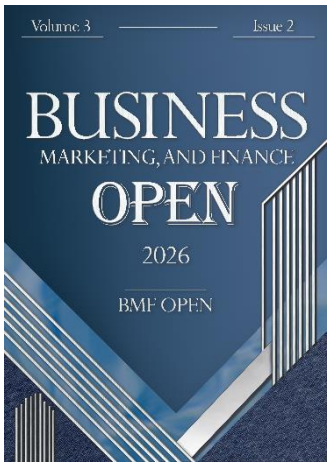
Identifying, Prioritizing, and Analyzing the Relationships Among Factors Shaping the Development of Professional Accounting Service Firms in Iran Using Multi-Criteria Decision-Making Methods



Abdollah Ghafourinejad [1], Iraj Torabi [2,*] and Bahareh Banitalebi Dehkordi [3]

[1] Ph.D. Candidate, Department of Accounting, Shk.C., Islamic Azad University, Shahr-e Kord, Iran;
[2] Department of Accounting, Shk.C., Islamic Azad University, Shahr-e Kord, Iran;
[3] Department of Accounting, Shk.C., Islamic Azad University, Shahr-e Kord, Iran;

* Correspondence: er.torabi55@iau.ac.ir

Citation: Ghafourinejad, A., Torabi, I., & Banitalebi Dehkordi, B. (2026). Identifying, Prioritizing, and Analyzing the Relationships Among Factors Shaping the Development of Professional Accounting Service Firms in Iran Using Multi-Criteria Decision-Making Methods . *Business, Marketing, and Finance Open*, 3(2), 1-25.

Received: 12 November 2025
Revised: 13 March 2026
Accepted: 20 March 2026
Published: 30 March 2026

Abstract: The development of professional accounting service firms results from the interaction of a set of human, organizational, institutional, technological, and professional factors. This study aimed to identify the factors shaping the development of these firms in Iran and simultaneously examine their relative priorities and their influence–dependence positions. The study employed a sequential exploratory mixed-methods design. The statistical population consisted of 24 experts in accounting and finance during the 2025–2026 period who met the required criteria in terms of academic expertise, professional experience, and familiarity with the activities of accounting firms. These individuals were selected through purposive sampling using the snowball technique. In the qualitative phase, data were collected through semi-structured interviews, and the process continued until theoretical saturation was achieved. Data analysis was based on the grounded theory approach of Strauss and Corbin (1990) and was conducted using MAXQDA software. In the quantitative phase, to prioritize and examine the strength of relationships among the extracted criteria and subcriteria, data were collected through a questionnaire and were prioritized using the fuzzy analytic hierarchy process (FAHP); they were also examined using fuzzy DEMATEL in terms of network prominence and net influence. The qualitative findings led to the identification of five main categories: human capital and professional knowledge development; structure and governance of accounting firms; the institutional environment and professional structure; technology and transformation of the accounting profession; and professional quality and ethics. Together, these categories comprised 16 subcriteria. The FAHP results showed that, among the main criteria, human capital and professional knowledge development had the greatest weight and importance in the development of professional accounting service firms, followed by the structure and governance of accounting firms. At the subcriterion level, digital transformation in the accounting profession, professional human capital and development, and technology received the highest priorities. The fuzzy DEMATEL results further showed that human capital and professional knowledge development and the structure and governance of accounting firms were among the causal and influential factors in the model, whereas the other criteria primarily played the role of affected factors. The findings can provide an analytical framework for policymaking and decision-making aimed at developing professional accounting service firms in Iran.

Keywords: professional accounting service firms, grounded theory, fuzzy analytic hierarchy process, fuzzy DEMATEL.

1. Introduction

Professional accounting service firms constitute a critical component of modern economic systems because they support the production, verification, interpretation, and communication of financial information required by businesses, investors, regulators, creditors, and other stakeholders. Their role extends beyond the technical preparation of accounts and financial statements and increasingly encompasses auditing, assurance, taxation, advisory services, risk management, strategic accounting, digital reporting, and specialized consulting. As economies become more complex, the quality and capacity of professional accounting institutions become closely associated with financial transparency, organizational accountability, regulatory compliance, and the efficiency of capital allocation. The importance of accounting and the accountancy profession to economic development has therefore been emphasized in the literature, particularly because well-functioning professional systems contribute to institutional trust, market discipline, and the credibility of corporate reporting [1]. At the organizational level, developments in strategic management accounting further illustrate how accounting expertise can be mobilized to improve the design and delivery of professional and financial services [2]. Moreover, the growing use of accounting concepts in broader sustainability and resource-governance contexts demonstrates the expanding strategic relevance of accounting-based measurement and accountability systems [3].

The development of professional accounting service firms, however, cannot be explained by a single organizational or technical factor. Professional service firms differ from conventional organizations because their principal assets are knowledge, expertise, professional judgment, reputation, and relationships with clients. Their growth therefore depends on the simultaneous management of professional autonomy, organizational control, market competition, knowledge development, and institutional legitimacy [4, 5]. The professional service firm has traditionally been associated with partnership forms, collegial governance, and the centrality of expert labor, but changes in ownership structures, commercialization, and organizational scale have challenged conventional assumptions regarding professional partnership and control [6]. Consequently, the development of accounting firms should be regarded as a multidimensional process in which human resources, governance mechanisms, institutional arrangements, technological capabilities, professional norms, and market strategies jointly shape organizational capacity and long-term sustainability.

Among these dimensions, human capital is particularly important because accounting services are knowledge-intensive and depend directly on the competence, judgment, learning capacity, and professional identity of employees and partners. Professional expertise must be continuously renewed in response to changing regulations, reporting standards, technologies, client expectations, and business models. High-performance work systems in professional service firms can improve organizational outcomes when human resource practices are aligned with the resources, capabilities, and usage patterns required for professional performance [7]. At the same time, effective development increasingly requires collaboration across professional specialties rather than reliance on isolated individual expertise. Breaking down organizational silos and developing collaborative capabilities enables professional firms to integrate diverse forms of knowledge and respond more effectively to complex client problems [8]. Inter-organizational collaboration can similarly strengthen innovation and organizational performance when firms develop mechanisms that support the exchange and combination of specialized resources [9, 10]. These findings suggest that the development of accounting firms depends not merely on the quantity of professional staff but also on the quality of professional learning, knowledge integration, and collaborative capacity.

Professional learning itself has become increasingly complex. Technical knowledge remains indispensable, yet professional competence also requires reflective judgment, ethical awareness, and the ability to interpret ambiguous situations. Research on professional learning has emphasized that competence cannot be reduced to formal knowledge alone and that professional practice also develops through experiential, embodied, and reflective forms of learning [11]. In accounting-related professional settings, the importance of reflexivity is particularly notable because practitioners must routinely reconcile formal standards with contextual judgment, organizational pressures, and ethical responsibilities. The concept of a reflexive mindset has been used to explain how professionals can critically examine assumptions embedded in practice and reconfigure routines in response to changing organizational and institutional demands [12]. Reflexivity is therefore relevant not only as an individual cognitive capability but also as an organizational mechanism through which accounting firms can reassess established practices, evaluate emerging challenges, and develop more adaptive strategies.

The importance of reflexivity becomes even more evident when professional ethics are considered. Accounting firms are expected to operate in competitive markets while simultaneously preserving independence, objectivity, confidentiality, integrity, and public trust. Ethical practice in professional organizations is not simply a matter of complying with formal rules; rather, it is shaped by how professionals interpret their responsibilities within concrete organizational and social contexts. Embedded ethics and reflexivity can help practitioners recognize the moral implications of routine decisions and critically evaluate the assumptions guiding professional conduct [13]. The broader literature on professional virtue similarly highlights the importance of trust and character in sustaining the legitimacy of expert occupations [14, 15]. For accounting firms, these issues are especially significant because perceived misconduct can damage not only a single organization but also the credibility of the profession as a whole.

Empirical research has shown that organizational and professional identities may create tensions in audit and accounting firms, especially when commercialization pressures intensify. Auditors may simultaneously identify with professional values and organizational goals, producing complex consequences for behavior and decision-making [16]. Client identification can also influence audit quality, indicating that relational closeness may create risks when professional independence is not adequately protected [17]. Misconduct can diffuse through professional networks and organizational environments when inappropriate practices become normalized or transmitted through social and institutional mechanisms [18]. At the same time, professional organizations may engage in institutional work that transforms or reframes misconduct, illustrating how ethical norms are actively constructed rather than passively followed [19]. These observations indicate that quality and ethics are structurally connected to governance, organizational culture, incentive systems, professional identity, and the design of internal control mechanisms.

The institutional environment also exerts a major influence on the development of professional accounting services. Accounting practices are embedded within regulatory, legal, educational, and professional systems that differ substantially across countries. Research on accounting regulation in Middle Eastern contexts demonstrates that the development of accounting systems is shaped by national institutions, government policies, professional associations, and the adoption or adaptation of international standards [20, 21]. Similarly, research on stakeholder perceptions of International Financial Reporting Standards shows that the relevance and implementation of international standards depend on local institutional conditions rather than on technical considerations alone [22]. Studies of the evolution of accounting standards in other developing and emerging economies further demonstrate that accounting development involves historical processes of institutional adaptation, professionalization, and

convergence with international norms [23]. Accordingly, the growth of professional accounting firms cannot be separated from the quality and stability of the institutional architecture within which they operate.

The relationship between the state and the accounting profession is particularly important in this regard. Historical analyses show that the development of professional accounting institutions often reflects changing balances of power among governments, professional bodies, universities, markets, and international organizations. The evolution of the Egyptian accounting profession, for example, illustrates how state-profession dynamics can influence professional autonomy, regulation, and institutional development over time [24]. At a broader level, global professional service firms also participate in processes of institutionalization by transferring professional practices, organizational templates, and governance arrangements across national boundaries [25]. Within professional fields, legitimacy is also shaped by discourse and the ability of institutional actors to present their interests as consistent with broader professional and public values [26]. These findings emphasize that professional accounting firms evolve within networks of regulation and legitimacy rather than as isolated market entities.

For accounting firms, organizational governance is another central developmental issue. Professional service firms must balance managerial efficiency with professional discretion, collective participation, and knowledge-based authority. Governance design influences the quality of collaboration within the firm, including how decisions are made, how responsibilities are distributed, and how professionals coordinate their expertise [27]. Organizational responses become even more complicated when firms encounter multiple institutional logics, such as commercial objectives, professional norms, diversity expectations, and client demands [28]. Professional organizations frequently survive by balancing apparently conflicting but complementary logics rather than choosing one logic at the expense of another [29]. In this sense, effective governance in accounting firms requires structures that can accommodate professional autonomy while simultaneously supporting strategic direction, accountability, innovation, and organizational coherence.

Mission maintenance is closely related to these governance challenges. As professional firms grow, diversify, and commercialize, they may experience tensions between their original professional mission and emerging organizational priorities. Research indicates that sustaining mission orientation requires mechanisms that anchor organizational values across structures, practices, and interactions [30]. This issue is particularly relevant for accounting firms because professional legitimacy depends on maintaining public-interest responsibilities while also remaining financially viable in competitive markets. Strategic diversification can support growth when professional firms successfully expand their service portfolios and leverage complementary capabilities [31]. Nevertheless, diversification also increases organizational complexity and may create new demands for governance, human resource development, technology, and quality assurance.

Innovation has therefore become increasingly important to the development of professional accounting firms. Professional service organizations are facing changes generated by digital technologies, automation, data analytics, artificial intelligence, cloud systems, and new forms of client interaction. Research on innovation in professional services indicates that firms increasingly view technological and organizational innovation as essential to competitiveness and future growth [32]. Innovation strategies can improve profitability when organizations are able to mobilize supportive resources and external networks [33]. In knowledge-intensive professional services, collaboration is particularly important because innovation often depends on the integration of technological expertise with professional knowledge [10]. Moreover, cooperation between organizations can enhance performance when it supports resource sharing, responsiveness, and effective coordination [34]. Thus,

technological transformation should not be understood as a purely technical process; it is closely connected to organizational learning, governance, human capital, and strategic positioning.

The client relationship represents another important dimension of development. Professional service value is often co-created through interaction between professionals and clients rather than produced unilaterally by the firm. Effective communication, mutual understanding, professional competence, and client participation can therefore influence the success of professional service projects [35]. In accounting services, these relationships are especially important because clients increasingly expect not only accurate technical work but also responsiveness, strategic insight, customized solutions, and reliable communication. Consequently, service quality has become a multidimensional construct that encompasses technical accuracy, process quality, professional behavior, accessibility, responsiveness, and perceived value. Recent research in Iran has attempted to formulate models for measuring accounting service quality, highlighting the need to evaluate service outcomes through systematic and context-sensitive frameworks [36].

The social composition of the accounting profession is also relevant to its development. Historical research on women professional accountants demonstrates that access, identity, career progression, and institutional culture have shaped participation within accounting over time [37]. Diversity is not simply a human resource issue; it is also linked to professional identity, organizational legitimacy, and the capacity of firms to respond to increasingly heterogeneous markets and stakeholder expectations. Research on multiple institutional logics in professional service firms similarly suggests that diversity and identity pressures can alter organizational practices and strategic responses [28]. These issues reinforce the argument that the development of professional accounting firms requires attention to both formal structures and the deeper cultural and identity processes through which professional organizations reproduce themselves.

At the interorganizational level, collaboration with universities, professional associations, regulators, technology providers, and other institutions can facilitate the renewal of accounting knowledge and professional capability. Cross-sector collaboration, however, is difficult to design and implement because actors may have different objectives, resources, accountability systems, and institutional expectations [38]. Institutional processes can either facilitate or impede collaboration depending on the quality of coordination and the broader governance environment [39]. For professional accounting firms, productive university-profession relationships can support knowledge transfer, talent development, research utilization, and the modernization of professional curricula. Such interactions are particularly important in environments where the profession is attempting to adapt to digital transformation, international standards, and rapidly changing client needs.

These international insights are highly relevant to the Iranian context. Research conducted in Iran has identified multiple factors affecting the development of accounting, indicating that accounting development is the outcome of interacting professional, institutional, educational, technological, and economic forces rather than a single policy intervention [40]. Iranian studies have also highlighted challenges affecting the development of professional accounting associations, including structural and institutional barriers that limit professional capacity and require coordinated solutions [41]. At the same time, the increasing strategic importance of accounting services and accounting information in Iranian organizations reinforces the need for professional firms capable of supplying high-quality, innovative, and strategically relevant services [2]. These conditions make the development of professional accounting service firms a significant managerial and policy concern.

Despite the breadth of the existing literature, several limitations remain. First, many studies examine individual dimensions of professional service firm development separately, such as human resource systems, governance,

innovation, ethics, regulation, or collaboration, whereas the development process is inherently interconnected. Second, the relative importance of these dimensions may vary substantially across institutional contexts. Third, conventional quantitative approaches may not adequately capture the ambiguity and uncertainty inherent in expert judgments about complex professional systems. Finally, insufficient attention has been given to the causal structure among developmental factors: a factor may be important because it has a high direct priority, because it influences many other factors, or because it is itself largely an outcome of deeper causal conditions. Distinguishing between these possibilities is essential for effective policy design and managerial intervention.

A comprehensive analytical framework should therefore combine exploratory identification of context-specific factors with methods capable of prioritizing those factors and analyzing their interdependencies. Grounded theory is particularly suitable for identifying concepts directly from expert experience when existing theoretical models are insufficiently adapted to a specific context. Reflexive thinking further strengthens this process by encouraging the researcher to move beyond surface description and critically examine assumptions, institutional conditions, and professional meanings embedded in expert accounts [12, 13]. Once the principal dimensions have been identified, fuzzy multi-criteria decision-making methods can address uncertainty in expert judgments and determine the relative priority and causal position of the resulting factors. Such an integrated approach is consistent with the multidimensional nature of professional service firms described in the literature and allows organizational, institutional, technological, human, and ethical dimensions to be analyzed within a unified framework [4, 5].

Accordingly, the aim of this study is to identify, prioritize, and analyze the causal relationships among the factors shaping the development of professional accounting service firms in Iran through a sequential exploratory mixed-method design integrating grounded theory, fuzzy analytic hierarchy process, and fuzzy DEMATEL.

2. Methodology

The method used in this study was a mixed-methods design with a sequential exploratory approach. The qualitative phase carried the primary weight and priority because, given the theoretical gap concerning a model for the development of professional accounting service firms in Iran from the perspective of reflective thinking, it was first necessary to explore and identify the relevant components through the experts' subjective world. In terms of purpose, the present study was exploratory, and in terms of the nature of the data, it was mixed-methods. Consistent with the pragmatist paradigm governing the study, qualitative and quantitative methods were combined to provide comprehensive answers to the research questions.

1. Qualitative Phase (Grounded Theory Strategy)

In the first phase, grounded theory was used to identify the dimensions and components of the firms' development model. This method is a powerful tool for understanding and explaining human behavior and for developing theory on the basis of empirical data (Knyal & Santi, 1999). Data in this phase were collected through semi-structured interviews with experts in accounting and auditing and were analyzed using the three-stage coding process (open, axial, and selective coding). The output of this phase was the identification of the main categories within a paradigmatic model comprising causal conditions, the central phenomenon, strategies, contextual conditions, intervening conditions, and consequences.

2. Quantitative Phase (Prioritization and Analysis of Fuzzy Relationships)

After the conceptual model had been extracted in the qualitative phase, the study entered the quantitative phase for operational validation and determination of the importance of each component. In this phase, unlike conventional survey methods that merely confirm a model, fuzzy multi-criteria decision-making techniques were

employed. The rationale for selecting this approach was to address ambiguity and uncertainty in expert judgments and to derive a precise mathematical model for the development of the firms. The techniques used in this phase were as follows:

Fuzzy analytic hierarchy process: The fuzzy analytic hierarchy process was used to weight the categories and components extracted from the qualitative phase and to determine the priority of each within the development model for professional accounting service firms. Because the identified components do not all have the same degree of importance, a scientific procedure is required to determine their relative weights. In this study, Buckley's fuzzy analytic hierarchy process was employed because its use of the fuzzy geometric mean produces more stable results than alternative procedures (such as Chang's extent analysis method) and avoids problems such as assigning unrealistic zero weights to variables. Integrating fuzzy set theory with the analytic hierarchy process makes it possible to accommodate ambiguity, uncertainty, and subjectivity inherent in human judgments during decision-making.

Implementation Steps of Buckley's Fuzzy Analytic Hierarchy Process

The operational steps for weighting the factors based on Buckley's approach are described below:

Step 1: Defining Linguistic Variables and the Fuzzy Scale

To enable experts to conduct pairwise comparisons, linguistic variables were defined according to the standard triangular fuzzy-number scale (Table 1). Each linguistic judgment is represented by a triangular fuzzy number (l, m, u), where l is the lower bound, m is the most plausible value (modal or middle value), and u is the upper bound of preference.

Table 1. Fuzzy Scale for Pairwise Comparisons in FAHP

Linguistic Preference Intensity	Triangular Fuzzy Number (l, m, u)	Fuzzy Reciprocal
Exactly equal	(1, 1, 1)	(1, 1, 1)
Equal preference	(2/3, 1, 3/2)	(2/3, 1, 3/2)
Slightly preferred	(1, 3/2, 2)	(1/2, 2/3, 1)
Strongly preferred	(3/2, 2, 5/2)	(2/5, 1/2, 2/3)
Very strongly preferred	(2, 5/2, 3)	(1/3, 2/5, 1/2)
Absolutely preferred	(5/2, 3, 7/2)	(2/7, 1/3, 2/5)

To aggregate the views of K experts (K = 24) and construct the aggregated pairwise-comparison matrix, the fuzzy geometric mean operator was used. If the judgment of expert k regarding the preference of criterion i over criterion j is represented as a triangular fuzzy number, the aggregated value is obtained from the following relationship:

$$\tilde{a}_{ij}^{(k)} = (l_{ij}^{(k)}, m_{ij}^{(k)}, u_{ij}^{(k)})$$

$$\tilde{a}_{ij} = (l_{ij}, m_{ij}, u_{ij}) = ((\prod_{k=1}^{K} l_{ij}^{(k)})\hat{}(1/K), (\prod_{k=1}^{K} m_{ij}^{(k)})\hat{}(1/K), (\prod_{k=1}^{K} u_{ij}^{(k)})\hat{}(1/K))$$

where K denotes the number of experts participating in the pairwise-comparison process.

Step 3: Calculating the Geometric Mean of Rows

After formation of the aggregated fuzzy matrix, the geometric mean of the elements in each row for each criterion was calculated as follows:

$$\tilde{r}_i = (\prod_{j=1}^{n} \tilde{a}_{ij})\hat{}(1/n) = ((\prod_{j=1}^{n} l_{ij})\hat{}(1/n), (\prod_{j=1}^{n} m_{ij})\hat{}(1/n), (\prod_{j=1}^{n} u_{ij})\hat{}(1/n))$$

where n denotes the number of criteria compared in the corresponding matrix.

Step 4: Calculating Normalized Fuzzy Weights

To normalize the weights, the sum of the row geometric means was calculated, and each geometric mean was then multiplied by the inverse of the total sum. Consequently, the normalized fuzzy weight of each criterion was obtained as follows:

$$\tilde{s}_i = \tilde{r}_i \otimes (\sum_{i=1}^{n} \tilde{r}_i)^{-1}$$

where:

$$\sum_{i=1}^{n} \tilde{r}_i = (\sum_{i=1}^{n} l_i, \sum_{i=1}^{n} m_i, \sum_{i=1}^{n} u_i)$$

and its inverse is:

$$(\sum_{i=1}^{n} \tilde{r}_i)^{-1} = (1/\sum_{i=1}^{n} l_i, 1/\sum_{i=1}^{n} m_i, 1/\sum_{i=1}^{n} u_i)$$

After the fuzzy weights were calculated, the modified center-of-area method, or BNP, was used to convert them into crisp weights. The defuzzification formula is as follows:

$$BNP\_W_i = L\_W_i + [(M\_W_i - L\_W_i) + (U\_W_i - L\_W_i)]/3$$

Equivalently:

$$BNP\_W_i = (L\_W_i + M\_W_i + U\_W_i)/3$$

where L_W_i, M_W_i, and U_W_i denote the lower bound, middle value, and upper bound of the fuzzy weight, respectively.

Step 6: Calculating the Final Normalized Weights

Next, the crisp weights obtained through defuzzification were normalized to derive the final weight of each criterion:

$$W_i = BNP\_W_i / \sum_{i=1}^{n} BNP\_W_i$$

such that:

$$\sum_{i=1}^{n} W_i = 1$$

Step 7: Examining Judgment Consistency

To ensure the validity of the experts' pairwise judgments, the consistency of the comparison matrices was examined using Saaty's consistency ratio (CR). For this purpose, the consistency index was first calculated, followed by the consistency ratio. If CR is less than 0.10, the judgments are considered acceptably consistent and the pairwise-comparison results are regarded as valid. After consistency had been confirmed, the final weights of the criteria and subcriteria were extracted and used as the basis for ranking.

Fuzzy DEMATEL: This technique was used to identify the network of reciprocal relationships among the components and to separate the factors into two categories: causal (influential) and effect (affected) factors. After the weights had been determined, fuzzy DEMATEL was applied to understand the complex network of relationships among these components. The method identifies which components extracted from the qualitative phase function as drivers and causes and which components are affected and function as effects. In other words, fuzzy DEMATEL mathematically represents the intensity of influence and dependence among variables and produces a network relationship map (NRM).

Table 2. Proposed Linguistic Scale for Fuzzy DEMATEL

Linguistic Term	Crisp Equivalent	Fuzzy Values (l, m, u)
Completely no influence	0	(0, 0, 0.25)
Low influence	1	(0, 0.25, 0.50)
Moderate influence	2	(0.25, 0.50, 0.75)
High influence	3	(0.50, 0.75, 1.00)
Very high influence	4	(0.75, 1.00, 1.00)

The integrated approach used in this study represents a step toward overcoming the methodological constraints of relying solely on either quantitative or qualitative methods (Niazi, 2011). Whereas the qualitative phase identified the "what" of the model, the quantitative phase used fuzzy logic to explain the "degree of importance" and the "manner of interaction" among these factors. This methodological combination enhances the reliability and validity of the findings and provides a comprehensive and practical model for the development of professional accounting service firms in Iran, with an emphasis on reflective thinking.

The statistical population consisted of 24 experts in accounting and finance during the 2025–2026 period who possessed the required academic expertise, professional experience, and familiarity with the activities of accounting firms. These individuals were selected through purposive sampling using the snowball technique. In the qualitative phase, data were collected through semi-structured interviews, and this process continued until theoretical saturation was achieved. Ultimately, data collection was concluded after interviews had been conducted with 24 participants. The interviews were conducted both face-to-face and by telephone. The mean interview duration was 90 minutes. Table 3 presents the demographic characteristics of the interviewees:

Table 3. Demographic Characteristics of the Interviewees

Characteristic	Category	n	%
Gender	Male	21	87.5
	Female	3	12.5
Field of study	Management and Finance	4	16.6
	Accounting and Auditing	20	83.4
Educational degree	Master's degree	5	20.8
	Doctoral degree	19	79.2
Work experience	10–15 years	7	29.2
	16–21 years	10	41.6
	22 years or more	7	29.2
Job position	Management	18	75
	Board of Directors	6	25

Validity and Reliability of the Data

Several strategies were used in this study to ensure the validity and reliability of the qualitative data analysis. To assess the credibility of the findings, after the coding stages had been completed and the concepts had been extracted, the resulting set of codes and categories was provided to a number of experts in accounting and auditing, and their views regarding the appropriateness, clarity, and comprehensiveness of the concepts were obtained. The feedback provided by the experts was used to review and revise several codes and categories, thereby strengthening the conceptual coherence and credibility of the findings. Test–retest reliability was used to assess reliability. For this purpose, three of the completed interviews were selected and recoded by the researcher after a 15-day interval. The degree of agreement between the two rounds of coding was then calculated; the results are presented in Table 4:

Table 4. Calculation of Test–Retest Reliability

Interview	Number of Codes	Number of Agreements	Number of Disagreements	Test–Retest Reliability (%)
Interview 1	24	20	4	83
Interview 2	26	21	5	81
Interview 3	25	21	4	84
Total	75	62	13	83

As shown in the table above, the total number of codes across the two coding occasions separated by 15 days was 75, the total number of agreements between the codes at the two time points was 62, and the total number of disagreements was 13. Using the stated formula, the test–retest reliability of the interviews in this study was 83%. Because this reliability coefficient was greater than 60% (Kvale, 1996), the reliability of the coding was confirmed.

3. Findings and Results

Based on the analysis of data obtained from semi-structured interviews with 24 experts in accounting and auditing, the data-analysis process continued until theoretical saturation was achieved; at the final stage, new data no longer added any new concept or classification to the study's conceptual structure and merely reinforced and confirmed the previously identified concepts. Line-by-line analysis of the interview texts yielded a total of 45 conceptual statements related to the development of professional accounting service firms. These statements encompassed various institutional, economic, structural, and professional dimensions affecting the development of these firms. At this stage, using a reflective-thinking approach, the researcher sought to move beyond the descriptive level of the data and, through reconsideration of assumptions, professional experiences, and institutional contexts, to identify the implicit meanings and hidden layers embedded in the experts' statements. This approach led to the statements being interpreted not merely as raw data but as indications of the cognitive and structural patterns influencing the development of the accounting profession. In the next step, during open coding, the extracted statements were systematically analyzed line by line, and an effort was made to identify their underlying core concepts as initial codes. This stage produced 50 concepts or open codes encompassing diverse aspects of the research topic, including demand for professional services, environmental and economic conditions, the structure of the accounting services market, the quality of professional services, human capital, technology and innovation, professional ethics, and the social role of the accounting profession. At this stage, reflective thinking again played an important role in refining the concepts; by reconsidering the extracted concepts, the researcher sought to identify potential biases, idealized interpretations, or perceptual limitations in the data and, through this process, elevate the identified concepts to a deeper level of interpretation. Subsequently, during axial coding, the concepts extracted in the previous stage were compared and classified using the constant comparative method in order to reveal shared patterns and relationships among them. This process organized the concepts into 16 axial components representing the principal dimensions of the development of professional accounting service firms. These components comprised the institutional and legal environment of the accounting profession; economic conditions and the macro-environment affecting the profession; the structure of the accounting services market; organizational development strategies of accounting firms; management of firms' internal structures and processes; human capital and professional development; technological development and innovation in accounting services; service quality and professional standards; accountants' independence and professional ethics; development of specialized professional skills and knowledge; university–profession interaction; technology and digital transformation in the accounting profession; innovation in professional services and business models; firms' financial status and liquidity challenges; the role of the profession in national economic transparency and integrity; and the social and professional standing of accounting firms. At this stage, reflective thinking helped the researcher ensure that relationships among concepts were not formed solely on the basis of superficial similarity; rather, the institutional, cultural, and professional contexts shaping those concepts were also incorporated into the analysis. Finally, during selective coding, the components derived from axial coding were integrated, and the theoretical structure of the study was organized around core categories. This stage yielded five main categories: the

institutional and structural environment of the profession; structure and governance of accounting firms; human capital and professional knowledge development; technology and transformation of the accounting profession; and professional quality and ethics. Together, these categories form the conceptual framework for the development of professional accounting service firms from a reflective-thinking perspective. The relationships among these categories and their constituent components are presented in the selective-coding table. The table shows how the components extracted from the qualitative data were organized within a coherent conceptual structure and how reflective thinking contributed to clarifying the relationships among them during the theorization process.

Table 5. Extraction of Categories Through Reflective Thinking

Reflective Thinking	Components Derived From Axial Coding	Core (Selective) Categories
The researcher's reflection showed that the interviewees' emphasis was not merely on regulations but on the institutional and structural mechanisms governing the profession; therefore, integrating these components into one core category was more logical than separating them.	Institutional and legal environment of the accounting profession	Institutional and structural environment of the profession
The researcher reflected that although economic conditions are considered an external factor, their effects are transmitted through professional institutions and structures; they were therefore placed alongside the institutional environment.	Economic conditions and macro-environment affecting the profession	
At this stage, reflection indicated that market structure, rather than being an independent factor, is a product of the interaction among regulations, institutions, and the macroeconomy.	Structure of the accounting services market	
By reflecting on the data, the researcher found that the social standing of the profession is a consequence of institutional and structural performance rather than merely a characteristic of individual accountants.	Social and professional standing of accounting firms	
The researcher's reflection showed that strategies cannot be analyzed without understanding structure and governance style; these concepts were therefore integrated into one core category.	Organizational development strategies of accounting firms	Structure and governance of accounting firms
In this integration, the researcher concluded that the boundary between "strategy" and "management" is highly fluid in the experts' lived experience.	Management of firms' internal structures and processes	
Reflective consideration showed that innovation is not merely a technical action but is also a function of governance decisions and managers' orientations within the firms.	Innovation in professional services and business models	
The researcher reflected that financial problems are rooted more in governance practices and decision-making structures than solely in external conditions.	Firms' financial status and liquidity challenges	
At this stage, the researcher identified substantial overlap between human capital and knowledge development and regarded their separation as unrealistic.	Human capital and professional development	Human capital and professional knowledge development
Reflection showed that skill development has little meaning in the absence of human capital and that the two function as a single system.	Development of specialized professional skills and knowledge	
The researcher reflected that this interaction plays a foundational role in reproducing professional knowledge and should therefore be considered within the human-capital category.	University–profession interaction	
The researcher's reflection indicated that technology is not an end in itself; rather, it shapes the pathway of professional transformation.	Technological development and innovation in accounting services	Technology and transformation of the accounting profession

By comparing the data, the researcher found that the empirical distinction between "technology" and "digital transformation" was very limited.	Technology and digital transformation in the accounting profession	
Reflective consideration showed that service quality is not sustainable without professional ethics and that the two are strongly intertwined in the experts' perceptions.	Service quality and professional standards	Professional quality and ethics
In this integration, the researcher identified the tension between market pressure and ethical requirements as the core of this category.	Accountants' independence and professional ethics	
The researcher's final reflection showed that the social role of the profession is a direct consequence of professional quality and ethics rather than an independent outcome.	Role of the profession in national economic transparency and integrity	

Accordingly, the output of the qualitative phase consists of a set of key categories and components that form the basis for designing a development model for professional accounting service firms in Iran. In the subsequent phase of the study, fuzzy multi-criteria decision-making methods were used to analyze the relationships among these components and determine their importance and influence: FAHP was used to determine the weights and priorities of the criteria, and fuzzy DEMATEL was used to analyze their causal relationships. Thus, in the next section, the conceptual model derived from grounded theory is used as the input to the quantitative phase, and fuzzy analyses are presented to explain the final structure of the development model.

After the final dimensions and components had been identified in the qualitative phase of the study (grounded-theory development), the fuzzy analytic hierarchy process was used to determine the relative importance and priority of each extracted criterion and subcriterion. In this phase, the pairwise-comparison questionnaire was administered to 24 accounting experts. Because human judgments are invariably accompanied by ambiguity and uncertainty, the use of triangular fuzzy numbers at this stage increased the precision of the results. The aggregated judgments of the 24 experts are presented first, followed by calculations of the final indicator weights. Before the final weights were extracted, the consistency of the aggregated judgments had to be examined. According to Saaty (1980), if the consistency ratio (CR) is less than 0.10, the judgments possess internal consistency and can be considered reliable. The results of the consistency calculations for the pairwise-comparison matrices are presented in the following table.

Table 6. Consistency Index Results for Aggregated Pairwise Comparisons (24 Experts)

Index	Calculated Value	Status
Consistency ratio (CR)	0.037	Confirmed (< 0.10)

As shown in Table 6, the obtained consistency ratio was 0.037. Because this value is substantially below the permissible threshold of 0.10, the stability and consistency of the pairwise comparisons were confirmed, and the weighting results can therefore be considered dependable.

At this stage, pairwise comparisons were calculated for the five main criteria derived from the qualitative phase—human capital and professional knowledge development; structure and governance of accounting firms; institutional environment and professional structure; technology and transformation of the accounting profession; and professional quality and ethics—based on the experts' aggregated judgments. The final weights and rankings of these criteria are presented in the table below. To control for rounding, values are displayed to five decimal places where applicable.

Table 7. Final Weights and Ranking of the Main Criteria for the Development of Professional Accounting Service Firms

Rank	Criterion	Initial Defuzzified Weight	Final Weight	Rounded Final Weight
1	Human capital and professional knowledge development	0.236	0.22370	0.224
2	Structure and governance of accounting firms	0.227	0.21516	0.215
3	Institutional environment and professional structure	0.206	0.19526	0.195
4	Technology and transformation of the accounting profession	0.203	0.19242	0.192
5	Professional quality and ethics	0.183	0.17346	0.174

The results in Table 7 show that, according to the 24 experts, human capital and professional knowledge development ranked first in importance with a weight of 0.224. It was followed by the structure and governance of accounting firms and the institutional environment and professional structure, which ranked second and third, respectively. This indicates that the development of professional accounting service firms is fundamentally dependent, above all, on the capabilities of their human resources and on the governance structures of accounting firms.

To obtain a more precise perspective, the relative weight of each subcriterion was multiplied by the weight of its main criterion, and the final weight of each of the 16 research indicators was calculated. The following table presents a roadmap of the principal priorities for the development of professional accounting service firms.

Table 8. Final Weights and Prioritization of the 16 Indicators (Subcriteria) for the Development of Professional Accounting Service Firms

Main Criterion	Indicator	Local Weight	Final Weight	Rank
Human capital (0.224)	Professional human capital	0.430	0.096	2
	Development of specialized skills and knowledge	0.360	0.081	5
	University–profession interaction	0.210	0.047	11
Structure and governance (0.215)	Organizational development strategies	0.390	0.084	4
	Management of structure and processes	0.310	0.067	8
	Innovation in services	0.200	0.043	12
	Financial status	0.100	0.021	15
Technology and transformation (0.192)	Digital transformation in accounting	0.520	0.100	1
	Technological development in services	0.480	0.092	3
Institutional environment (0.195)	Professional laws and regulations	0.410	0.080	6
	Economic conditions	0.300	0.059	Tied 9
	Accounting services market structure	0.190	0.037	14
	Social standing of the profession	0.100	0.019	16
Quality and ethics (0.174)	Professional independence and ethics	0.440	0.077	7
	Service quality and standards	0.340	0.059	Tied 9
	Role of the profession in economic transparency	0.220	0.038	13

According to the final results in Table 8, at the subcriterion level, digital transformation in accounting ranked first with a final weight of 0.100. It was followed by professional human capital (0.096), technological development in services (0.092), organizational development strategies (0.084), and development of specialized skills and knowledge (0.081). These results show that although human capital is the most important factor at the main-criterion level, digital transformation has the highest operational priority for firm development. Accordingly, the development pathway for professional accounting service firms in Iran should be based on the integration of

specialized human capital, development of modern skills, digital transformation, technological diversification of services, and strategic governance. The social and professional standing of accounting firms received the lowest rank, indicating that experts viewed this factor as a secondary priority compared with operational and strategic factors.

After the weights and priorities of the criteria had been determined using FAHP, fuzzy DEMATEL was employed to identify internal relationships and examine the extent to which the criteria influence and are influenced by one another. This method makes it possible to identify cause and effect criteria and reveals the structural relationships among the model components. At this stage, the DEMATEL questionnaire was administered to 24 experts. To obtain a single matrix, the judgments of all experts were aggregated using the fuzzy arithmetic mean. The normalization steps were then performed and the total-relation matrix (T) was calculated. Finally, the fuzzy values were defuzzified using the center-of-area (COA) method so that crisp indices could be extracted for the final analysis. The fuzzy DEMATEL results for the five main criteria are presented in Table 9. The table includes the indices of influence (D), dependence (R), prominence (D + R), and net relation (D − R).

Table 9. Final DEMATEL Indices Based on the Aggregated Judgments of 24 Experts (Main Criteria)

Main Criterion	D	R	D + R	D − R	Factor Type	Rank
Human capital and professional knowledge development	4.75	3.62	8.37	1.13	Cause	2
Structure and governance of accounting firms	4.22	4.10	8.32	0.12	Cause	3
Institutional environment and professional structure	3.51	4.18	7.69	−0.67	Effect	5
Technology and transformation of the accounting profession	4.45	4.52	8.97	−0.07	Effect	1
Professional quality and ethics	3.70	4.21	7.91	−0.51	Effect	4

Based on the findings in Table 9, the relationships among the main criteria can be analyzed as follows:

1. Identification of cause and effect factors: Criteria with positive D − R values are identified as causal (influential) factors, whereas those with negative values are identified as effect (affected) factors. Accordingly, human capital and professional knowledge development and the structure and governance of accounting firms function as the model's driving and foundational variables. In contrast, the institutional environment and professional structure, professional quality and ethics, and technology and transformation of the accounting profession are variables that are primarily influenced by the other factors.

2. Prominence index (D + R): Technology and transformation of the accounting profession had the highest D + R value (8.97), indicating the greatest degree of interaction with the other components of the system. This means that the criterion occupies a central position in the network of relationships. Human capital and professional knowledge development ranked second in prominence.

3. Influence strength: Human capital and professional knowledge development had the highest D − R value (1.13), making it the most influential factor in the research model. This result indicates that improvements in indicators related to human capital and professional knowledge development can lead, through a chain effect, to improvements in the other research criteria.

To facilitate geometric interpretation of the relationships, a cause–effect diagram is presented in Figure 1. In this diagram, the horizontal axis represents prominence (D + R), and the vertical axis represents the type and direction of the relationship (D − R). No threshold was applied in constructing the network relationship map, and all relationships in the total-relation matrix are therefore displayed; consequently, no α value is defined for this figure.

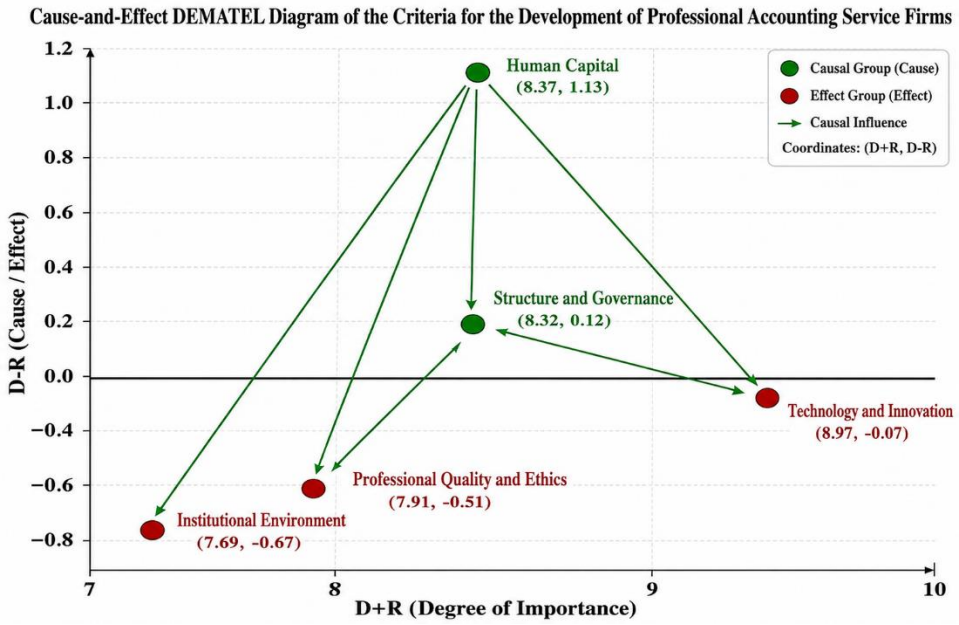


Figure 1. Network relationship map of the main criteria for the development of professional accounting service firms.

After the causal relationships at the level of the main criteria had been analyzed, the relationships among the 16 identified subcriteria were examined to provide a more detailed analysis of the internal structure of the research model. Fuzzy DEMATEL, an effective method for analyzing causal relationships among variables in a complex system, was used for this purpose. At this stage, the fuzzy DEMATEL questionnaire was designed using a five-point influence scale ranging from no influence to very high influence and was administered to 24 experts in accounting and the auditing profession. After the questionnaires had been collected, a direct-relation matrix was first constructed for each expert. The aggregated direct-relation matrix was then calculated using the fuzzy arithmetic mean. Next, the matrix was normalized and the total-relation matrix (T) was obtained. In the subsequent step, the fuzzy numbers were defuzzified using the center-of-area (COA) method to extract crisp values. Finally, the following indices were calculated for each subcriterion: D, the sum of rows (degree of influence); R, the sum of columns (degree of dependence); D + R, the degree of prominence and interaction within the system; and D − R, the classification of the factor as cause or effect. The results are presented in Table 10:

Table 10. Final DEMATEL Indices Based on the Aggregated Judgments of 24 Experts (Subcriteria)

Subcriterion	D	R	D + R	D − R	Factor Type	Rank
Human capital and professional development (S1)	7.30	6.28	13.58	1.02	Cause	1
Technology and digital transformation in the accounting profession (S2)	7.42	6.15	13.57	1.27	Cause	2
Technological development and innovation in accounting services (S3)	7.05	6.40	13.45	0.65	Cause	3
Organizational development strategies of accounting firms (S4)	6.82	6.10	12.92	0.72	Cause	4
Institutional and legal environment of the accounting profession (S5)	6.30	6.85	13.15	−0.55	Effect	5
Development of specialized professional skills and knowledge (S6)	6.70	6.35	13.05	0.35	Cause	6
Accountants' independence and professional ethics (S7)	6.20	6.60	12.80	−0.40	Effect	7
Management of firms' internal structures and processes (S8)	6.50	6.45	12.95	0.05	Neutral / near-cause	8
Economic conditions and macro-environment affecting the profession (S9)	5.95	6.70	12.65	−0.75	Effect	9

Service quality and professional standards (S10)	6.10	6.55	12.65	−0.45	Effect	10
University–profession interaction (S11)	6.40	6.20	12.60	0.20	Cause	11
Innovation in professional services and business models (S12)	6.35	6.30	12.65	0.05	Neutral	12
Role of the profession in national economic transparency and integrity (S13)	6.15	6.60	12.75	−0.45	Effect	13
Structure of the accounting services market (S14)	5.80	6.50	12.30	−0.70	Effect	14
Firms' financial status and liquidity challenges (S15)	5.60	6.75	12.35	−1.15	Effect	15
Social and professional standing of accounting firms (S16)	5.70	6.55	12.25	−0.85	Effect	16

Based on the findings in Table 10, the relationships among the subcriteria can be analyzed as follows:

The results show that human capital and professional development (D + R = 13.58) and technology and digital transformation in the accounting profession (D + R = 13.57) had the highest levels of prominence and interaction in the system and were among the strongest causal factors. This means that improvement or change in these two areas is likely to exert a substantial effect on the other subcriteria and on the system as a whole. They were followed by technological development and innovation in accounting services (D + R = 13.45) and organizational development strategies of accounting firms (D + R = 12.92), which also functioned as important cause factors influencing system dynamics.

At the other end of the spectrum, the social and professional standing of accounting firms (D + R = 12.25), firms' financial status and liquidity challenges (D + R = 12.35), and the structure of the accounting services market (D + R = 12.30) showed the lowest levels of prominence and interaction in the system. Their negative D − R values confirm their marked roles as effect factors. This means that these factors are influenced by the other subcriteria to a greater extent, and their improvement is therefore likely to depend on strengthening the principal cause factors.

Subcriteria such as management of firms' internal structures and processes (D − R = 0.05) and innovation in professional services and business models (D − R = 0.05) lie near the boundary between cause and effect factors and display moderate interactive prominence. These factors can function as connecting or moderating points within the system of relationships.

This analysis indicates that focusing on the principal cause factors, such as human capital and professional development and technology and digital transformation in the accounting profession, can provide an effective approach for generating positive change throughout the accounting-profession system.

The diagram derived from the fuzzy DEMATEL analysis (Figure 2) facilitates visualization of the causal relationships among the 16 subcriteria. The horizontal axis represents prominence (D + R), whereas the vertical axis represents net influence (D − R). The plotted points represent the subcriteria, and the directions of the arrows indicate the direction of relationships from cause to effect. The reference lines include a horizontal line at D − R = 0, which separates cause factors from effect factors, and a vertical line representing the overall mean of D + R; together, these lines facilitate interpretation of each subcriterion's position.

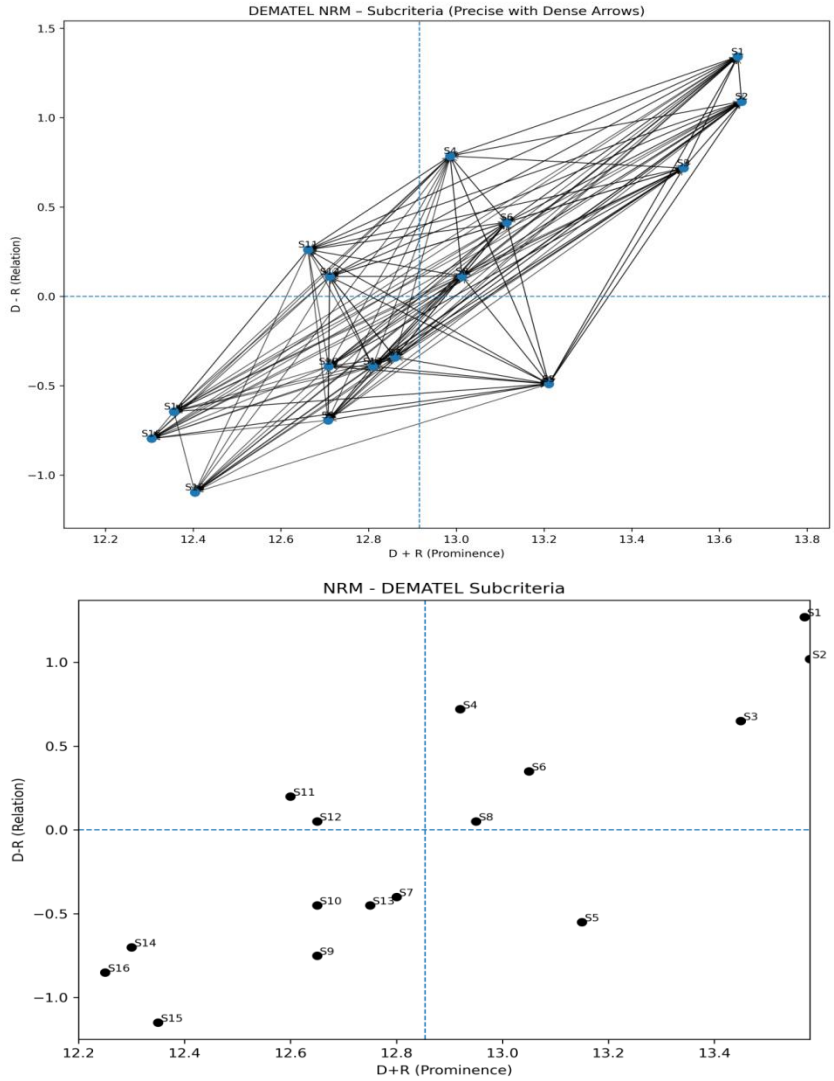


Figure 2. Network relationship map of the subcriteria for the development of professional accounting service firms.

As shown in Figure 2, the distribution of the subcriteria across the four principal regions of the diagram confirms the classifications reported in Table 10:

Strong cause-factor region: Subcriteria such as human capital and professional development (S1) and technology and digital transformation in the accounting profession (S2) are located in the upper-right portion of the diagram (positive D − R values and high D + R values), indicating both strong influence on other factors and high prominence within the system.

Strong effect-factor region: Subcriteria such as the social and professional standing of accounting firms (S16) and firms' financial status and liquidity challenges (S15) are located in the lower-left portion of the diagram (negative D − R values and relatively low D + R values), indicating that they receive more influence from other factors and have lower importance as drivers of the system.

Weak cause-factor region: Factors such as university–profession interaction (S11) are located in the upper-left portion of the diagram and show positive, but comparatively weaker, causal influence than the strong cause factors.

Weak effect-factor region: Factors such as the institutional and legal environment of the accounting profession (S5) are located in the lower-right portion of the diagram and exhibit negative net influence, although their affected status is not as pronounced as that of the strong effect factors.

The distribution of the arrows also reveals direct relationships among these subcriteria. For example, arrows originating from human capital and professional development (S1) and technology and digital transformation in the accounting profession (S2) and extending toward other factors—particularly the effect factors—confirm the strong influence of these subcriteria. This map can help managers and policymakers in the field identify key drivers and affected factors more precisely and formulate more effective strategies for improving and developing professional accounting service firms.

4. Discussion and Conclusion

The present study sought to identify, prioritize, and analyze the relationships among the factors shaping the development of professional accounting service firms in Iran. The qualitative findings resulted in five core categories comprising human capital and professional knowledge development, structure and governance of accounting firms, institutional environment and professional structure, technology and transformation of the accounting profession, and professional quality and ethics. These five categories were represented by 16 subcriteria. The fuzzy analytic hierarchy process further showed that human capital and professional knowledge development had the highest final weight among the main criteria, followed by structure and governance of accounting firms, institutional environment and professional structure, technology and transformation of the accounting profession, and professional quality and ethics. At the subcriterion level, digital transformation in accounting obtained the highest final priority, followed by professional human capital, technological development in services, organizational development strategies, and development of specialized skills and professional knowledge. The fuzzy DEMATEL findings further demonstrated that human capital and professional knowledge development and structure and governance of accounting firms functioned as causal factors, whereas technology and transformation of the accounting profession, institutional environment and professional structure, and professional quality and ethics were primarily effect factors. At the subcriterion level, professional human capital and development, digital transformation in accounting, technological development and innovation in accounting services, and organizational development strategies emerged as the strongest causal components.

The prominence of human capital and professional knowledge development is consistent with the defining characteristics of professional service firms, whose primary competitive resources are specialized knowledge, professional judgment, expertise, and the ability to transform individual knowledge into organizational value. Professional accounting firms are particularly dependent on highly qualified personnel because the services they provide are knowledge-intensive, judgment-dependent, and often customized to the requirements of clients and regulatory environments. Prior research has shown that high-performance human resource systems in professional service firms contribute to performance when organizational practices facilitate the development, deployment, and productive use of valuable human resources [7]. Similarly, professional service firms derive substantial benefits from collaboration among experts because complex client problems often require the integration of multiple areas of expertise rather than isolated individual performance [8]. The present finding therefore suggests that the development of accounting firms in Iran is fundamentally dependent on their capacity to recruit, retain, train, and continuously develop professionals capable of responding to technological, regulatory, and strategic changes.

The causal position of human capital in the DEMATEL analysis strengthens this interpretation. Human capital and professional knowledge development had the highest positive D-R value among the principal criteria, indicating that changes in this domain are likely to generate downstream effects throughout the system. This finding can be explained by the fact that technology adoption, service innovation, ethical judgment, strategic decision-making, and client relationship management all ultimately depend on the competencies and interpretive capacities of professionals. The literature on professional learning emphasizes that professional competence extends beyond formal technical knowledge and includes experiential judgment, reflective learning, and the ability to operate effectively under ambiguity [11]. Reflexive practice is particularly important in accounting because professionals must frequently reconsider routines and assumptions in response to changing institutional and organizational conditions. The concept of a reflexive mindset has likewise been shown to facilitate the reconfiguration of professional practice and improve practitioners' capacity to critically engage with established routines [12]. Thus, the strong causal role of human capital found in this study reflects not only the importance of technical education but also the broader importance of reflective, adaptive, and continuously developing professional capability.

The second major finding concerned the high priority and causal role of the structure and governance of accounting firms. This criterion ranked second in the fuzzy AHP analysis and also had a positive D-R value, indicating that it acts as an underlying driver of other developmental outcomes. This result is consistent with research showing that governance arrangements in professional service firms shape collaboration, decision-making, coordination, accountability, and the distribution of authority [27]. Professional firms differ from conventional bureaucratic organizations because professional autonomy, collegial authority, commercial objectives, and organizational control must coexist. The emergence of alternative ownership structures and more corporate forms of professional service organization has further challenged the traditional professional partnership model [6]. Accordingly, the effectiveness of governance structures becomes critical as accounting firms grow, diversify, and attempt to balance professional judgment with managerial discipline.

The importance of governance can also be understood in relation to competing institutional logics. Professional accounting firms simultaneously face expectations related to professional independence, commercial performance, client responsiveness, ethical standards, technological innovation, and workforce diversity. Research has shown that professional service firms develop organizational responses that allow them to navigate multiple and potentially conflicting logics [28]. Similarly, professional organizations often sustain themselves by balancing conflicting yet complementary institutional logics in everyday practice [29]. The present findings therefore imply that the development of accounting firms in Iran requires governance systems capable of managing these tensions rather than emphasizing commercial growth or professional autonomy in isolation. The relatively high priority of organizational development strategies and internal process management among the subcriteria further supports this conclusion.

Digital transformation in accounting was the highest-ranked subcriterion, with a final weight of 0.100. This finding is particularly important because it shows that although human capital was the most important main criterion, digital transformation was the most urgent operational priority. The distinction between strategic-level importance and operational-level priority can be interpreted as evidence that technology is becoming the most immediate arena in which professional accounting firms must translate organizational capabilities into competitive and professional outcomes. Developments in digital systems, automation, data analytics, artificial intelligence, and integrated information platforms are increasingly changing how accounting information is generated, analyzed,

communicated, and assured. Research on innovation in professional service firms has emphasized that innovation is becoming central to competitiveness, service delivery, and long-term sustainability [32]. Similarly, innovative strategies can improve profitability and organizational adaptability when firms are able to mobilize relevant resources and networks [33].

The high causal status of digital transformation at the subcriterion level also suggests that technology should not be regarded merely as an outcome of organizational modernization. Rather, technological capability can itself stimulate changes in service design, professional skills, workflow structures, business models, and interactions with clients. This interpretation is consistent with evidence that collaboration and innovation in knowledge-intensive professional services reinforce one another and facilitate the integration of specialized and technological knowledge [10]. Interorganizational cooperation also contributes to performance in high-technology environments by supporting resource sharing, responsiveness, and coordinated problem solving [34]. For accounting firms, the implication is that technological development should be accompanied by investments in human capital and organizational restructuring. Technology without appropriately trained professionals or suitable governance mechanisms is unlikely to generate sustainable development.

The results also showed that technological development and innovation in accounting services ranked third among all 16 subcriteria and acted as a causal factor in the DEMATEL model. This finding complements the result concerning digital transformation and indicates that firms should move beyond digitizing existing procedures toward redesigning services and value propositions. Diversification in professional service firms has been associated with growth when organizations can successfully leverage complementary capabilities and extend their service portfolios [31]. Likewise, collaborative innovation can improve organizational performance when professional firms combine internal expertise with external knowledge resources [9]. These findings help explain why innovation in accounting services emerged as an important element of development: accounting firms increasingly compete not only on compliance services but also on advisory capacity, analytical services, risk-related expertise, and technology-enabled solutions.

The institutional environment and professional structure ranked third among the main criteria but appeared as an effect factor in the DEMATEL analysis, with a negative D-R value. This finding indicates that although institutional conditions are important, their developmental status may partly reflect the performance and evolution of other dimensions of the professional system. Accounting institutions are shaped through interactions among the state, professional associations, firms, educational institutions, and international standards. Studies of accounting regulation in Middle Eastern countries have shown that professional development depends heavily on institutional and legal arrangements and on how international accounting standards are adapted within local contexts [20, 21]. Stakeholder perceptions of international reporting standards also demonstrate that formal adoption alone is insufficient and that local institutional capacity substantially determines practical relevance and implementation [22]. Similarly, the historical development of accounting standards in emerging economies reflects gradual processes of institutional adaptation and professionalization [23].

The effect-oriented position of the institutional environment may also reflect the reciprocal relationship between professions and institutions. The profession is not simply governed by the institutional environment; professional actors also participate in constructing, maintaining, and changing institutions. Historical evidence from the Egyptian accounting profession shows how state-profession relationships evolve over time and influence professional autonomy, regulation, and authority [24]. Global professional service firms likewise contribute to institutionalization by diffusing professional norms and organizational practices across national contexts [25]. In

addition, professional legitimacy is shaped through discourse and institutional positioning within the audit field [26]. Accordingly, the Iranian institutional environment may be better understood as part of a dynamic system in which professional capacity, governance quality, and strategic organization contribute to shaping the broader conditions of professional development.

Professional quality and ethics had the lowest weight among the five main criteria, yet this should not be interpreted as evidence that quality and ethics are unimportant. Rather, the DEMATEL findings indicate that professional quality and ethics function primarily as an effect factor. This means that improvements in ethics and service quality may depend substantially on antecedent conditions such as human capital, governance, institutional arrangements, and organizational culture. Prior research supports this interpretation. Auditors' professional and organizational identities can be shaped by commercialization pressures within firms, with potential implications for professional conduct [16]. Identification with clients has also been shown to affect audit quality, illustrating how relational and organizational dynamics can influence professional independence [17]. Moreover, misconduct can spread through professional networks when inappropriate practices become socially normalized [18], while institutional work may also redefine and respond to professional misconduct [19]. Thus, ethical outcomes are embedded in broader organizational systems rather than determined exclusively by individual morality.

The qualitative integration of service quality and professional ethics into a single core category is also consistent with the theoretical view that professional credibility depends on both competence and integrity. Embedded ethics and reflexivity emphasize that ethical judgment emerges from practitioners' engagement with their professional contexts and responsibilities [13]. The literature on professional virtue similarly links public trust to the cultivation of responsible professional conduct [14, 15]. In accounting services specifically, quality encompasses both technical performance and behavioral dimensions such as reliability, responsiveness, transparency, and professional conduct. The development of context-sensitive accounting service quality models in Iran confirms the multidimensional nature of this construct [36]. Consequently, improving professional quality and ethics is likely to require coordinated interventions targeting organizational incentives, training, governance, and professional culture.

The findings regarding university-profession interaction also merit attention. Although this subcriterion ranked lower than professional human capital and digital transformation, it had a positive D-R value and was therefore classified as a causal factor. This suggests that stronger interaction between universities and the accounting profession can have wider developmental effects. Such collaboration can facilitate knowledge transfer, update curricula, improve professional training, and support the development of capabilities required for technological and institutional change. Cross-sector collaboration is known to be both valuable and difficult because participating organizations often have different goals, accountability structures, and institutional expectations [38]. Institutional arrangements also influence the effectiveness of collaboration across agencies and organizations [39]. For Iranian accounting firms, closer university-profession relationships may therefore provide an important mechanism for reducing gaps between academic knowledge and evolving professional needs.

The relatively low ranks of financial condition and liquidity challenges, market structure, and the social and professional standing of accounting firms should likewise be interpreted cautiously. Their negative D-R values show that these factors are largely effect variables rather than primary drivers. In other words, financial sustainability, market position, and social legitimacy may improve when stronger causal factors are addressed. Professional service firms depend substantially on reputation, mission coherence, and organizational legitimacy. Maintaining the professional mission while growing and commercializing requires deliberate organizational

mechanisms [30]. Likewise, the development of professional accounting associations in Iran has been found to involve structural, institutional, and operational challenges that require coordinated reform rather than isolated solutions [41]. Broader Iranian research has similarly shown that accounting development reflects a complex interaction among educational, institutional, professional, technological, and economic factors [40]. These studies support the present conclusion that lower-ranked outcome variables are likely to improve through changes in deeper systemic drivers.

Finally, the overall pattern of findings supports a systems perspective on the development of professional accounting service firms. The fuzzy AHP results identified the relative priority of the components, whereas the DEMATEL analysis clarified their causal position within the network. This distinction is theoretically and practically important. Technology and transformation of the accounting profession had the highest D+R value among the main criteria, indicating the greatest overall interaction with the system, yet it had a slightly negative D-R value and was therefore classified as an effect factor. By contrast, human capital had both high importance and the strongest positive net influence. This pattern indicates that highly visible transformational outcomes may depend on less visible foundational capabilities. The strategic role of accounting in organizational and economic development further reinforces the necessity of building these foundational capabilities [1, 2]. The findings therefore suggest that sustainable development of professional accounting service firms in Iran requires an integrated approach in which investments in people, governance, technology, institutional alignment, service quality, and professional ethics are treated as mutually reinforcing elements rather than independent policy domains.

This study has several limitations that should be considered when interpreting its findings. First, the study relied on the judgments of 24 experts selected through purposive and snowball sampling; although these participants possessed relevant academic and professional expertise and theoretical saturation was achieved in the qualitative phase, the findings may not fully represent the perspectives of all professional accounting firms, regulators, clients, or other stakeholders in Iran. Second, both fuzzy AHP and fuzzy DEMATEL depend on expert judgment, and despite the use of fuzzy logic to manage ambiguity and uncertainty, some degree of subjectivity is inherent in pairwise comparisons and influence assessments. Third, the cross-sectional design captures expert perceptions at a particular point in time and does not account for dynamic changes in technology, regulation, economic conditions, or professional practices. Fourth, the identified relationships indicate perceived causal influence rather than experimentally established causality. Finally, the study focused on the Iranian context, and the institutional, economic, and regulatory characteristics of this setting may limit direct generalization of the model to other countries.

Future studies could extend the present model by using larger and more heterogeneous samples that include accounting firm partners, auditors, regulators, professional association representatives, academics, technology specialists, and clients. Longitudinal research would be particularly valuable for examining whether the relative priority and causal position of factors change as digital technologies, regulatory frameworks, and market conditions evolve. Researchers could also test the proposed model quantitatively using structural equation modeling or longitudinal causal models to evaluate relationships among the identified dimensions with firm-level data. Comparative studies across countries or across different categories of accounting firms could clarify the extent to which the present findings are context-specific. Future research may additionally examine mediating and moderating mechanisms, such as organizational culture, firm size, digital maturity, market competition, leadership style, or professional autonomy. Integrating fuzzy decision-making methods with scenario analysis, system

dynamics, network analysis, or machine-learning approaches may also provide a more detailed understanding of how alternative policy interventions could influence the development trajectory of professional accounting service firms.

Managers and policymakers should prioritize interventions that strengthen professional human capital while simultaneously accelerating digital transformation. Accounting firms should establish systematic programs for continuous professional development, digital competency, specialized technical training, reflective learning, leadership development, and interdisciplinary collaboration. Governance structures should be redesigned to improve strategic decision-making, knowledge sharing, accountability, and responsiveness to technological change. Firms should invest in digital infrastructure, data analytics, automated processes, and innovative service models while ensuring that technological adoption is accompanied by adequate employee training and process redesign. Professional associations and regulatory bodies should promote stronger collaboration between universities and practice, support updated competency frameworks, and encourage mechanisms for translating academic knowledge into professional application. Because quality, ethics, financial sustainability, market position, and professional legitimacy appear to be strongly influenced by deeper causal factors, practical interventions should focus on systemic improvement rather than isolated corrective measures. An integrated development strategy centered on human capital, effective governance, digital transformation, and professional learning is therefore likely to produce the most substantial and sustainable improvements across the accounting services ecosystem.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

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

Acknowledgments

Authors thank all participants who participate in this study.

Conflict of Interest

The authors report no conflict of interest.

Funding/Financial Support

According to the authors, this article has no financial support.

References

[1] E. R. Venter, E. A. Gordon, and D. L. Street, "The Role of Accounting and the Accountancy Profession in Economic Development: A Research Agenda," *Journal of International Financial Management & Accounting*, vol. 29, no. 2, pp. 195-218, 2018.

[2] R. Mehrabinia, F. Zarei, and M. Golmohammadi Shouraki, "Improving Banking Services Based on Strategic Management Accounting Techniques," *Strategic Management Accounting Quarterly*, vol. 2, no. 2, pp. 43-61, 2025, doi: 10.22034/smajournal.2025.522926.1024.

[3] H. Chen, Y. Shi, and H. He, "A Sustainable Urban Framework Based on Natural Capital and Ecosystem Services Accounting," (in English), *Applied Spatial Analysis and Policy,* vol. 18, no. 1, pp. 23-45, 2025, doi: 10.1007/s12061-024-09575-w.
[4] T. Morris and N. Anand, "Professional Service Firms," in *Wiley Encyclopedia of Management*, 2015.
[5] L. Empson, D. Muzio, and C. Hinings, "Professional service firms: new developments and directions," presented at the Academy of Management Proceedings, 2015.
[6] A. von Nordenflycht, "Does the emergence of publicly traded professional service firms undermine the theory of the professional partnership? A cross-industry historical analysis," *Journal of Professions and Organization,* vol. 1, pp. 137-160, 2014.
[7] N. Fu, P. C. Flood, J. Bosak, D. M. Rousseau, T. Morris, and P. O'Regan, "Highperformance work systems in professional service firms: examining the practicesresources-uses-performance linkage," *Human Resource Management,* vol. 56, pp. 329-352, 2017.
[8] H. K. Gardner, *Smart Collaboration: How Professionals and Their Firms Succeed by Breaking Down Silos*. Boston, Massachusetts: Harvard Business Review Press, 2016.
[9] M. Hernandez-Espallardo, F. Osorio-Tinoco, and A. Rodriguez-Orejuela, "Improving firm performance through inter-organizational collaborative innovations," *Management Decision,* vol. 56, pp. 1167-1182, 2018.
[10] A. Rodríguez, M. J. Nieto, and L. Santamaría, "International collaboration and innovation in professional and technological knowledge-intensive services," *Industry and Innovation,* vol. 25, pp. 408-431, 2018.
[11] E. P. Antonacopoulou, "Sensuous learning: what is it and why it matters in addressing the ineptitude in professional practice," in *Sensuous Learning for Practical Judgment in Professional Practice: Volume 1: Artsbased Methods*, E. P. Antonacopoulou and S. S. Taylor Eds. London: Palgrave Macmillan, 2019, pp. 13-43.
[12] W. G. Soh, E. P. Antonacopoulou, C. Rigg, and R. Bento, "Embedding a "Reflexive Mindset": Lessons From Reconfiguring the Internal Auditing Practice," *Academy of Management Learning & Education,* vol. 22, no. 1, pp. 1-53, 2023.
[13] A. L. Cunliffe and A. Ivaldi, "Embedded ethics and reflexivity: narrating a charter of ethical experience," *Management Learning,* vol. 52, no. 3, pp. 294-310, 2021.
[14] P. Blond, E. P. Antonacopoulou, and A. Pabst, "In profession we trust: fostering virtuous practitioners in teaching, law and medicine," ed, 2015.
[15] A. Peterson and D. Civil, "Civic Virtue, Community and the Common Good," in *Virtue Insight*, ed: Jubilee Centre for Character and Virtues, 2021.
[16] P. Broberg, T. Umans, P. Skog, and E. Theodorsson, "Auditors' professional and organizational identities and commercialization in audit firms," *Accounting, Auditing & Accountability Journal,* vol. 31, no. 2, pp. 374-399, 2018.
[17] J. Svanberg and P. Ohman, "Auditors' identification with their clients: Effects on audit quality," *The British Accounting Review,* vol. 47, no. 4, pp. 395-408, 2015.
[18] A. Mohliver, "How misconduct spreads: auditors' role in the diffusion of stock-option backdating," *Administrative Science Quarterly,* vol. 64, no. 2, pp. 310-336, 2019.
[19] B. Harrington, "Turning vice into virtue: Institutional work and professional misconduct," *Human Relations,* vol. 72, no. 9, pp. 1464-1496, 2019.
[20] P. A. Aghimien, "Development of Accounting Standards in Selected Middle Eastern Countries in Comparison to the United States of America," *Review of International Business and Strategy,* vol. 26, no. 1, pp. 69-87, 2016.
[21] M. Al-Akra, M. J. Ali, and O. Marashdeh, "Development of accounting regulation in Jordan," *The International Journal of Accounting,* vol. 44, pp. 163-186, 2019.
[22] S. S. Alkhtani, "The Relevance of International Financial Reporting Standards to Saudi Arabia: Stakeholder Perspectives," PhD Thesis, Stirling University, 2020. [Online]. Available: https://dspace.stir.ac.uk/handle/1893/2415
[23] S. E. Perumpral, M. Evans, S. Agarwal, and F. Amenkhienan, "The evolution of Indian accounting standards: Its history and current status with regard to International Financial Reporting Standards," *Advances in Accounting,* vol. 25, pp. 106-111, 2019.
[24] P. Ghattas, T. Soobaroyen, and O. Marnet, "Charting the development of the Egyptian accounting profession (1946–2016): An analysis of the State-Profession dynamics," *Critical Perspectives on Accounting,* vol. 78, 2021.
[25] J. Faulconbridge and D. Muzio, "Global Professional Service Firms and Institutionalization," in *Professional Networks in Transnational Governance*, 2017, pp. 219-232.
[26] A. Whittle, C. Carter, and F. Mueller, "Above the fray: Interests, discourse and legitimacy in the audit field," *Critical Perspectives on Accounting,* vol. 25, no. 8, pp. 783-802, 2014.
[27] B. Budiarso, U. S. Putro, Y. Sunitiyoso, and R. Fitriati, "How do design parameters of firm governance affect collaboration process dimensions in professional service firm?," *Heliyon,* vol. 7, no. 11, p. 08431, 2021.
[28] F. Anderson-Gough, C. Edgley, K. Robson, and N. Sharma, "Organizational responses to multiple logics: Diversity, identity and the professional service firm," *Accounting, Organizations and Society,* vol. 103, p. 101336, 2022.

[29] M. Smets, P. Jarzabkowski, G. T. Burke, and P. Spee, "Reinsurance trading in Lloyd's of London: Balancing conflicting-yet-complementary logics in practice," *Academy of Management Journal,* vol. 58, no. 3, pp. 932-970, 2015.
[30] G. Loscher and S. Kaiser, "Anchoring the mission: A framework for understanding mission maintenance in professional service firms," *Scandinavian Journal of Management,* vol. 38, p. 101216, 2022.
[31] R. Eckardt and B. C. Skaggs, "Service diversification and growth of professional service firms," *Long Range Planning,* vol. 51, no. 1, pp. 111-126, 2018.
[32] M. West and E. Advisory, "The State of Innovation in Professional Services Firms," 2020.
[33] S. K. Nguyen, X. V. Vo, and T. M. T. Vo, "Innovative strategies and corporate profitability: the positive resources dependence from political network," *Heliyon,* vol. 6, p. e03788, 2020.
[34] N. O. Connor, P. B. Lowry, and H. Treiblmaier, "Interorganizational cooperation and supplier performance in high-technology supply chains," *Heliyon,* vol. 6, p. e03434, 2020.
[35] Y. Y. Chih, O. Zwikael, and S. L. D. Restubog, "Enhancing value co-creation in professional service projects: the roles of professionals, clients and their effective interactions," *International Journal of Project Management,* vol. 37, pp. 599-615, 2019.
[36] M. Rezaei, J. Nasaripour, and E. Davoudi, "Development and formulation of a model for measuring accounting service quality," (in English), *Empirical Accounting Research,* 2024.
[37] M. Emery, J. Hooks, and R. Stewart, "Born at the wrong time? An oral history of women professional accountants in New Zealand," *Accounting History,* vol. 7, no. 2, pp. 7-34, 2022.
[38] J. M. Bryson, B. C. Crosby, and M. M. Stone, "Designing and implementing cross-sector collaborations: needed and challenging," *Public Administration Review,* vol. 75, pp. 647-663, 2015.
[39] K. D. Ward, D. M. Varda, D. Epstein, and B. Lane, "Institutional factors and processes in interagency collaboration: the case of FEMA corps," *American Review of Public Administration,* vol. 48, pp. 852-871, 2018.
[40] M. Golijani, R. Alikhani, M. Maranjouri, and R. Fallah, "Designing a meta-synthesis model of factors affecting the development of accounting in Iran," (in English), *Financial Accounting and Auditing Research,* vol. 13, no. 50, pp. 207-227, 2021.
[41] K. Mehrani and H. Salehi, "Identifying the challenges of developing the activities of professional accounting associations and providing solutions to overcome the current situation," (in English), *Accounting and Auditing Research,* no. 58, pp. 47-64, 2023.