



Grounded Theory Model of Women's Managerial Competencies Based on Industrial Technological Innovations: A Case Study of Entrepreneurial Food Companies

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Abstract

The aim of this study is to present a grounded theory model of women's managerial competencies based on industrial technological innovations (case study: entrepreneurial food companies). This research is exploratory in nature and qualitative in methodology. The statistical population of the study includes 15 women managers, deputies, and experts in the food industry, as well as distinguished entrepreneurship professors from universities. The sampling was conducted using snowball sampling. The data collection tool used in this study was a questionnaire focused on women's management and technological innovation. Grounded theory was used to analyze the data. The indicators of negative societal attitudes toward women's management, patriarchy, and gender stereotypes, as well as the absence of women in political groups, were identified as intervening conditions in the presentation of the model for women's managerial competencies in the food industry. The indicators of aligning abilities with assigned tasks, resolving conflicts between work and family, work experience, mastery over one's profession, and updating one's knowledge, awareness, and expertise were selected as strategies and actions in the presentation of the model for women's managerial competencies in the food industry. The indicators of analytical and critical thinking, creative thinking, strategic thinking, systems thinking, general and specialized knowledge, research skills, presenting innovative and scientific ideas, adequate knowledge and expertise, work commitment, emotional intelligence, responsibility and accountability, self-esteem and self-confidence, self-awareness and insight, discipline, confidentiality, resolving interpersonal conflicts, receptiveness to criticism and recommendations, humility in behavior, understanding employee problems and aligning them with organizational goals, humanitarian and compassionate attitudes, identifying problems, evaluating solutions, and establishing good social relationships with other employees were selected as causal conditions in the presentation of the model for women's managerial competencies in the food industry.

Keywords: *Women's managerial competencies, industrial technological innovations, entrepreneurial industrial companies, grounded theory model.*

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1. Introduction

Recently, the focus of innovation has shifted from an individualistic perspective to a more social one, with particular emphasis on infrastructure and the external environment [1, 2]. Researchers and policymakers have come to the understanding that entrepreneurship and innovation are embedded in larger ecosystems, composed of various “actors and interdependent factors that make and constrain entrepreneurship within a specific domain” [3]. Although entrepreneurial ecosystems are receiving increasing attention, few studies have confirmed their characteristics and effectiveness in emerging economies through a gender lens. The rising popularity of ecosystem research among policymakers, and the focus on the positive outcomes generated by ecosystems in terms of entrepreneurship and innovation, is driving this trend. However, this concept remains “largely misunderstood and still inadequately measured” [4, 5]. Therefore, what exactly are entrepreneurial ecosystems, and how do their components come together to generate innovation and entrepreneurship? To answer these questions, Audretsch et al. (2022) proposed a framework that explains the development of innovation and entrepreneurship through three pillars: resource supply, resource demand, and barriers to allocation and accumulation. In this study, the entrepreneurial ecosystem is defined according to Audretsch et al. (2022) as “a set of factors required to start a business with the potential for growth and innovation within a specific geographic space” (n.p.). No existing study has empirically tested these three pillars together and through a gendered lens. Based on Audretsch et al.’s (2022) framework for entrepreneurship and national innovation systems, we examine the features and effectiveness of ecosystems and demonstrate how they are operationalized by women to create national value. In doing so, this study provides significant empirical validation of an emerging new framework. Furthermore, it clarifies the important but under-recognized role of women in ecosystems by placing them at the center of the research [6]. While existing research has examined the barriers women face in entrepreneurship and innovation in relation to ecosystems, this study bridges an important gap by focusing on the intersection of ecosystems, gender, and innovation, thereby shedding light on the invisible role that women play in national innovation systems.

Although more women have joined managerial ranks in recent decades, they still face challenges in career

progression, and their representation at the top management level remains low [6-8]. Despite decades of effort, research, and intervention, the shortage of women in senior positions within technology companies is particularly noticeable. Therefore, the fields of Science, Technology, Engineering, and Mathematics (STEM) provide a fertile environment for studying the challenges (or lack of progress) that women face in reaching senior management.

To attract a more diverse workforce, many technology companies have set goals to increase the percentage of women and/or female managers among their middle management ranks. However, we have limited knowledge about how these goals are understood and whether they are contributing to gender equality. Research relying on critical feminist perspectives has shown that masculine cultures, stereotypes, gendered structures, and the entanglement of technology and masculinity hinder women’s progress in technology companies [4, 9, 10]. Nevertheless, the importance of these factors is often downplayed, and many executives still explain the low percentages with the lack of qualified women or their unwillingness to pursue top roles [11-13].

Previous studies have provided varied results regarding the role of managers and senior leaders in advancing gender equality. Some studies emphasize the positive impact of managers in challenging prevailing masculine norms [6, 14-16], while others find that male leaders are most inclined to defend the status quo [5, 17-19]. This may relate to how senior managers perceive (in)equality and impact their willingness to engage in change efforts [6, 8, 20]. Therefore, in order to improve gender equality in technology companies, it is essential to better understand how senior managers perceive gender equality goals in different environments.

The aim of this study is to understand how managers in technology-industrial companies engage with gender equality goals, contributing to the recent literature on the role of senior leaders [2, 6, 11, 12, 21, 22]. This study is based on interviews with CEOs, senior managers, and HR managers from ten active technology companies. It shows how managers in technology companies navigate between promoting gender equality (which they perceive as increasing the number/percentage of women) and adhering to what they consider an efficient merit-based system for hiring and career advancement. While the study identifies three types of engagement (endorsement, negotiation, and resistance), all responses are constrained by the belief that their companies operate on effective meritocracies.

Psychologists define competence as a prominent trait or skill that leads to better job performance. The international community defines it as the knowledge, skills, and attitudes that enable employees to effectively perform job-related tasks according to expected standards. Some researchers also define competence as an underlying characteristic of an individual that is generally associated with effective performance or superior performance in a job or situation [16]. Competency-based management emerged from the integration of human resources planning with business planning, allowing organizations to assess their current management capacity and human resources based on the competencies required to achieve organizational goals and missions [23]. The issue of competency-based management is of particular importance in developing countries, including Iran, because a significant portion of wasted capital and time in such organizations is due to poor management and a lack of attention to the competencies and capabilities of managers [24].

On the other hand, many developing countries have adopted an isomorphic imitation approach, based on models from developed countries, but evidence shows that this method is not particularly effective due to social, cultural, and political differences [25]. Given these two premises (weak management in Iran and the ineffectiveness of models from other countries), the need for a new competency model for managers in Iran is evident. Over the past few decades, although there has been a notable increase in women's employment in society, women's advancement in managerial positions has not significantly grown, and in the division of human resources in organizations, whether consciously or unconsciously, women are marginalized, and their access to higher positions is often seen as unusual or even unacceptable [26]. Despite decades of progress in obtaining academic degrees and holding managerial positions, women remain a minority in the field of management and leadership. Widespread gender stereotypes and known organizational leadership styles that associate men with leadership and senior management can create differential evaluations of male and female leaders and contribute to a gender gap in leadership. For these reasons, management scholars view the ongoing and pervasive gender gap in organizational management as an urgent issue that requires innovative and effective solutions [11].

A female manager, even if highly competent in leading an organization, faces challenges due to the gendered perceptions of employees (even female employees) toward women [27]. Furthermore, initiatives aimed at achieving

gender equality in organizations are often ineffective because they tend to overly emphasize women's competencies, which, in turn, undermines gender equality in management and leadership activities [28]. The primary barriers to women's career development stem from the cultural factors of a society, and in a patriarchal society, women are always placed behind men. In such a culture, men can exert pressure on women through traditions, customs, ceremonies, laws, manners, education, division of labor, and even language, thus influencing women's ability to reach and fulfill managerial roles [29]. One of the most important indicators of a country's level of development is the importance and recognition of women within that country. The more active the participation of women in public affairs, the more developed the country is [30].

Recent studies relying on critical feminist approaches highlight the mechanisms of male privilege that hinder women's advancement in male-dominated STEM organizations [7, 21, 27, 31]. Women often struggle to establish their credibility and competence as technology professionals, while men are perceived as naturally technically skilled [4, 25]. Women's technical competence is often questioned due to the technical/social dualism identified by Faulkner (2000), which still associates men with being technical and women with being social [11, 21].

An important issue in the field of management in various public and private organizations is the challenges faced by women. In addition to factors like cultural biases, the culture in some countries is inherently patriarchal. According to Hofstede's cultural classification, a globally recognized framework, the dominant cultures in the organizations of some countries, including the United States, Germany, and Iran, are patriarchal [31]. In particular, in Iran, female managers face numerous challenges, and little academic effort has been made to develop a competency model specifically for female managers. This highlights the need to address a competency model for women in Iran. Given the importance of management competencies on one hand and the lack of sufficient models regarding women's management, this study aims to present a model of women's managerial competencies in the food industry. Therefore, the researcher seeks to answer the question: what is the model of women's managerial competencies in the food industry (case study: Sabah Food Company)?

2. Methodology

The present research is applied in terms of purpose and descriptive-exploratory in nature and method. Given the nature and methodology of the study, the statistical population of this research consists of experts in the research issue. For this purpose, 10 female managers in the food industry (at various levels) are considered as the statistical population. Participants were selected using the snowball sampling technique. The data collection methods include both library and field studies, and the research was conducted cross-sectionally in terms of timing. The tool used for data collection was semi-structured interviews. Initially, two preliminary interviews were conducted with experts, followed by ten main interviews. After these stages, and with the review of the extracted concepts, it was felt that the interview process was approaching theoretical saturation. Therefore, three additional interviews were conducted, and a total of 10 interviews were carried out until theoretical saturation was reached. Grounded theory (GT) was used for data analysis. The grounded theory approach, introduced by Glaser and Strauss in 1967, is a reliable method for identifying deep and latent factors, emphasizing the understanding of the whole and the comprehensiveness of

human phenomena, as well as reflecting the role of cultural conditions. This approach is therefore suitable and prioritized for examining ambiguous and context-based topics, such as the present study. MAXQDA version 18 software was used for data analysis.

3. Findings and Results

In this study, the initial codes were extracted through open coding in the first phase. Then, in axial coding, which is the second stage of analysis in grounded theory, the relationships between categories produced during the open coding phase were established. At this stage, by screening, eliminating redundant codes, and integrating synonymous codes, the indices extracted from the interview texts were categorized. The relationship between the other categories and the core category can be realized in six main themes: causal conditions, central phenomenon, strategies and actions, intervening conditions, contextual conditions, and outcomes. Therefore, in this phase, categories were determined from all the indices obtained in the open coding phase (Table 1).

Table 1. Dimensions, Main and Sub-categories of the Research

Paradigmatic Code	Axial Code	Open Code
Contextual Conditions	Establishing a managerial culture for women	1. Changing traditional societal attitudes
Causal Conditions	Perceptual competence	2. Equal access to advantages and opportunities
		3. Acceptance of female leadership by subordinates
		4. Women's participation in organizational law-making
		5. Revising existing laws and regulations in favor of women
		6. Analytical and critical thinking
Scientific competence	Scientific competence	7. Creative thinking
		8. Strategic thinking
		9. Systems thinking
		10. General and specialized knowledge
		11. Research skills
		12. Providing innovative and scientific ideas
		13. Sufficient knowledge and expertise
		14. Work commitment
		15. Emotional intelligence
		16. Accountability and responsibility
Ethical competence	Ethical competence	17. Self-esteem and confidence
		18. Self-awareness and insight
		19. Discipline and order
		20. Confidentiality and resolving interpersonal conflicts
		21. Ability to accept criticism and recommendations
Skill-based competence	Skill-based competence	22. Humility in behavior
		23. Understanding employee issues and aligning them with self
		24. Having a sense of altruism and kindness
		25. Identifying problems and evaluating solutions
		26. Building good social relationships with other employees
Central Phenomenon	Women's managerial competence	27. Using information systems
		28. Supervision and control

		29. Planning and organization
		30. Leadership and providing guidance
		31. Problem-solving ability
		32. Increasing team collaboration
		33. Conflict management
Intervening Conditions	Glass ceiling	34. Negative societal attitudes towards female leadership
		35. Male dominance and gender stereotypes
		36. Women's lack of representation in political groups
		37. Religious biases
		38. Domestic responsibilities and family constraints
		39. Some gender traits of women
		40. Lack of attention to female managers' opinions
		41. Inequitable laws in the workplace (e.g., lack of promotion opportunities for women)
Strategies and Actions	Empowering women	42. Aligning abilities with assigned tasks
		43. Resolving work-family conflicts
		44. Gaining work experience and mastering one's profession
		45. Continuously updating knowledge and expertise
Outcome	Gender equality	46. Creating balance between interests and responsibilities
		47. Personal growth based on organizational needs
		48. Increasing job effectiveness
		49. Merit-based recruitment
		50. Recruitment and selection based on individual competencies
Women's Career Advancement	52. Fair promotion	51. Managing career paths
		53. Identifying talented individuals and fostering competitive promotion
		54. Stability and coherent career advancement
		55. Creating more efficient job opportunities
		56. Workforce agility and effective responsiveness to customers
		57. Mutual participation of individuals and organizations in advancing operations

In Grounded Theory, the integration of data is of significant importance. In the research process, after data collection, their analysis and interpretation, the next step is to present the model, conclusions, and summaries of the study. In the first step, by examining the current situation, the obtained data are classified into six main categories.

With the consultation of professors and experts, a total of 57 indicators, derived from the qualitative analysis of the grounded theory interviews, were used to present the model of women's managerial competencies in the food industry.

The following figure illustrates the paradigmatic model of women's managerial competencies in the food industry.

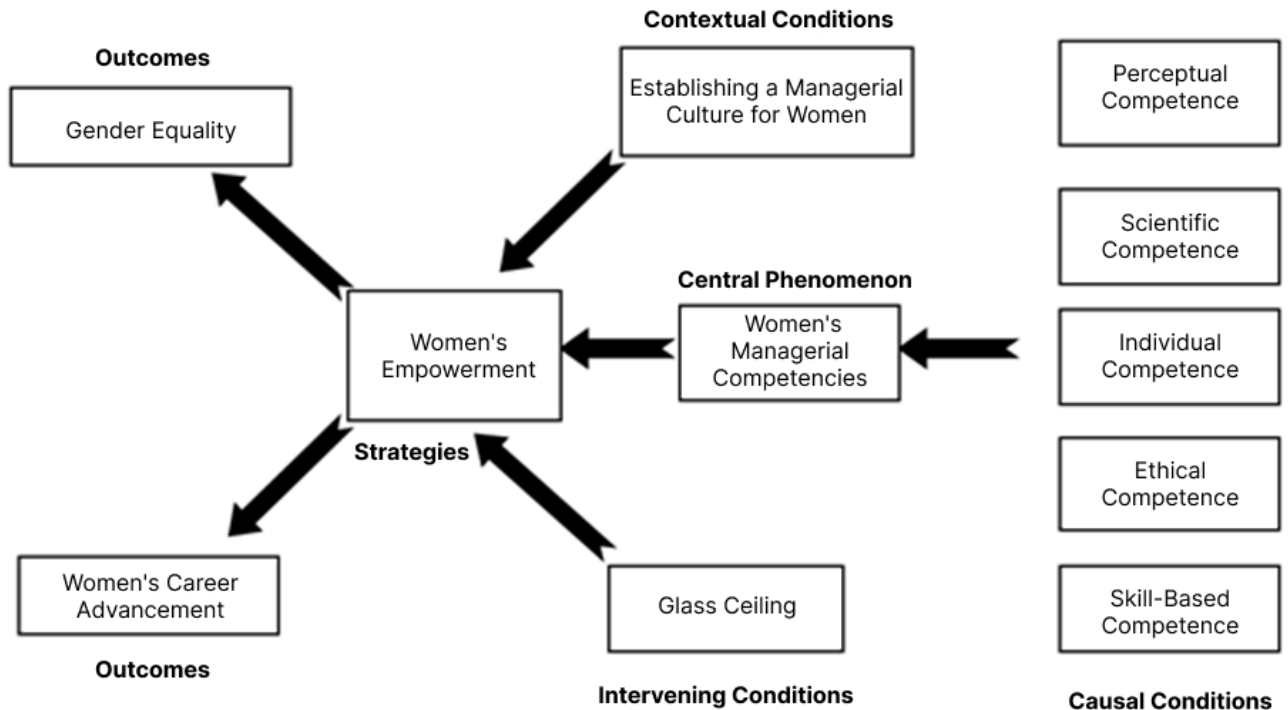


Figure 1. Paradigmatic Model of Women's Managerial Competencies in the Food Industry

Based on the above figure, it is evident that causal conditions influence the central phenomenon. The central phenomenon, contextual conditions, and intervening conditions all influence the strategies and actions. Ultimately, the outcomes arise from the strategies and actions taken.

4. Discussion and Conclusion

One of the most important aspects of gaining a competitive advantage in today's business environment is focusing on the value creation of human resources and emphasizing the core competencies of human capital. Furthermore, attention to the managerial competencies of managers, especially human resources managers in the public sector, who are responsible for implementing the competency-based management system in the government, holds particular importance. There are several reasons for using competency models for managers. Successful companies relentlessly seek sustainable solutions for employee recruitment, training, replacement, and adding value to their workforce. Having a diverse workforce that includes essential and exceptional traits is a special advantage. A diverse workforce not only generates more income but also offers a variety of ideas and perspectives. A diverse workforce, with different personality backgrounds,

examines problems from multiple angles. By using competency models, managers can ensure a more diverse workforce by identifying key factors such as cultural sensitivity, negotiation and problem-solving skills, continuous learning, and the dynamics of mixed teams.

The findings showed that six main categories, including contextual factors, causal conditions, the central phenomenon, intervening factors, strategies, and outcomes, were identified as the key components in the development of women's competencies. In this study, the establishment of a managerial culture for women was identified as the most critical contextual condition for developing women's competencies. Based on the results, it was found that the "glass ceiling" phenomenon is the most significant intervening factor in the development of female managers' competencies. Empowering women was identified as the most crucial strategy for developing women's managerial competencies. Based on the findings of this research, gender equality and women's career advancement were identified as the most important outcomes of the development of female managers' competencies, which hold significant importance in organizational management. The results of this study are consistent with the findings of previous research [1, 5-8, 10-12, 14, 15, 19, 26-30, 32]. Gloor et al. (2020) showed that when the gender composition of the

management group is male-dominated, the chances of success for female managers decrease. However, when the gender composition is more balanced, female managers receive more support. They also found that the gender of the leader (manager) and the gender composition of the management group interact with each other, influencing employees' trust in female managers [11]. Overall, the results of this study highlight the significant impact of the gender composition of employees on the success of female managers within an organization. Hariri (2020) showed that women have a long and difficult path to demonstrate their abilities and qualifications, because despite women's competence in holding managerial positions, society has not recognized their significant role at this level [12]. Even in areas related to women, the top managerial positions are predominantly held by men, with women typically occupying mid-level management positions. The main reason for this issue is the gender differences between men and women, and in some cases, society's failure to acknowledge the talents and skills women possess for management. Management is an activity where human beings, using techniques, expertise, skills, and experiences, work together, and gender should never be a factor in creating imbalance or inequality in this field. What is important in management style, besides psychological characteristics, is having expertise and experience, which is independent of gender. All human beings, based on these capabilities, are deserving of entering and advancing in managerial fields.

Common misconceptions, such as the belief that males are inherently superior to females in terms of managerial power, the tendency toward patriarchy in managerial appointments, the belief that women are more cautious in decision-making, and the perception that women are more emotional, all influence this issue.

Based on the current research, the following recommendations are made:

- **Central Phenomenon:** Use of information systems, supervision and control, planning and organization, leadership and providing guidance, problem-solving power, increasing participation in teamwork, conflict management
- **Contextual Conditions:** Changing traditional societal attitudes, equal access to benefits and opportunities, acceptance of female management by subordinates, women's participation in organizational legislation, revising existing laws and regulations in favor of women
- **Causal Factors:** Promoting analytical and critical thinking, fostering creative thinking, developing strategic thinking, advancing systems thinking, enhancing general and specialized knowledge, improving research skills, providing innovative and scientific ideas, improving knowledge and expertise, increasing work commitment, enhancing emotional intelligence, boosting responsibility and accountability, enhancing self-esteem and confidence, strengthening self-awareness and insight, focusing on discipline and order
- **Intervening Factors:** Addressing negative societal attitudes toward female management, avoiding male-dominated power structures and gender stereotypes, allowing women to participate in political groups, eliminating religious biases, increasing attention to female managers' opinions, eliminating inequitable workplace laws
- **Strategies and Actions:** Aligning abilities with assigned tasks, resolving work-family conflicts, gaining work experience and mastering one's profession, continuously updating knowledge, awareness, and expertise
- **Outcomes:** Creating balance between interests and responsibilities, personal growth based on organizational needs, increasing job effectiveness, merit-based recruitment, recruitment and selection based on individual competencies, managing career paths, fair promotion, identifying talented individuals and competitive promotion

Authors' Contributions

Authors equally contributed to this article.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

All procedures performed in this study were under the ethical standards.

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