

Providing a Model for Strategic Thinking in the Iran's Health Industry

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Abstract

Background: Today, despite the complex environment of businesses, the development of strategic thinking has become one of the important factors in gaining a sustainable competitive advantage in organizations; so that its application by managers leads to increased organizational performance and improved competitive conditions.

Objectives: This investigation focused on determining the strategic cognition model used in Iran's health industry.

Methods: This study adopts a mixed-methods (qualitative-quantitative) approach with an applied research objective. The target population includes all health industry experts in Iran. The research process began with a comprehensive literature review, followed by in-depth interviews with 17 seasoned professionals to qualitatively identify and validate the key drivers of strategic thinking in Iran's healthcare sector. Subsequently, a quantitative phase was implemented, during which expert surveys were used to construct the structural self-interaction matrix (SSIM). Following the interpretive structural modeling (ISM) methodology, the initial and final reachability matrices were derived, enabling the classification of research components and the development of the structural model. Additionally, MICMAC analysis was performed to evaluate variable dependence and penetration.

Results: All the components and codes of this research are summarized within the framework of four main factors: Obstacles, national infrastructures, scientific insight, and foresight. After obtaining these results, and in order to quantitatively verify and achieve the structural-interpretive model, the main components of the research were tested using the structural-interpretive modeling method, and finally, the final model of the research was extracted.

Conclusions: It is suggested that managers and all trustees of the health industry analyze the competitive and political-legal environment of their industry and organization as a first step. Using trend analysis and maintaining a forward-looking vision can help managers better understand the future environment.

Keywords: Strategic Thinking; Health Industry; Scientific Insight; Foresight; Iran

1. Background

In the modern-day world, rapid adjustments in the age of technology and statistics have rendered several classical opposition assumptions within the business world obsolete. It is no longer sufficient for companies to merely benefit from new technologies in order to increase their success and competitiveness. Contemporary economies require strengthened equitable distribution, competitive intensity, and consumer access. Enterprises focus strategically on achieving competitive superiority. In our era, imaginative capacity has emerged as the paramount business competency, surpassing traditional competitive factors in importance. Within this paradigm, enterprises must prioritize forward-oriented strategy formulation to achieve transformative market impact. To cultivate robust competitive architectures, organizations should operationalize diverse strategic approaches through sys-

tematic implementation frameworks. Consequently, the Strategic Management Approach serves as a critical implementation framework for enhancing organizational competitiveness by systematically aligning internal capabilities with market opportunities.

Strategic management emerged as a critical organizational practice during the 1980s, when expanding production capabilities and market developments created increasingly competitive business environments. Facing these mounting pressures, enterprises began systematically establishing strategic objectives for investments and market positioning. The current study examines these goal-directed strategic management frameworks that guide organizational decision-making. Scholarly consensus confirms that successful strategic management integrates sustained development of strategic



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capabilities with participatory organizational decision processes to maintain long-term competitiveness. Within this framework, effective implementation of strategic decisions holds significance at both organizational and national levels. Future-oriented management systems must prioritize structural excellence and rigorous performance criteria. Contemporary practice increasingly emphasizes participatory governance models and formalized strategic management approaches as critical components of organizational success.

Strategic management constitutes an essential framework for healthcare institutions, equally critical as in other organizational sectors. The healthcare domain requires robust strategic management systems to navigate competitive pressures, conduct comprehensive internal and external environmental analyses, and systematically evaluate institutional strengths, weaknesses, opportunities, and threats. The forces of globalization and associated competitive dynamics have compelled healthcare organizations to prioritize strategic thinking and evidence-based decision-making with the same rigor as corporate enterprises, fundamentally transforming traditional healthcare management paradigms.

While management practices trace their origins to ancient civilizations, formal business management emerged as a distinct discipline only in the early 20th century, coinciding with the rise of industrial-scale enterprises. This relatively recent development stems from the absence of large-scale production organizations prior to the 18th-century Industrial Revolution. The pre-industrial era might thus be characterized as a “pre-scientific management” period, though rudimentary management activities undoubtedly existed throughout human history, evidenced by coordinated communal efforts toward shared objectives in ancient societies.

Strategic management emerges from the synthesis of strategy formulation and organizational management principles (1). The concept of strategy originates from two sources: The Latin *stratum* (meaning “road” or “path”) and the Greek *Strategos* (referring to a general’s art and knowledge) (2). Strategic management emerged in business literature during the 1980s as an integrative process encompassing strategy formulation through research, analysis, and selection; organizational alignment through structural and motivational adjustments; and strategy implementation overseen by executive leadership. This comprehensive framework coordinates all strategic activities from planning to execution (3).

Ginter et al. identify three strategic management elements: Strategic thinking, strategic planning, and strategic momentum (4). Strategic thinking forms the cognitive foundation of strategic management. It represents both a leadership-oriented mindset and an analytical approach that requires adopting an executive perspective to comprehend organizational macro-dynamics (5, 6). Visionary foresight constitutes an intrinsic element of strategic thinking, enabling practitioners to continu-

ously reimagine future scenarios and project alternative organizational trajectories (4). The elements of strategic thinking remain debated among scholars. Liedtka’s model comprises five dimensions: Systemic worldview, purposeful direction, adaptive opportunism, temporal awareness, and hypothesis testing (5). The Goldman (as cited by Moammai et al.) model identifies four strategic thinking components: Futurism, systematic analysis, intelligent opportunism, and conceptual reasoning (7). Researchers such as Senge (as cited by Robinson), Heracleous, Bonn, Pisapia et al., and Scharmer (as cited by Robinson) confirm systematic cognition, innovative capacity, and deep insight as core constituents of strategic thinking (8-11).

Considering Iran’s business environment, developing strategic thinking skills is one of the basic requirements for managers across various industries and sectors. Iran’s health industry is one of the sectors where the lack of strategic expansion among its managers has created significant challenges. Instead of accepting existing rules and operating within their limitations, strategic thinking aims to create improved rules that respond to environmental demands and address the challenges of the health industry—rules that facilitate the achievement of goals. Therefore, focusing solely on existing factors cannot serve as a long-term solution to overcome problems or to generate a sustainable competitive advantage for this industry. Rather, it requires a comprehensive approach to systematically address challenges and establish a clearly defined vision for the health industry. Finally, given that no research has yet been conducted on the development of strategic thinking in the health industry—and considering the importance of promoting strategic thinking in this sector—the primary aim of this research is to first identify the factors influencing strategic thinking in the health industry, and then to classify these factors based on the interpretive structural modeling (ISM) approach, presenting a comprehensive model for the development of strategic thinking in this domain.

2. Objectives

This study seeks to establish an integrated framework to advance strategic thinking within Iran’s healthcare sector by systematically identifying and analyzing the key determinants that influence its development.

3. Methods

This study aims to develop a conceptual framework for cultivating strategic thinking within the healthcare sector. It adopts a mixed-methods research design, combining qualitative and quantitative approaches in terms of data collection. The spatial scope of the research is Iran’s health industry, and its statistical population includes health industry experts who possess sufficient familiarity with strategic management issues. The specifications of the research experts are presented in Table 1.

Table 1. Profile of Research Experts

| No. | Gender | Position | Education | Activity | |
|-----|--------|--|-----------------------------|----------|-----------|
| | | | | Academic | Executive |
| 1 | Female | University professor | Strategic management | * | |
| 2 | Male | Head of the hospital | Cardiovascular specialty | | * |
| 3 | Male | Head of the hospital | Gastrointestinal specialty | | * |
| 4 | Male | University professor | Sport management | * | |
| 5 | Male | CEO of medical equipment company | Electrical engineer | | * |
| 6 | Male | University professor | Faculty of Medical Sciences | * | |
| 7 | Male | University professor | Faculty of Medical Sciences | * | |
| 8 | Female | University professor | Faculty of Medical Sciences | * | |
| 9 | Female | University professor | Strategic management | * | |
| 10 | Male | Vice President of Research and Technology of the Ministry of Health | Strategic management | | * |
| 11 | Male | Director of health broadcasting network | Cinema expert | | * |
| 12 | Male | CEO of a pharmaceutical company | Pharmacy specialist doctor | | * |
| 13 | Female | University professor | Sport Management | * | |
| 14 | Male | Vice President of Public Sports Federation | Sport management | | * |
| 15 | Female | Vice President of Public Sports Federation | Sport management | | * |
| 16 | Female | University professor | Faculty of Medical Sciences | * | |
| 17 | Male | Deputy Director General of the Health and Counseling Office of the Ministry of Science | Faculty of Medical Sciences | * | * |

Sampling was conducted using a judgmental (non-probability) quota and available sampling method to identify and select participants. The data collection process was exploratory and carried out in two stages. The first stage involved a comprehensive examination of all models, dimensions, and components of strategic thinking, as well as an analysis of the Iranian health industry environment and its specific characteristics through a review of existing literature.

The second stage consisted of two phases. In the first (qualitative) phase, interviews were conducted with experts in the fields of strategy and the health industry, focusing on the central question: "What are the events, consequences, dimensions, components, and factors affecting strategic thinking in the health industry?"

The experts selected for the interviews in this section had sufficient familiarity with strategic management, were knowledgeable about the health industry, and had prior experience working in organizations related to the healthcare sector. After conducting the interviews and reaching theoretical saturation, the interview data were

coded using MAXQDA software.

In the second phase, to explore the relationships between the main categories for structuring and modeling these factors, the ISM method was employed. At this stage, an ISM quantitative questionnaire was used to identify the network of relationships and interconnections, and to validate the researcher's findings.

4. Results

4.1. Analysis of Qualitative Research Data

In the current research, within the qualitative analysis section, the variables affecting the subject were first extracted from the theoretical literature using information gathered from studies in the fields of strategic thinking, strategic management, and Iran's health industry. Then, through semi-structured interviews with experts, their opinions were investigated. In this process, the interviews were analyzed using MAXQDA software (Figure 1).

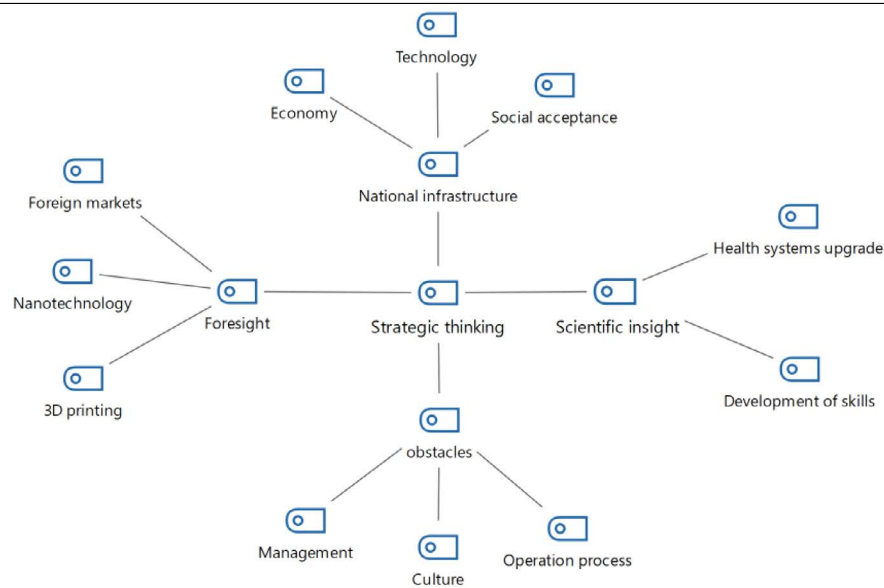


Figure 1. Output of 11 components and 4 main research categories from MAXQDA software

4.2. Analysis of Quantitative Research Data

In this research, after extracting the codes and identifying the components and related categories, the ISM method was used to discover the causal relationships between the components. Interpretive structural modeling is an interactive learning process in which a set of directly and indirectly related variables is structured into a comprehensive, systematic, and multilevel model. It is

used to solve complex decision-making problems and to identify relationships between elements.

To conduct the test, a questionnaire comprising 11 components influencing one another was distributed among 10 experts, with the goal of forming a structural self-interaction matrix (SSIM). In order to determine the internal relationships among the indicators, the experts were asked to specify the relationships between the categories based on the explanations provided in Table 2.

Table 2. Relationships in the Formation of the Structural Self-interaction Matrix

| Symbol | Concept |
|--------|--|
| 1 | Rows lead to columns |
| -1 | Column leads to row |
| 2 | Both affect each other |
| 0 | None of them has any effect on the other |

According to Table 3, the relationships between the variables were identified based on the previously provided explanations. Each expert assigned a symbol to the matrix, and according to the mode index in each cell, the symbol that appeared most frequently among the

responses was selected as the final output for that cell. Subsequently, using this matrix, the initial reachability matrix and the final reachability matrix were extracted, as shown in Tables 4 and 5, respectively.

Table 3. Structural Self-interaction Matrix

| Variables | Foreign Markets | Nanotechnology | 3D Printing | Economy | Technology | Social Acceptance | Health Systems Upgrade | Development of Skills | Management | Culture | Operation Process |
|-----------------|-----------------|----------------|-------------|---------|------------|-------------------|------------------------|-----------------------|------------|---------|-------------------|
| Foreign markets | - | -1 | -1 | 2 | 2 | 0 | -1 | -1 | -1 | 0 | -1 |
| Nanotechnology | 1 | - | 0 | 2 | 2 | 0 | 1 | -1 | 0 | 0 | 1 |
| 3D printing | 1 | 0 | - | 2 | -1 | 0 | 1 | -1 | 0 | 1 | 1 |

| | | | | | | | | | | | |
|------------------------|---|----|----|----|----|---|----|----|----|---|----|
| Economy | 2 | 2 | 2 | | 2 | 1 | 1 | 2 | -1 | 2 | 1 |
| Technology | 2 | 2 | 1 | 2 | - | 1 | 1 | 1 | 1 | 2 | 1 |
| Social acceptance | 0 | 0 | 0 | -1 | -1 | - | -1 | -1 | -1 | 2 | 0 |
| Health systems upgrade | 1 | -1 | -1 | -1 | -1 | 1 | - | -1 | -1 | 1 | -1 |
| Development of skills | 1 | 1 | 1 | 2 | -1 | 1 | 1 | - | 1 | 2 | 1 |
| Management | 1 | 0 | 0 | 1 | -1 | 1 | 1 | -1 | - | 2 | 1 |
| Culture | 0 | 0 | -1 | 2 | 2 | 2 | -1 | 2 | 2 | - | 0 |
| Operation process | 1 | -1 | -1 | -1 | -1 | 0 | 1 | -1 | -1 | 0 | - |

Table 4. Initial Reachability Matrix

| Variables | Foreign markets | Nanotechnology | 3D Printing | Economy | Technology | Social Acceptance | Health Systems Upgrade | Development of Skills | Management | Culture | Operation Process |
|------------------------|-----------------|----------------|-------------|---------|------------|-------------------|------------------------|-----------------------|------------|---------|-------------------|
| Foreign markets | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nanotechnology | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 3D printing | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| Economy | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| Technology | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| Social acceptance | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Health systems upgrade | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| Development of skills | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| Management | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| Culture | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| Operation process | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |

Table 5. Final Reachability Matrix

| Variables | Foreign Markets | Nanotechnology | 3D Printing | Economy | Technology | Social Acceptance | Health Systems Upgrade | Development of Skills | Management | Culture | Operation Process | Penetration Rate |
|------------------------|-----------------|----------------|-------------|---------|------------|-------------------|------------------------|-----------------------|------------|---------|-------------------|------------------|
| Foreign markets | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 |
| Nanotechnology | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 |
| 3D printing | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 |
| Economy | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 |
| Technology | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 |
| Social acceptance | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 6 |
| Health systems upgrade | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 8 |
| Development of skills | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 |
| Management | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 |
| Culture | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 |
| Operation process | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 7 |
| Degree of dependence | 10 | 8 | 8 | 11 | 11 | 11 | 10 | 10 | 10 | 11 | 9 | |

Due to the limitations of the initial reachability matrix, it must be converted into the final matrix using specific methods. At the end of the horizontal and vertical axes of the final reachability matrix, the penetration rate and the degree of dependence of the variables are indicated. Penetration refers to the extent to which a variable influences other variables.

According to the final reachability matrix, the variables foreign markets, nanotechnology, 3D printing, economy, technology, development of skills, management, and culture demonstrate a higher penetration rate compared to other variables.

Dependency, on the other hand, is determined by the

extent to which a variable is influenced by other variables. Based on the final reachability matrix, the variables economy, technology, social acceptance, and culture exhibit the highest degree of dependence.

4.3. Final Interpretive Structural Diagram

All 11 research variables are divided into four levels and illustrated in Figure 2. Variables positioned at higher levels exhibit less influence and greater dependence compared to variables at lower levels. Conversely, variables located at lower levels demonstrate greater influence and less dependence on others.

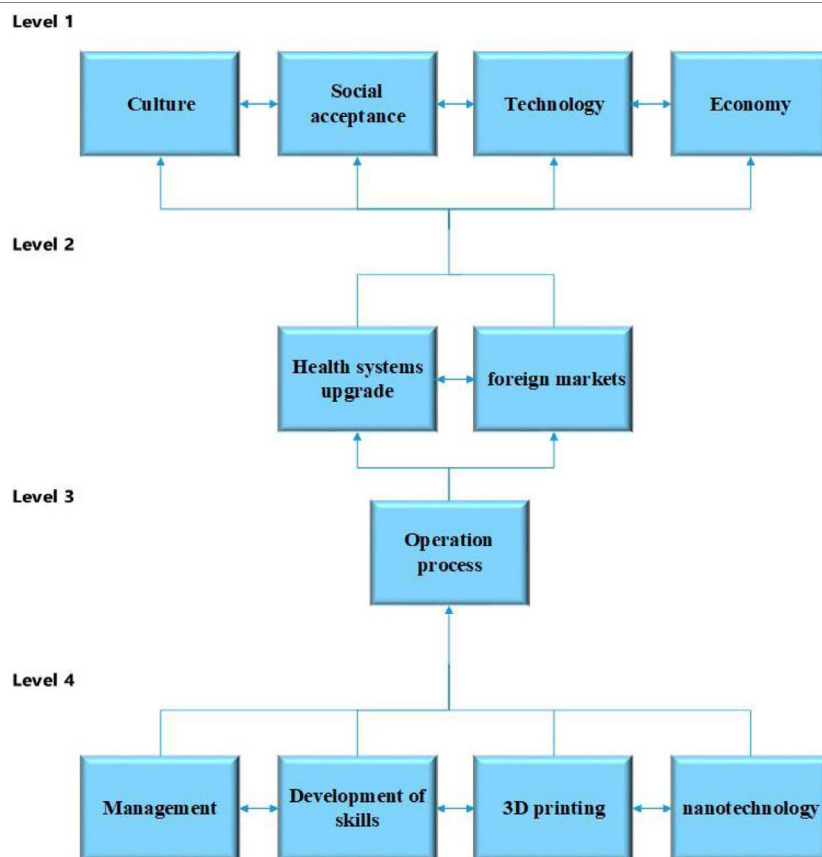


Figure 2. The final structural interpretative model of factors affecting the development of strategic thinking in Iran's health industry

The variables at each level exhibit mutual influence among themselves and exert direct influence on the variables positioned at the higher levels.

4.4. MICMAC Analysis

According to Table 6, the research variables were cat-

egorized into four sections—*independent*, *dependent*, *linked*, and *autonomous*—based on their levels of penetration and dependence. In Figure 3, the horizontal axis represents the degree of dependence, while the vertical axis indicates the degree of penetration of the variables, as derived from the output results of the final reachability matrix.

Table 6. Penetration Rate and Degree of Dependence Based on MICMAC Analysis

| Variables | Penetration Rate | Degree of Dependence |
|-----------------|------------------|----------------------|
| Foreign markets | 11 | 10 |
| Nanotechnology | 11 | 8 |

| | | |
|------------------------|----|----|
| 3D printing | 11 | 8 |
| Economy | 11 | 11 |
| Technology | 11 | 11 |
| Social acceptance | 6 | 11 |
| Health systems upgrade | 8 | 10 |
| Development of skills | 11 | 10 |
| Management | 11 | 10 |
| Culture | 11 | 11 |
| Operation process | 7 | 9 |

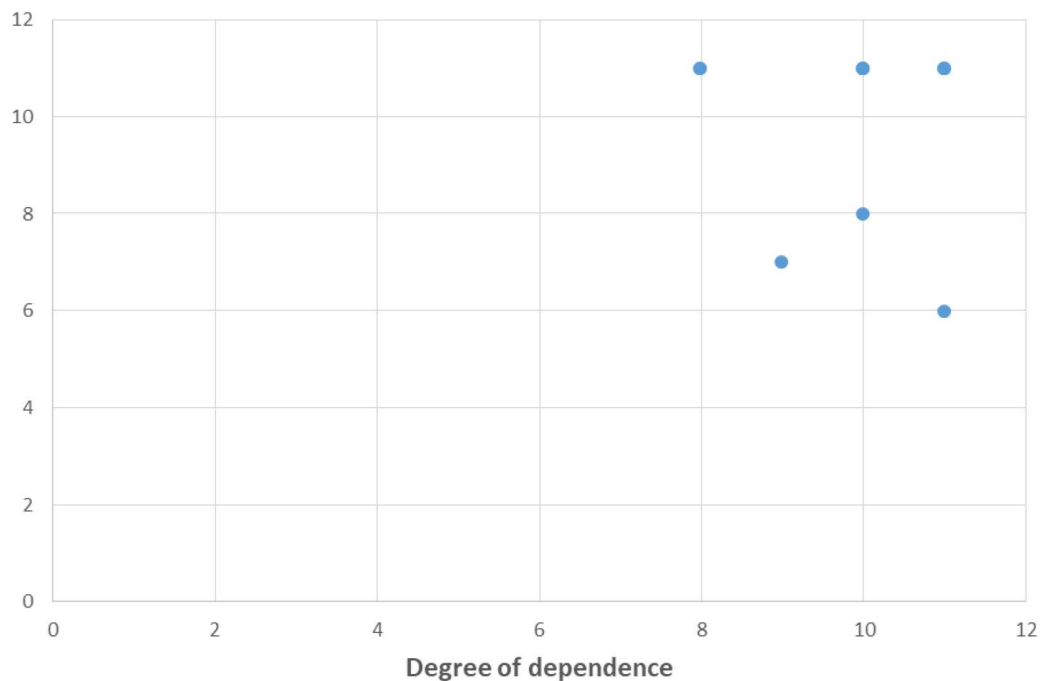


Figure 3. MICMAC analysis

5. Discussion

In today's complex and competitive environment, the development of certain skills—particularly strategic thinking—can provide a sustainable competitive advantage for industries and organizations. Iran's health industry, however, remains largely managed through traditional approaches and is currently unable to compete effectively with foreign counterparts. The presence of international competitors, combined with internal limitations, has posed significant challenges for the industry in the global arena. Therefore, the development of strategic thinking as a skill that offers a multi-dimensional perspective on organizational issues is an essential requirement for managers within the health sector. In this context, the present research aims to develop a model regarding the factors influencing strategic thinking in Iran's health industry. To achieve this objective, the research was conducted in two stages—qualitative and quantitative.

In the qualitative part, the results of the literature study and interviews with experts led to the extraction of 11 components and 4 categories. All the components and codes of this research are summarized in the framework of four main factors including obstacles, national infrastructures, scientific insight, and foresight. After obtaining these results, in order to quantitatively evaluate and achieve the structural-interpretive model, the main components of the research were tested using the structural-interpretive modeling method, and finally, the final model of the research was extracted. Also, MICMAC analysis was presented based on the degree of dependence and the degree of penetration of each factor. The innovative aspect of this research is that it was carried out in the context of the health industry, which unfortunately faces many challenges and suffers from a lack of strategic thinking skills, and its findings provide a comprehensive and at the same time step-by-step view for the development of this skill among the managers and trustees of

this industry.

Previous research on strategic thinking in Iranian organizational contexts reveals varying assessment outcomes. Salavati et al.'s study of Gilan University of Medical Sciences personnel and managers reported a 'moderately good' level of strategic thinking competence (12). In contrast, Sadati et al.'s examination of public sector managers in Kerman province demonstrated predominantly positive evaluations, with most participants scoring in the high to very high range for strategic thinking capabilities (13). Salavati et al. revealed a significant hierarchical disparity in strategic thinking competencies, with managerial staff demonstrating markedly higher scores compared to non-managerial personnel (12). The observed superiority in strategic thinking competencies among managerial staff compared to non-managerial personnel may be attributed to several factors. First, managers typically possess advanced formal education and broader organizational perspectives. Second, targeted management training significantly enhances strategic cognitive abilities (4). Given that executives routinely participate in leadership development programs throughout their careers, this training differential likely contributes to the strategic thinking gap. Therefore, efforts in promoting strategic thinking in the health industry seem essential. To cultivate strategic thinking capabilities within organizations, it is essential to develop an organizational culture that actively encourages and rewards strategic mindset development. Current research consensus indicates that strategic thinking represents a learnable competency rather than an innate trait, with skill acquisition requiring systematic training initiatives coupled with sustained reinforcement mechanisms.

The developmental process typically incorporates three complementary approaches: Formal classroom-based instruction focusing on strategic frameworks and analytical techniques, experiential learning opportunities through cross-functional projects and job rotations, and self-directed learning that allows for personalized skill development. In a research, it has been determined that managers can have a positive impact on the innovation and entrepreneurship of the organization by using the components of strategic thinking (14). Achieving this insight and intuitive understanding and strengthening strategic thinking in organizations gives many advantages to organizations. The results of a study show that strategic thinking is the factor of success of the organization in a competitive environment (15). Therefore, it can be said that for the emergence of innovation and creativity in the health industry, the atmosphere of strategic thinking must prevail. This finding is consistent with the findings of the present study (16). Different levels of managers lead to better employee performance and more creativity in hospital employees. Therefore, managers who are at the top of strategic thinking in this industry give their employees the opportunity to think and act more creatively and create an open environment for innova-

tive work, so that they can make their organization successful in competing with other organizations in such a competitive environment. Although there are different definitions and models regarding strategic thinking, the concept of knowledge and learning is one of their basic principles. Goldman has long identified strategic thinking capacity as a critical competency for senior leadership, ranking it among the most essential executive skills in contemporary management literature. However, the escalating complexity of organizational ecosystems has precipitated a paradigm shift. This environmental turbulence now necessitates the diffusion of strategic thinking capabilities beyond the top management, requiring cultivation at middle management and even operational levels to maintain organizational responsiveness (17).

5.1. Conclusions

Based on the results of this research, it is recommended that managers and all trustees of the health industry begin by analyzing the competitive and political-legal environment of their industry and organizations. Utilizing trend analysis and adopting a forward-looking vision can assist managers in understanding the future environment. At the organizational level, it is advised that managers consider redesigning their organizational structures to align with strategic goals.

Given the importance of strategic thinking, the following suggestions are offered to researchers:

- Examine the results of the current research in other industries or target populations;
- Investigate the role of national infrastructures as an effective factor influencing strategic thinking in the desired industry;
- Extract competency models of strategic thinking relevant to the specific industry;
- Explore and measure the impact of each factor identified in the current research on both organizational performance and the competitive performance of the industry, and identify ways to create sustainable competitive advantage within the organization.

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