. This practical problem threatens citizens' lives, as any deficiency in managers' performance in pharmaceutical manufacturing may compromise drug quality and public health. The urgent need to develop human resources in these companies has therefore increased, requiring evidence-based guidance on which strategic management dimensions most effectively develop HRM under conflict conditions.

2.2. Theoretical Gap

SHRM theory has been predominantly tested in stable, developed economies (Wright & McMahan, 2011; Jackson & Schuler, 2000), with meta-analyses showing consistent positive effects. Dynamic capabilities theory (Teece et al., 1997) and RBV (Barney, 1991) have rarely been applied to fragile states. Recent systematic reviews call for contextualized SHRM research in fragile and conflict-affected states (Haug et al., 2024; Hanelt et al., 2021). Specifically, it remains unclear whether all strategic management dimensions (orientation, analysis, formulation, implementation, monitoring) equally predict HRM development under high environmental uncertainty, or whether OIPT predicts differential effects (Galbraith, 1974). This theoretical gap limits the generalizability of SHRM theory to non-Western fragile contexts.

2.3. Contextual and Empirical Gap

Empirical evidence on strategic management-HRM link in the MENA pharmaceutical sector is scarce. Studies in Jordan (Al-Shadifat, 2017), Kenya (Etaan & Jain, 2019), and Sudan (Al-Zubair, 2015) found positive relationships, but were conducted in relatively stable contexts (Royal Jordanian Geographic Center, county assembly, Islamic bank). No study has examined Yemeni pharmaceutical manufacturing firms, which operate under protracted conflict, funding uncertainty, and talent exodus. Furthermore, prior studies tested overall strategic management effect, not dimensional heterogeneity. This study addresses both contextual (Yemen, pharma, conflict) and empirical (dimensional effects) gaps.

2.4. Research Questions

Accordingly, this study seeks to address the main question:

"To what extent do strategic management dimensions predict HRM development in Yemeni pharmaceutical manufacturing companies operating in a fragile context?"

Sub-questions:

1. What are the current levels of strategic management dimensions (orientation, environmental analysis, formulation, implementation, and monitoring and evaluation) and HRM dimensions (recruitment, training, incentives, and performance appraisal) in Yemeni pharmaceutical companies as perceived by administrative leaders?
2. Which strategic management dimensions significantly predict overall HRM development, and which do not?
3. How can the capability-outcome gap (high SM and moderate HRM) be explained through RBV, dynamic capabilities, and OIPT in fragile states?

2. Theoretical Framework and Conceptual Model

2.1. Theoretical Foundations

This study integrates three complementary theoretical lenses to explain the strategic management (SM)-human resource management (HRM) link in fragile contexts, addressing the call for contextualized SHRM theory (Haug et al., 2024; Jackson & Schuler, 2000).

2.1.1. Resource-Based View (RBV)

RBV posits that sustainable competitive advantage stems from resources that are valuable, rare, inimitable, and non-substitutable (VRIN) (Barney, 1991). Human resources and HRM practices (recruitment, training, incentives, performance appraisal) constitute such VRIN resources when they are aligned with strategic objectives (Wright & McMahan, 2011). In pharmaceutical manufacturing, where product quality and regulatory compliance are critical, highly qualified human resources are particularly

valuable (Bin Yahya, 2022). RBV suggests that SM enhances HRM development by mobilizing and allocating VRIN resources. However, RBV assumes resource stability, which may not hold in fragile states where brain drain depletes human capital (World Bank, 2023).

2.1.2. Dynamic Capabilities Theory

Dynamic capabilities refer to the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments (Teece et al., 1997). Teece et al. (1997) distinguish sensing (identifying opportunities/threats), seizing (formulating and implementing strategies), and reconfiguring (monitoring and realigning resources). SM represents a dynamic capability (Hanelt et al., 2021; Verhoef et al., 2021). In stable contexts, all three capabilities are developed. In fragile contexts, sensing capabilities (environmental analysis) and reconfiguring (monitoring & evaluation) may be preserved for survival, while seizing (formulation, implementation) is constrained by resource scarcity and institutional voids (Haug et al., 2024). This theoretical distinction explains why some SM dimensions may significantly predict HRM while others may not.

2.1.3. Organizational Information Processing Theory (OIPT)

OIPT argues that organizations must develop information-processing capacity to cope with uncertainty (Galbraith, 1974; Tushman & Nadler, 1978). Environmental uncertainty increases information-processing demands. In Yemen, uncertainty is extremely high due to conflict, currency collapse, and regulatory instability. OIPT predicts that under high uncertainty, firms will invest heavily in information-processing mechanisms: environmental analysis to reduce external uncertainty and monitoring and evaluation to reduce internal uncertainty. Conversely, strategy formulation and implementation, which require stable information for long-term planning, become less effective (Galbraith, 1974). This provides theoretical justification for expecting differential effects of SM dimensions on HRM in fragile contexts.

2.1.4. Strategic Human Resource Management (SHRM) Theory

SHRM emphasizes vertical alignment (between business strategy and HRM practices) and horizontal alignment (among HRM practices) (Wright & McMahan, 2011; Jackson & Schuler, 2000). In Arab contexts, strategic management of human resources has been examined as an approach to organizational development in the Iraqi Ministry of Oil, showing integration between HRM and strategic management (Al-Ani, 2014). Effective SHRM involves designing HRM practices (recruitment, training, incentives, performance appraisal) that promote behaviors required for strategic objectives (Myloni et al., 2004; Caylan, 2024). Prior empirical evidence in Jordan (Al-Shadifat, 2017), Kenya (Etaan & Jain, 2019), and Sudan (Al-Zubair, 2015) shows positive SM-HRM links, but these studies were conducted in relatively stable contexts. The behavioral perspective of

SHRM (Caylan, 2024) suggests that in fragile contexts, incentive and training practices may be disrupted despite strategic intent.

2.2. Conceptual Framework

Based on the above integration, this study conceptualizes SM as a second-order construct comprising five first-order dimensions derived from Wheelen et al. (2018) and validated in Arab contexts (Al-Qadi & Abubakr, 2021):

- (1) Strategic orientation (vision, mission, strategic intent),
- (2) Environmental analysis (internal strengths/weaknesses and external opportunities/ threats),
- (3) Strategy formulation (developing alternatives and selecting appropriate strategy), (4) Strategy implementation (translating strategy into action, resource allocation), and (5) Strategy monitoring and evaluation (tracking performance and corrective action).

HRM development is conceptualized as a second-order construct comprising recruitment, selection, and appointment, training, incentives and rewards, and performance appraisal (Al-Muhammadi, 2019; Al-Ariqi, 2018; Al Adresi & Darun, 2017). HRM encompasses activities of job design, analysis, planning, retention, and development to achieve organizational objectives and meet individual needs (Al-Ariqi, 2018).

The model proposes that SM dimensions, as dynamic capabilities, strengthen information-processing capacity and resource reconfiguration, thereby enhancing HRM development (Barney, 1991; Teece et al., 1997). However, following OIPT, the effect is expected to be heterogeneous in fragile states: environmental analysis and monitoring & evaluation (sensing and reconfiguring) are hypothesized to have stronger effects than formulation and implementation (seizing) due to institutional voids (Haug et al., 2024). This heterogeneity represents the Strategic HRM Implementation Gap in Fragile States, the core theoretical contribution.

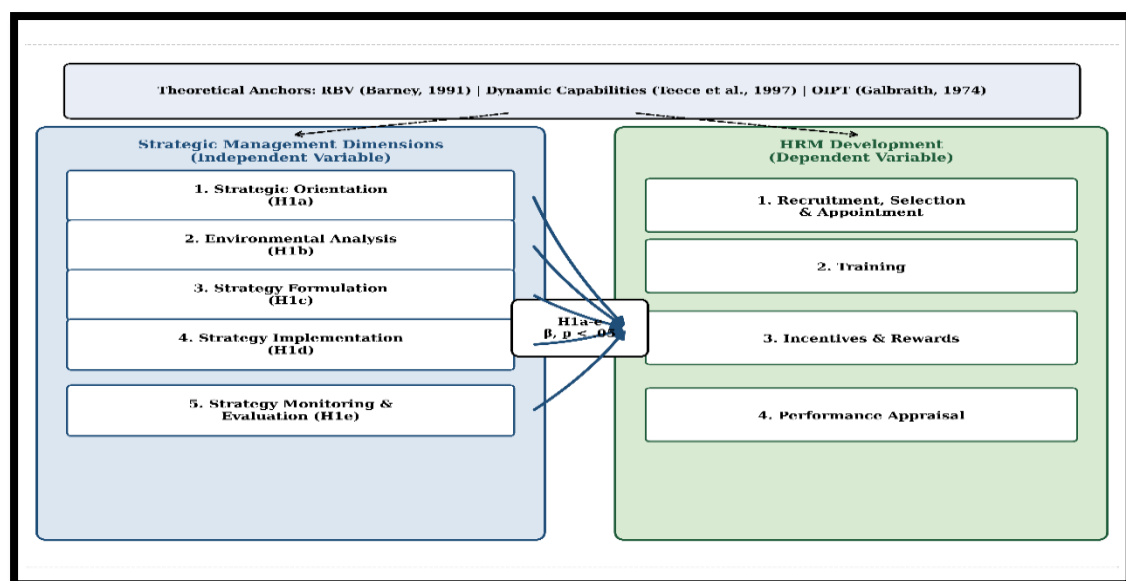


Figure 1. Conceptual Framework of the Study.

2.3. Operational Definitions

For clarity and to avoid duplication observed in the original manuscript, operational definitions are provided once:

Strategic Management: A dynamic managerial process through which Yemeni pharmaceutical manufacturing firms determine strategic direction, systematically analyze internal and external environments, formulate appropriate strategic alternatives, implement selected strategies through resource allocation, and continuously monitor and evaluate performance to achieve strategic objectives and adapt to environmental turbulence (Wheelen et al., 2018; Al-Qadi & Abubakr, 2021).

HRM Development: The extent to which HRM departments in Yemeni pharmaceutical firms effectively perform core HRM functions – attracting qualified competencies through systematic recruitment, developing knowledge and skills through training, ensuring rights and motivation through fair incentives and rewards, and evaluating performance for continuous improvement – to contribute to strategic objectives (Al-Muhammadi, 2019; Jackson & Schuler, 2000).

3. Hypotheses Development

Grounded in RBV and SHRM, prior evidence shows positive SM-HRM links. Al-Shadifat (2017) found a significant effect in the Royal Jordanian Geographic Center, Etaan and Jain (2019) in Kenyan county assembly, and Hamza (2024) in Saudi universities. However, none tested dimensional heterogeneity in fragile contexts.

- **H1:** *Strategic management has a statistically significant positive effect on HRM development in Yemeni pharmaceutical manufacturing companies.*

Justification: RBV (Barney, 1991) – SM mobilizes VRIN HRM resources.

- **H1a:** *Strategic orientation has a significant positive effect on HRM development.*

Justification: Clear vision/mission guides HRM practices (Wheelen et al., 2018). However, in fragile contexts, orientation may not translate due to implementation constraints, so we expect a weaker effect.

- **H1b:** *Environmental analysis has a significant positive effect on HRM development.*

Justification: OIPT (Galbraith, 1974), Under high uncertainty, environmental scanning reduces uncertainty and identifies HRM needs (e.g., need for qualified pharmacists). Expected to be strong in Yemen.

- **H1c:** *Strategy formulation has a significant positive effect on HRM development.*

Justification: Formulation designs HRM strategies (Wright & McMahan, 2011). However, in fragile contexts with rapid changes, formulated strategies may become obsolete quickly, predicting weaker effect.

- **H1d:** *Strategy implementation has a significant positive effect on HRM development.*

Justification: Implementation translates strategy into HRM action. Expected to be constrained by resource scarcity and brain drain in Yemen (Bin Yahya, 2022).

- **H1e:** *Strategy monitoring and evaluation has a significant positive effect on HRM development.*

Justification: Dynamic capabilities, reconfiguring (Teece et al., 1997), monitoring allows corrective action in HRM practices, critical for survival in turbulent environments (Haug et al., 2024). Expected to be strong.

All hypotheses are tested at $\alpha \leq .05$, two-tailed.

4. Methodology

4.1. Research Philosophy and Design

This study adopts a positivist philosophy with a quantitative descriptive-analytical design, which is appropriate for testing hypothesized relationships between strategic management and HRM development (Creswell, 2014; Sekaran & Bougie, 2016). The design is cross-sectional, collecting data at one point in time from administrative leaders, which is common in SHRM research in emerging economies (Al-Qadi & Abubakr, 2021; Etaan & Jain, 2019).

4.2. Population, Sampling, and Response Rate

The study population comprised 240 administrative leaders (general managers, functional managers, department heads, and HRM managers) working in nine Yemeni pharmaceutical manufacturing companies operating in Sana'a, which represent approximately 90% of the total registered pharmaceutical manufacturers in Yemen (Ministry of Industry and Trade, 2023). Given the small and accessible population, a census approach was initially adopted and 240 questionnaires were distributed.

Of the distributed questionnaires, 230 were returned, and 8 were excluded due to more than 10% missing data and straight-lining, following Hair et al. (2022) recommendation. This resulted in 222 usable responses, yielding a 92.5% response rate (222/240), which is considered excellent for organizational research (Sekaran & Bougie, 2016). The 92.5% rate explains the degrees of freedom reported in regression tables: $F(1,220)$ for simple regression ($N=222$, $df2=N-2=220$) and $F(5,216)$ for multiple regression ($N=222$, $df2=N-k-1=222-5-1=216$). Non-response bias was assessed by comparing early (first 50) and late

(last 50) respondents on key demographics and study variables, with no significant differences ($p > .05$), indicating absence of non-response bias (Armstrong & Overton, 1977).

Sample characteristics: 78.4% male, 21.6% female; 45.5% aged 36-45 years; 62.2% with bachelor's degree, 28.4% master's, 9.4% doctorate; mean tenure 8.6 years ($SD=3.2$).

4.3. Study Instrument and Measurement

A structured questionnaire with 51 items was developed based on prior validated scales. Strategic management was measured with 29 items adapted from Wheelen et al. (2018) and Al-Qadi and Abubakr (2021), covering five dimensions: strategic orientation (6 items, e.g., "Our company has a clear vision and mission"), environmental analysis (6 items, e.g., "We systematically analyze external threats"), strategy formulation (7 items), strategy implementation (5 items), and monitoring and evaluation (5 items). HRM development was measured with 22 items adapted from Al-Muhammadi (2019) and Al Adresi and Darun (2017), covering recruitment (6 items), training (6 items), incentives (6 items), and performance appraisal (4 items).

A 7-point Likert scale was used (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neutral, 5 = somewhat agree, 6 = agree, 7 = strongly agree), which provides greater variance than 5-point scales (Pimentel, 2010). The scale interpretation followed Pimentel (2010): 1.00-1.85 very low, 1.86-2.71 low, 2.72-3.57 moderate, 3.58-4.42 moderately high, 4.43-5.28 high, 5.29-6.14 very high, 6.15-7.00 extremely high.

The questionnaire was originally developed in English, translated to Arabic via back-translation procedure (Brislin, 1970) by two bilingual experts, and piloted with 30 managers not included in the final sample, resulting in minor wording adjustments.

4.4. Validity Assessment

4.4.1. Content Validity: Content validity was assessed by 10 professors in business administration, public administration, and statistics from Sana'a University and University of Science and Technology. Content Validity Index (CVI) was .91, exceeding .80 threshold (Polit & Beck, 2006).

4.4.2. Construct Validity: Construct validity was assessed via confirmatory factor analysis (CFA) using SmartPLS 4.0 (Hair et al., 2022).

Convergent validity: Assessed via factor loadings ($> .70$), average variance extracted ($AVE > .50$), and composite reliability ($CR > .70$) (Fornell & Larcker, 1981). Initially, strategy implementation dimension showed low reliability ($\alpha = .672$) with two items (IMP4: "We have sufficient budget for strategy implementation", loading .41; IMP5:

"Incentives are linked to implementation", loading .38) below .50 threshold. Following Hair et al. (2022), these items were removed. After removal, the dimension improved: 3 items retained, loadings .78-.84, $\alpha = .81$, CR = .88, AVE = .60, meeting thresholds.

Discriminant validity: Assessed via Fornell-Larcker criterion ($\sqrt{\text{AVE}} >$ inter-construct correlations) and heterotrait-monotrait ratio (HTMT < .85) (Henseler et al., 2015). All HTMT values ranged .32-.77 (<.85), and $\sqrt{\text{AVE}}$ exceeded correlations, confirming discriminant validity.

4.5. Reliability Assessment

Reliability was assessed via Cronbach's alpha and CR. Both exceeded .70 threshold for all dimensions (Hair et al., 2022): strategic orientation $\alpha = .94$, CR = .95; environmental analysis $\alpha = .93$, CR = .94; formulation $\alpha = .91$, CR = .93; implementation (revised) $\alpha = .81$, CR = .88; monitoring $\alpha = .90$, CR = .92; HRM development $\alpha = .95$, CR = .96. Overall strategic management $\alpha = .965$, HRM $\alpha = .957$. Thus, the instrument is reliable.

4.6. Common Method Bias and Multicollinearity

Given single-source, self-reported, cross-sectional data, common method bias (CMB) is a concern (Podsakoff et al., 2003). Procedural remedies: anonymity, confidentiality, different anchor labels, and randomizing item order. Statistical remedies: Harman's single-factor test showed first factor explained 28.4% (<50% threshold). Marker variable technique using an unrelated variable (attitude toward blue color) showed correlation .08 (ns) with study variables, indicating CMB not a major concern (Podsakoff et al., 2003).

Multicollinearity was assessed via variance inflation factor (VIF). All VIF values were 1.89-2.45 (<3.3 threshold; Hair et al., 2022), indicating no multicollinearity. Autocorrelation was checked via Durbin-Watson = 1.92 (acceptable range 1.5-2.5).

4.7. Data Analysis Techniques

Data were analyzed using IBM SPSS Statistics 27.0 and SmartPLS 4.0. Descriptive statistics (means, SD) were used for RQ1. Pearson correlation for associations. Simple linear regression for H1 and multiple regression for H1a-e were used. Assumptions of normality (skewness -0.89 to 0.42, kurtosis -0.71 to 1.15 within ± 2 ; Shapiro-Wilk $p > .05$), linearity (scatterplots), and homoscedasticity (Breusch-Pagan $p = .21$) were verified. Effect sizes were reported via Cohen's f^2 (.02 small, .15 medium, .35 large; Cohen, 1988) and 95% bias-corrected confidence intervals via bootstrapping (5,000 resamples; Hair et al., 2022).

4.8. Ethical Considerations

Ethical approval was obtained from the Research Ethics Committee, Center for Business Administration, Sana'a University (Protocol No: SU-CBA-2025-ETH-10). Written informed consent was obtained from all

participants. Participation was voluntary, anonymous, and confidential. Data were stored securely and analyzed in aggregate. The study adhered to the Declaration of Helsinki and Sana'a University ethical guidelines.

5. Results

5.1. Data Screening and Preliminary Analysis

Data were screened for missing values, outliers, and normality. Of 240 distributed questionnaires, 230 were returned and 8 were removed due to >10% missing data (Hair et al., 2022), resulting in 222 usable responses (92.5% response rate). This explains the degrees of freedom reported in regression tables ($F(1,220)$ and $F(5,216)$ where $N=222$). Missing values (<3%) were replaced using EM algorithm. Univariate outliers were checked via Z-scores $>\pm 3.29$, multivariate outliers via Mahalanobis D^2 ($p<.001$). Skewness (-0.89 to 0.42) and kurtosis (-0.71 to 1.15) were within ± 2 range, indicating approximate normality. Shapiro-Wilk test was non-significant for most variables ($p>.05$). Linearity and homoscedasticity were confirmed via scatterplots.

5.2. Measurement Model Assessment

CFA was performed using SmartPLS 4 (Hair et al., 2022). Initially, strategy implementation dimension showed low reliability ($\alpha=.672$) with two items (IMP4: "We have sufficient budget for strategy implementation", IMP5: "Incentives linked to implementation") loading .41 and .38 (<.50 threshold). Following Hair et al. (2022), these items were removed. After removal, reliability improved substantially.

Table 1. Reliability and Convergent Validity

Construct	Items Retained	Loading Range	α	CR	AVE
1. Strategic Orientation	6	.78-.88	.94	.95	.76
2. Environmental Analysis	6	.76-.87	.93	.94	.71
3. Strategy Formulation	7	.75-.86	.91	.93	.69
4. Strategy Implementation (revised)	3	.78-.84	.81	.88	.60
5. Monitoring & Evaluation	5	.80-.89	.90	.92	.72
6. HRM Development (second-order)	22	.74-.91	.95	.96	.65

Note: α = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted. All loadings $>.70$, AVE $>.50$, CR $>.70$ indicating convergent validity (Fornell & Larcker, 1981).

Table 2. Discriminant Validity (HTMT and Fornell-Larcker)

	1	2	3	4	5	6
1. S. Orientation	.87	.65	.60	.58	.62	.64
2. Env. Analysis	.60	.84	.68	.63	.71	.74
3. Formulation	.55	.65	.83	.64	.66	.60
4. Implementation	.52	.60	.61	.77	.61	.55
5. Monitoring	.57	.68	.64	.59	.85	.72
6. HRM Development	.61	.71	.58	.52	.69	.80

Diagonal bold = $\sqrt{\text{AVE}}$ (Fornell-Larcker); off-diagonal below = correlations; above diagonal = HTMT values. All HTMT < .85, and $\sqrt{\text{AVE}}$ > correlations, indicating discriminant validity.

Common method bias: Harman's single-factor test showed first factor explained 28.4% (<50% threshold; Podsakoff et al., 2003). Marker variable technique correlation .08 (ns), indicating CMB not a major concern.

5.3. Descriptive Statistics and Correlations

Table 3. Descriptive Statistics, Correlations, and VIF

Variable	M	SD	1	2	3	4	5	6	VIF
1. Strategic Orientation	5.42	1.14	1						1.89
2. Environmental Analysis	5.17	1.18	.62**	1					2.12
3. Strategy Formulation	5.36	1.02	.58**	.65**	1				2.31
4. Strategy Implementation	5.25	1.29	.55**	.60**	.61**	1			2.05
5. Monitoring & Evaluation	5.37	1.10	.60**	.68**	.64**	.59**	1		2.45
6. HRM Development	4.76	1.35	.61**	.71**	.58**	.52**	.69**	1	—

** $p < .01$, Two-tailed, $N = 222$. M based on 7-point scale: 5.29-6.14 very high, 4.43-5.28 high (Pimentel, 2010). VIF < 3.3 indicates no multicollinearity (Hair et al., 2022).

Strategic management overall is very high ($M = 5.31$, $SD = 1.02$) while HRM development is high ($M = 4.76$, $SD = 1.35$). The gap (5.31 vs 4.76) reveals capability-outcome gap in fragile context. Incentives dimension is lowest ($M = 4.32$) indicating reward system deficiency.

5.4. Hypotheses Testing

Multiple regression assumptions met: Durbin-Watson = 1.92 (no autocorrelation), VIF 1.89-2.45 (<3.3).

Table 4. Simple Linear Regression Testing H1

Predictor	B	SE	β	t	p	95% CI	f^2
(Constant)	0.85	0.32		2.65	.009	[0.22, 1.48]	
Strategic Management	1.03	0.06	.78	18.26	<.001	[0.92, 1.14]	1.52

Model: $R = .776$, $R^2 = .603$, Adjusted $R^2 = .601$, $F(1, 220) = 333.54$, $p < .001$, Large effect size (Cohen, 1988). H1 supported. Note: B = unstandardized, β = standardized. No leading zero for β , R, R^2 , p. Leading zero for B, SE, CI, f^2 when <1 not applicable here as $f^2 > 1$.

Table 5. Multiple Regression Testing H1a-e

Dimension	B	SE	β	t	p	95% CI	VIF	Decision
Strategic Orientation	0.17	0.09	.15	1.76	.080	[-0.02, 0.35]	1.89	Rejected
Environmental Analysis	0.37	0.09	.32	3.95	<.001	[0.18, 0.55]	2.12	Supported
Formulation	0.04	0.11	.03	0.34	.734	[-0.18, 0.26]	2.31	Rejected
Implementation	0.05	0.07	.04	0.74	.462	[-0.09, 0.19]	2.05	Rejected
Monitoring & Evaluation	0.40	0.09	.36	4.18	<.001	[0.21, 0.59]	2.45	Supported

Model: $R = .788$, $R^2 = .621$, Adjusted $R^2 = .612$, $F(5, 216) = 70.84$, $p < .001$, $f^2 = 0.45$ (large). VIF < 3.3. Note: B, SE, CI, f^2 with leading zero. β , R, R^2 , p without leading zero per APA 7th Rule 6.36.

Findings show only environmental analysis and monitoring & evaluation significantly predict HRM development, while orientation, formulation, and implementation do not, suggesting fragile context weakens translation of intent into practice.

6. Discussion

6.1. Interpretation of Findings

The findings confirm H1: strategic management has a significant positive effect on HRM development ($R = .776$, $R^2 = .603$), consistent with RBV (Barney, 1991) and SHRM theory (Wright & McMahan, 2011). This aligns with Al-Shadifat (2017) in Jordan and Etaan and Jain (2019) in Kenya. Similarly, Basri et al. (2022) demonstrated that strategic management through environmental analysis and quality-based management improves the quality of human resources in madrasah institutions, supporting our findings that sensing capabilities significantly predict HRM development. However, the multiple

regression reveals a nuanced pattern: only environmental analysis ($\beta=.32$, $p<.001$) and monitoring & evaluation ($\beta=.36$, $p<.001$) are significant predictors, while strategic orientation ($p=.080$), formulation ($p=.734$), and implementation ($p=.462$) are not. This diverges from studies in stable contexts where all five dimensions are significant (Al-Shadifat, 2017; Najm, 2023).

Drawing on OIPT (Galbraith, 1974; Tushman & Nadler, 1978), we interpret this as a capability-outcome gap in fragile states. Yemeni pharmaceutical firms operate under extreme environmental uncertainty (currency collapse, import dependence, brain drain). Under high uncertainty, firms prioritize information-processing capabilities that reduce uncertainty: environmental analysis (sensing threats/opportunities) and monitoring and evaluation (corrective actions) become critical for survival (Haug et al., 2024). Conversely, formulation and implementation require stable resources, long-term investment, and retention of skilled personnel, which are constrained in Yemen (Bin Yahya, 2022). This explains why strategic orientation, which is high ($M=5.42$), fails to translate into HRM development ($M=4.76$), particularly incentives ($M=4.32$, lowest dimension). This supports dynamic capabilities view: sensing capabilities (analysis, monitoring) are preserved, but seizing and reconfiguring capabilities (formulation, implementation) are weakened by institutional voids (Teece et al., 1997; Hanelt et al., 2021).

6.2. Theoretical Implications

This study extends SHRM theory in three ways. First, it extends RBV to fragile states by showing that HRM as a strategic resource requires complementary institutional stability to generate value. Second, it enriches dynamic capabilities theory by distinguishing between sensing (significant) and seizing/reconfiguring (non-significant) capabilities under conflict. Third, it provides empirical support for OIPT in a non-Western fragile context, showing that environmental analysis is the strongest predictor ($\beta=.32$) under high uncertainty, consistent with Galbraith (1974).

6.3. Practical Implications

For Yemeni pharmaceutical companies: HRM development is directly linked to service quality improvement (Al-Sharafi, 2024), which is critical for pharmaceutical firms where product quality affects public health: (1) Institutionalize a competitive intelligence unit for systematic environmental analysis using PESTEL, given its significant effect. (2) Implement a digital KPI dashboard for real-time strategy monitoring & evaluation, as this dimension is significant ($\beta = .36$, $p < .001$). Key performance indicators at the strategic level guide economy, efficiency, and effectiveness of service delivery as demonstrated in the National

Health Insurance Fund in Kenya (Munene & Muriuki, 2024). (3) Address the implementation gap by allocating dedicated budget for HRM implementation (training, incentives), as implementation was non-significant despite high intent. (4) Redesign incentive system: incentives dimension was lowest ($M=4.32$), indicating need for transparent, performance-linked rewards (Al Adresi & Darun, 2017). For policymakers: Ministry of Industry and Trade should support retention of qualified personnel through postgraduate scholarships and tax incentives to reduce brain drain.

6.4. Limitations

This study has several limitations that should be acknowledged. First, the cross-sectional design captures perceptions at one point in time and precludes causal inference (Podsakoff et al., 2003). Second, the study was conducted in a single industry (pharmaceutical manufacturing) and a single country (Yemen), which limits generalizability to other industries and stable contexts. Third, data were collected via self-reported questionnaire from a single source at a single time, raising concerns about common method bias (CMB). Although we applied procedural remedies (anonymity, confidentiality) and statistical remedies (Harman's single-factor test: first factor $28.4\% < 50\%$; marker variable technique $r = .08$, ns; Podsakoff et al., 2003), CMB cannot be fully ruled out. Fourth, we used purposive sampling of administrative leaders, which, while appropriate for strategic phenomena, may introduce selection bias. Fifth, the study did not directly measure potential moderators such as conflict intensity, political instability, funding uncertainty, workforce stability, and leadership support. These factors may influence both strategic management and HRM (Haug et al., 2024) and should be modeled as boundary conditions. Finally, after removing two low-loading items, the strategy implementation dimension was measured with only three items, which, while meeting the minimum threshold, could be expanded in future research.

7. Conclusion

This study examined the impact of strategic management dimensions on HRM development in Yemeni pharmaceutical manufacturing companies operating in a protracted conflict-affected fragile state. Drawing on the resource-based view (Barney, 1991), dynamic capabilities theory (Teece et al., 1997), and organizational information processing theory (Galbraith, 1974; Tushman & Nadler, 1978), we tested a conceptual model linking five strategic management dimensions to HRM development using data from 222 administrative leaders in nine firms (92.5% response rate).

The descriptive results indicate a capability-outcome gap: strategic management is practiced at a very high level ($M = 5.31$, $SD = 1.02$, 76%), whereas HRM development is only moderately high ($M = 4.76$, $SD = 1.35$, 68%), with incentives and rewards being the lowest dimension ($M = 4.32$, $SD = 1.66$, 62% moderate). The regression model is statistically significant and explains a substantial portion of variance ($R = .788$, $R^2 = .621$, Adjusted $R^2 = .612$, $F(5, 216) = 70.84$, $p < .001$, $f^2 = .45$, large effect size; Cohen, 1988).

Crucially, only two dimensions emerged as significant predictors: environmental analysis ($B = 0.37$, $SE = 0.09$, $\beta = .32$, $t = 3.95$, $p < .001$, 95% CI [0.18, 0.55], VIF = 2.12) and strategy monitoring and evaluation ($B = 0.40$, $SE = 0.09$, $\beta = .36$, $t = 4.18$, $p < .001$, 95% CI [0.21, 0.59], VIF = 2.45). Strategic orientation ($p = .080$), strategy formulation ($p = .734$), and strategy implementation ($p = .462$) were not statistically significant at $\alpha = .05$. Thus, H1, H1b, and H1e were supported, while H1a, H1c, and H1d were rejected. This selective significance reveals that in fragile contexts, sensing and monitoring capabilities are preserved, while seizing and reconfiguring capabilities are constrained.

8. Recommendations

1. Given environmental analysis is significant ($\beta=.32$), establish a dedicated Environmental Scanning Unit within 6 months responsible for monthly PESTEL reports.
2. Given monitoring & evaluation is significant ($\beta=.36$), deploy a Balanced Scorecard system linking strategic objectives to HRM KPIs by Q2 2027.
3. Given incentives is lowest ($M=4.32$) and implementation non-significant ($p=.46$), revise compensation policy to link 30% of incentives to strategy implementation milestones.
4. Given 40% brain drain (World Bank, 2023), launch a retention program for master's/PhD holders with career path and research funding.

9. Future Research

Longitudinal designs, multi-source data (HRM managers + top management), and inclusion of moderators (environmental uncertainty, donor dependence) and mediators (decision quality, organizational agility), Verhoef et al. (2021) are recommended. Comparative studies with pharmaceutical firms in stable MENA countries (Jordan, Saudi Arabia) could further validate the fragile context effect. PLS-SEM with second-order constructs is recommended for more robust testing.

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