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Accounting Modeling for Startups in the Financial Business Ecosystem

Touraj Bahrami

Department of Accounting, Ur.C., Islamic Azad University, Urmia, Iran. (Email: m t.bahramie@iau.ac.ir)

Saeid Jabbarzadeh Kangarluei*

*Corresponding Author, Department of Accounting, Ur.C., Islamic Azad University, Urmia, Iran. (Email: saeid.jabbarzadeh@iau.ac.ir)

Ali Ashtab

Department of Accounting, Faculty of Economics and Management, Urmia University, Urmia, Iran. (Email: a.ashtab@urmia.ac.ir)

Masoud Ahmadi Mansourabad

Department of Accounting, Ma.C, Islamic Azad University, Mamaghan, Iran. (Email: m.ahmadi8893@iau.ac.ir)

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Abstract

This research aims to model the accounting of startup companies within the financial business ecosystem.This research is philosophically based on the interpretivist paradigm and was conducted with an inductive approach. It is also applied - developmental in terms of purpose and descriptive in terms of method and data collection timeframe. A nested research design was used to achieve the research objective. The research participants included theoretical experts (professors of financial management and accounting) and empirical experts (managers of startup companies). Theoretical sampling was used until theoretical saturation was reached, and eventually, 24 individuals participated in the study. Data collection tools included semi-structured interviews and a questionnaire based on a decision matrix. The validity of the interview was confirmed based on four criteria: credibility, transferability, confirmability, and dependability. The reliability of the qualitative section was estimated to be favorable by calculating Holst's coefficient at 0.817 and Cohen's Kappa coefficient at 0.706. Data analysis was performed using grounded theory in the qualitative section and the SWARA method in the quantitative section. Based on the research model, it was determined that causal conditions (technical factors, managerial factors, governmental factors, and accounting factors) influence the core phenomenon (startup accounting). The core phenomenon, contextual conditions (financial business ecosystem infrastructure and financial business ecosystem financial resources), and intervening conditions (financial business ecosystem regulations) influence strategies and actions (technological strategy and financial strategy). This research provides a comprehensive model for understanding startup accounting within the financial business ecosystem. The findings highlight the critical influence of technical, managerial, governmental, and accounting-related factors on core accounting practices. Furthermore, the interplay between these practices, the broader ecosystem infrastructure, financial resources, and the regulatory framework shapes startups' strategic decisions (both technological and financial). These strategic choices, in turn, directly affect both the financial and non-financial performance outcomes of these nascent firms. The model underscores the need for a nuanced approach to startup accounting that takes into account the specific context of the financial business ecosystem.

Keywords: Startup Accounting, Business Ecosystem, Financial Business

JEL Classification: M41, L26, O3, G3

Introduction

Startup companies are one of the main forces of transformation in the financial business ecosystem. These emerging companies usually transform various industries with innovative ideas and agile business models, and pave the way for economic growth, job creation, and development at the individual and social levels (Bennet et al., 2024). For this reason, in recent years, startup companies have become key players in the financial business ecosystem, transforming traditional financial service models by utilizing new technologies and making it possible to provide faster, cheaper, and more user-friendly services (Filippelli et al., 2025). In Iran, the growth of startup companies has also experienced a growing trend, so startup companies are now considered one of the key indicators of employment and improvement of the country's economic situation (Fadaei-Khorasgani et al.). In fact, in Iran, like many countries in the region and the world, startup companies have found their place in the country's financial business ecosystem, and every year, many startup companies begin to operate (Baghdadi et al.).

Startups, with all their advantages, also face issues and problems. One of these issues relates to the accounting of startup companies. Accounting for startup companies is associated with many challenges due to unique conditions such as high uncertainty in business, innovative business models, and the lack of historical financial data (Asadzadeh & Moghaddam). Due to the special nature of these businesses, accounting in startups differs significantly from traditional methods. The nature of the business, financial resources, cost structure, financial risk, and accounting tools are different in startup companies, so traditional accounting and financial practices are not very efficient for such companies (Nasution & Fauzie, 2025). The most important difference between traditional accounting approaches and accounting practices for startup companies is the ease and speed of information processing and feedback. Also, while adhering more to legal restrictions and financial and auditing standards, stakeholders are more confident. Due to the systematic nature of the information cycle, shareholders and investors can easily monitor the disclosed facts of the accounting unit's performance and reduce their decision-making risk (Hosseini et al.). Therefore, using management accounting principles specific to startups will significantly affect various aspects of startups' financial and non-financial performance (Amin-Eshaeri).

Several reasons can explain the growth and expansion of the tendency towards accounting in startup companies. One of the most important reasons is to prevent fraud and scams in financial reports, because providing incorrect information about income and profitability can seriously threaten investors.

Transparent accounting can prevent such violations. Also, financial startup companies have emerged as an alternative to traditional financial methods. Liquidity management is one of the main challenges of these companies because they have limited financial resources, and controlling cash flow is essential for their survival (Gleason et al., 2022). Another important factor is the investment structure; many companies benefit from sources such as venture capitalists, business angels, or crowdfunding, which require accurate accounting systems (Gefen et al., 2023). In addition, since startups usually have high costs in the early years of their activity and have not yet reached profitability, cost management and financial forecasting become very important.

On the other hand, investors and financial institutions need accurate and transparent reports to make decisions, which shows the necessity of an efficient accounting system. Investment in startup accounting has increased significantly, reaching over $200 billion by early 2020. Forecasts show that in the next three to five years, 82 percent of financial services will be provided through FinTech. This trend shows the high importance of accounting in the innovation ecosystem, and leading companies using financial technology can achieve a strong competitive advantage in dynamic and competitive markets (Silaban et al., 2024).

In summary, auditing startups plays a key role in financial transparency, attracting investors, and reducing financial risks. Since these startups usually face limited financial resources and variable revenue models, accurate auditing helps them to assess their financial situation and avoid making wrong decisions correctly. Also, investors and regulatory bodies need audit reports to ensure the startup's financial health and reduce potential risks. This process makes it possible to clarify income and expenses and helps improve financial management, increase business credit, and facilitate access to new financial resources. This issue is also important in a negative sense because ignoring accounting in startups can lead to serious problems, including a lack of financial transparency, liquidity crisis, and difficulty in attracting investors. The lack of accurate recording of income and expenses leads to incorrect decision-making and may lead to increased hidden costs and reduced profitability. Also, tax problems and penalties resulting from incorrect reporting can lead to legal challenges for the startup.

On the other hand, the lack of monitoring of financial flows paves the way for financial abuse and internal disputes. Overall, transparent and accurate accounting is essential for the survival of startups, and without it, the path of

business growth and sustainability is at risk. However, despite the importance of the issue, so far, limited research (Mohaghegh & Shamshiri-Dafchahi; Asadzadeh & Moghaddam; Esmaeili-Hesari et al.; Hosseini et al.) has been published in the field of startup accounting in the country's scientific literature, and there is still a significant research gap in this field. In other words, what has been overlooked by researchers so far is the conceptualization of startup accounting within the framework of the financial business ecosystem, and this study is an attempt to fill this research gap. The value of this research from a scientific and theoretical point of view is that, with an exploratory approach and based on the opinions of experienced and specialized people, it tries to identify the key components of startup accounting and explain the relationships between them. This research explicitly answers the fundamental question of the startup accounting model in the country's financial business ecosystem.

Literature Review

Startup Accounting

Startup accounting encompasses financial processes, tools, and methods that help these companies properly manage their financial resources, control their expenses, and make informed financial decisions. Due to the unique characteristics of startups, their accounting is accompanied by unique challenges that require a deep understanding of financial affairs, accurate analysis, and skill in managing limited resources. Studies demonstrate that different startup ecosystems significantly influence the accounting models employed, with emerging ecosystems like Iran facing distinct challenges compared to mature ecosystems such as Silicon Valley (Spigel, 2017). In emerging ecosystems such as Iran, startups encounter specific challenges related to accounting standards, access to financial resources, and regulatory compliance that differ substantially from developed ecosystems (Brown & Mason, 2017; O'Flanagan, 2025). Due to the special nature of these businesses, accounting in startups and emerging companies has significant differences from traditional methods. Some of these differences are presented in Table 1.

Table 1. Differences between Traditional Accounting and Startup Accounting

Indicator	Traditional Accounting	Startup Accounting
Nature of Business	Stable with a fixed revenue model	Unstable with variable revenue models
Financial Resources	Defined operating income	Dependent on investment and financing
Financial Focus	Profitability and cost control	Rapid growth and market development
Cost Structure	Defined and relatively fixed	Dynamic and dependent on business changes
Financial Risk	Low and predictable	High and accompanied by uncertainty
Accounting Tools	Traditional methods and financial ledgers	Cloud software and data analysis

(Source: Jones, 2021)

Comparative studies reveal that while European and American startups benefit from advanced accounting tools and international standards, startups in the Middle East and Iran continue to face infrastructural deficiencies and require localized models (Stam, 2015; Isenberg, 2010). This gap in accounting models between different ecosystems has intensified the need to develop regional and localized frameworks.

Based on a comprehensive definition, startup accounting includes a set of financial processes and methods designed to accurately and efficiently manage the financial resources of a startup. Due to characteristics such as innovation, rapid growth, resource constraints, and severe revenue fluctuations, these companies require a special accounting system that can manage their specific conditions (Hosseini & Rafiei, 2023). Accounting in this field means managing financial resources, estimating income and expenses, and evaluating financial performance to make strategic decisions. One of the common challenges in startups is liquidity problems (Sudibyo & Puspasari, 2021). These businesses must ensure they can meet their current expenses, even when there is insufficient income or projects have not yet reached the profitability stage. Effective cash flow management in these companies is vital, as lacking liquidity can lead to business closure. In a suitable accounting system for startups, forecasting future expenses and income helps these companies prepare for unexpected situations. Since startups usually have limited credit, timely payment of debts can help maintain their credit. In addition, controlling and reducing unnecessary expenses is an effective way to maintain cash flow and the continuity of startup companies (Becker & Endenich, 2024).

Financial Business Ecosystem

The concept of "business ecosystem" was first introduced in 1993 by James Moore. However, the application of this concept in startup financial ecosystems shows considerable differences across regions. Financial ecosystems in developed countries such as the United States, the United Kingdom, and Germany possess coherent and comprehensive structures that include venture capitalists, investment banks, and specialized financial institutions (Feld, 2012). In contrast, emerging ecosystems such as Iran, India, and Latin American countries are still in early development stages and face challenges including resource scarcity, weak legal infrastructure, and lack of specialized institutions (Roundy et al., 2018). These differences have led to distinct accounting models in each region. Western startups typically employ international accounting standards and advanced financial tools, while Iranian startups must adapt to local regulations and utilize more traditional methods (Mason & Brown, 2014). This gap demonstrates the necessity of developing regional accounting models that can address the specific needs of each ecosystem. Research indicates that startup success depends on idea quality or product excellence and is significantly influenced by local financial ecosystem characteristics (Audretsch & Belitski, 2017). Startups operating in more developed ecosystems have better access to financial resources, specialized advisors, and advanced accounting tools.

According to this view, organizations should not be considered independent units in a particular industry. However, instead they are part of a broader ecosystem that simultaneously competes and cooperates (Thornton & Zhao, 2025). Accordingly, the "startup ecosystem" includes startup companies, universities, research institutes, financial providers, support institutions, local governments, and local organizations that play a role in the various stages of startup emergence and growth (Kafshdooz Mohammadi et al., 2021). According to another definition, the startup ecosystem refers to a network of businesses, individuals, resources, and processes that support startup companies' formation, growth, and success (Mehrejoo, 2022). On the other hand, the "financial ecosystem" includes a set of institutions, tools, processes, and economic actors that coordinately provide the financial resources needed by businesses, projects, and individuals (Babaei-Fishani et al., 2021). The "financial business ecosystem" includes a set of factors, institutions, processes, and technologies that, in interaction with each other, provide financial services and products to individuals, companies, and organizations. This ecosystem encompasses various sectors, each of which plays an essential role in capital circulation, risk management, financing, and investment (Johnson, 2024). In

general, the financial business ecosystem can be defined as a network of interactions, competitions, and collaborations between various financial institutions, including banks, insurance companies, investment institutions, and brokerages, that cooperate in an integrated system to provide a wide range of financial services to customers (Alamsyah et al., 2024). In the business ecosystem model, Osterwalder emphasizes that startup companies are created and expanded with a practical approach to create value (Kim & Lee, 2025). The scalability of startup companies depends on many factors, such as the vision and specialized goal of the founders, market size, and the conditions of the business ecosystem. Startup companies that cannot find their place in the business ecosystem will eventually go bankrupt and be destroyed (Shahraki-Moghaddam & Farsijani, 2022).

Research Background

In recent years, studies have been conducted in startup accounting. Hosseini et al.'s (2023) research showed that educational backgrounds, team structure, legitimacy, accountability, operational, systemic, and ecosystem factors constitute the underlying factors for the development of startup accounting in capital market companies. Asadzadeh and Moghaddam (2023), by examining the challenges of accounting in startups, emphasized that the development of customized audit standards, the use of advanced analytical tools, and cooperation with startup management can significantly improve the quality and relevance of auditing. The results of Esmaeili-Hesari et al.'s (2023) research showed that increasing the flexibility of accounting systems using new technologies and developing flexible financial processes helps startup companies to face their challenges and react quickly to changes. These approaches are presented as the leading solutions for improving accounting systems in startup companies.

Noormohammadi Liasi et al. (2022), in identifying the factors affecting the success of Iranian startups, emphasized the role of the accounting and financing system. Mohaghegh and Shamshiri (2022) emphasized that since startup companies face a dynamic and emerging environment, research shows that flexible accounting and management systems with the ability to predict financial needs and quick adjustments to changes play an important role in supporting the strategic activities of these companies. As a result, startup companies' successful use of flexible accounting and management systems provides successful examples of the effective implementation of these systems. In foreign studies, O'Flanagan (2025) conducted a study in the field of startup accounting, which showed that using new and intelligent accounting

technologies can help businesses' flexibility and strategic growth. Gao (2024) conducted a study entitled "Unlocking the Path to Digital Financial Accounting in Startups and Emerging Companies." Based on the findings, the government's establishment of a standard electronic financial accounting framework and providing incentive packages can accelerate the digitalization of financial accounting in startup companies.

Carnes et al. (2024) conducted a study entitled "The Role of External Accountants on the Performance Outcomes of Startups." Overall, these findings show that external accounting helps startups survive in the market and facilitates the absorption of market information. Bakhidrovich et al. (2023) designed a framework for improving the accounting of startups and entrepreneurial businesses. The results of this research show that accounting is not considered in many startups, and even experienced accountants have limited knowledge about accounting methods specific to this type of company. A review of the research background indicates that in recent years, attention to startup accounting has increased, and scattered studies have been conducted in this field. However, previous research has mainly reviewed studies or addressed historical analyses based on existing models and questionnaires. Therefore, in this research, with an exploratory approach, an attempt has been made to provide a model for startup accounting within the framework of the financial business ecosystem.

Research Methodology

From the perspective of its objective, this research is applied-developmental research and has been conducted to model accounting in startup companies within the financial business ecosystem. In terms of data collection methods, this study is considered descriptive research. Also, from a philosophical perspective, this research is based on the interpretive paradigm and has been conducted with an inductive approach. A nested research design was used to achieve the main objective. In this design, the central part of the research proceeded with a qualitative approach. In the end, a quantitative method was used for prioritization, a sub-part of the main design.

The population studied in this research included empirical experts (professors of financial management and accounting) and managers of startup companies with experience in startup accounting. The theoretical sampling method was used because, according to Glaser et al. (1968), this method is more suitable for grounded theory. Theoretical sampling is the data collection process for generating theory whereby the analyst jointly collects, codes, and

analyzes their data and decides what data to collect next and where to find them to develop their theory as it emerges. The view of Miller et al. (2010) for selecting participants in qualitative analysis was also based on five key criteria: credibility, reputation, theoretical knowledge, diversity, and motivation to participate. The stages of qualitative research are shown in Figure 1.

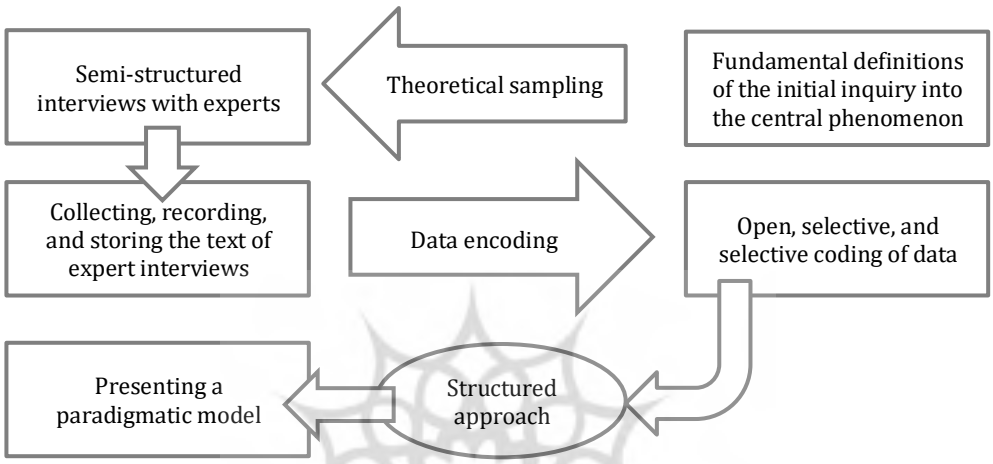

Figure 1. Steps of Grounded Theory with a Structured Method (Khaki, 2022)

The views of 24 university professors and startup company managers were used to collect data. Some of these experts had both academic backgrounds and work experience in startup companies, and efforts were made to use the views of people with expertise and work experience in media diplomacy. All experts had postgraduate degrees, and their average work experience was over 15 years. Interviews continued until theoretical saturation was reached. The saturation point represents the reliability of the research using the grounded theory method, because at this stage the data are repeated, and this repetition, along with its consequences, indicates the validity of the research method. In this research, repetition was observed in the results after the twenty-first interview, and data analysis did not lead to new codes and concepts. However, three more interviews were conducted to avoid false theoretical saturation, and finally, 24 interviews were conducted with experts.

Since semi-structured interviews are more suitable for qualitative studies with an exploratory purpose and the presentation of a paradigmatic model, this type of interview was used with experts in this research. Holst's proposed method was used to validate the interviews. Coding was done twice, and the

"observed agreement percentage" was 0.817, which is higher than 0.6 and indicates an acceptable value. Also, Cohen's Kappa was evaluated as 0.706, which is greater than 0.6, indicating the desirable reliability of the qualitative part of the research.

Data analysis to present the paradigmatic model of the research was performed using the grounded theory method and based on the systematic approach of Strauss and Corbin in MAXQDA 20 software, and SWARA analysis was performed in Excel software.

Results

In the qualitative phase, 24 participants were involved, including six university professors and 18 managers of startup companies. In terms of gender, 16 were male and eight were female. Regarding age, two were under 40, eight were between 40 and 50, and 14 were 50 or older. Regarding education, 6 had a master's degree and 18 had a doctorate. Regarding work experience, 14 had between 15 and 20 years of experience, and 10 had more than 20 years of experience. Concerning the working background of participants, the startup managers included 4 CEOs of e-commerce startups (17%), 3 CFOs of fintech startups (13%), 3 CEOs of digital marketing startups (13%), two financial managers of healthcare tech startups (8%), two financial directors of EdTech startups (8%), 2 CFOs of food delivery startups (8%), and two financial managers of SaaS startups (8%). The academic participants comprised three accounting professors specializing in entrepreneurship (13%), two finance professors with a startup research focus (8%), and one business management professor (4%). This diverse composition ensured comprehensive coverage of theoretical perspectives and practical experiences across various startup sectors.

Table 2. Demographic Characteristics of Experts

Demographic Characteristic	Category	Frequency	Percentage
Expertise	Theoretical Experts (University Professors)	6	25%
	Empirical Experts (Startup Company Managers)	18	75%
Gender	Male	16	67%
	Female	8	33%
Age	Under 40 years	2	8%
	40 to 50 years	8	33%
	50 years and older	14	58%

Education	Master's Degree	6	25%
	Doctorate	18	75%
Work Experience	10 to 20 years	14	58%
	Over 20 years	10	42%
Working Background	CEO of E-commerce Startups	4	17%
	CFO of Fintech Startups	3	13%
	Financial Manager of Healthcare Tech Startups	2	8%
	CEO of Digital Marketing Startups	3	13%
	Financial Director of EdTech Startups	2	8%
	CFO of Food Delivery Startups	2	8%
	Financial Manager of SaaS Startups	2	8%
	Accounting Professor specializing in Entrepreneurship	3	13%
	Finance Professor with Startup Research Focus	2	8%
	Business Management Professor	1	4%
Total		24	100%

Development of the Startup Accounting Model

To develop the accounting model for startup companies in the financial business ecosystem, specialized and semi-structured interviews were conducted with university professors and startup managers. The analysis of these interviews was performed in MaxQDA software using the grounded theory method and based on the systematic approach of Strauss and Corbin (1997), which includes three stages: open coding, axial coding, and selective coding.

Step 1: Open Coding

In this stage, the interview transcripts were read and reviewed multiple times. The data were then divided into semantic units, usually sentences and paragraphs related to the central concept. These semantic units were reviewed repeatedly, and then codes related to each semantic unit were written. The codes were grouped based on semantic similarities. The analysis continued in the same way with the addition of each interview. The interview transcripts, previously entered into the software as text files, were read several times, and spelling errors were corrected. Then, in the MAXQDA20 software environment, the key points of the interviews were coded. In the open coding stage, 472 codes were initially identified. After removing duplicate codes and combining synonyms, 69 open codes were ultimately identified. Examples of interview text and identified codes are provided in Table 3.

Table 3. Examples of Interview Text and Identified Codes

Interviewee	Interview Text	Open Codes
3	"Frankly speaking, first of all, the person who created the startup should volunteer and support startup accounting..."	Support of startup founders for startup accounting
7	"One part is related to the accountants themselves. An accountant must have academic and field competencies to be effective in this field."	Academic and practical competencies of accountants in the field of startups
12	"I think transparency should be observed to gain the trust of all startup stakeholders. This way, reaching the goal is much easier."	Observing the principles of transparency and gaining the trust of stakeholders
18	"One of the main results and achievements of a startup accounting system is preventing financial fraud and scams."	Prevention of fraud and scams in financial operations
21	"Startup accounting also has many non-financial results, and establishing relationships with involved individuals, especially key players, is one of the most important results."	Establishing better relationships with key business stakeholders

Enhanced Theme Analysis and Coding Process Description:

- **Detailed Open Coding Process:**

The open coding process was conducted systematically following Strauss and Corbin's (1998) guidelines. Each interview transcript was analyzed line-by-line to identify concepts and phenomena. The coding process involved several iterative steps:

Initial Reading and Familiarization: Each transcript was read multiple times to gain an overall understanding of the content and context.

Line-by-Line Analysis: The text was examined sentence by sentence, with particular attention to actions, events, and meanings expressed by participants.

Conceptual Labeling: Key phrases and concepts were identified and labeled with descriptive codes that captured the essence of the participants' experiences and perspectives.

Constant Comparison: New codes were continuously compared with existing codes to identify similarities, differences, and relationships.

Memo Writing: Throughout the coding process, analytical memos were written to document emerging insights, theoretical ideas, and relationships between codes.

- **Theme Development and Categorization:**

The transition from open codes to themes involved several analytical steps:

Code Clustering: Similar codes were grouped based on conceptual similarities and shared meanings.

Pattern Recognition: Recurring patterns across different interviews were identified and documented.

Theme Identification: Higher-order themes were developed by examining the relationships between code clusters and identifying overarching concepts.

Theme Validation: Each theme was validated by returning to the original data to ensure it accurately represented participants' perspectives.

- **Coding Reliability and Validation Process:**

To ensure coding reliability, several validation measures were implemented:

Inter-coder Reliability: Two independent researchers coded 20% of the transcripts, achieving Cohen's Kappa of 0.706.

Intra-coder Reliability: The primary researcher re-coded selected transcripts after a two-week interval, achieving 81.7% consistency.

Member Checking: Selected participants were asked to review the preliminary findings to confirm the accuracy of the interpretation.

Peer Debriefing: Regular meetings with research supervisors were conducted to discuss coding decisions and emerging themes.

- **Theoretical Saturation Process:**

Theoretical saturation was determined through systematic monitoring:

Saturation Tracking: New codes and concepts were tracked and documented after each interview.

Redundancy Assessment: The emergence of new information was monitored, particularly when interviews began producing repetitive data.

Concept Density: The richness and depth of each category were evaluated to ensure a comprehensive understanding.

Validation Interviews: Three additional interviews were conducted after apparent saturation to confirm that no new themes emerged.

- **Software-Assisted Analysis:**

MAXQDA 20 software facilitated the coding process through:

Systematic Organization: All codes were organized hierarchically within the software.

Query Functions: Complex searches were performed to identify relationships between codes and themes.

Visual Modeling: Code relationships were mapped visually to understand theoretical connections.

Frequency Analysis: Code frequency and co-occurrence were analyzed to identify prominent themes.

- **The placement would be:**

Current Step 1: Open Coding → [INSERT ENHANCED DESCRIPTION HERE] → Step 2: Axial Coding

Step 2: Axial Coding

Axial coding is a process in which open codes are categorized into larger and more conceptual constructs. This type of coding is called "axial coding" because it is done around a central phenomenon. In this process, the central phenomenon is considered the core and main axis of the research (Strauss & Corbin, 1997). The central phenomenon is the subject or issue that forms the main axis of the research.

Various factors influence the central phenomenon, including different categories. These categories are:

- **Causal Conditions:** Specific and environmental conditions that influence strategies.
- **Contextual Conditions:** Specific conditions and the environment influencing the strategies.
- **Intervening Conditions:** General factors that influence strategies.
- **Strategies:** Goal-oriented behaviors, realities, and interactions influenced by contextual and intervening conditions and formulated to address the central phenomenon.
- **Consequences:** The results or outcomes that arise from the implementation of strategies.

In this stage, the codes identified from the open coding stage are structured

and organized within these categories. The results of axial coding using the grounded theory method are presented in Tables 4 through 8 (Tables are numbered based on the Farsi original).

Table 4. Coding of "Causal Conditions" using the Strauss and Corbin Approach

Selective Code	Axial Codes	Open Codes
Causal Conditions	Technical Factors	"Using specialized accounting software,"; "Providing technology-based hardware equipment and infrastructure"; "Up-to-date and standard software platforms"; "Possibility of accessing data in an integrated manner"; "Creating large and secure databases"
	Management Factors	"Support of startup founders for startup accounting"; "Managers' awareness and knowledge of startup accounting"; "Acceptance of the need for startup accounting"; "Startups' level of experience with accounting"; "Establishing a culture of financial transparency in startups"
	Governmental Factors	"Government supervision of startups' financial performance"; "Continuous review of accounting documents by government agencies"; "Country's tax decisions based on accounting documents"; "Government incentives for startups to move towards accounting"; "Government's influence on startup accounting"
	Accountant Factors	"Accountants' theoretical knowledge in the field of startup accounting"; "Academic and university literacy of startup accountants"; "Technical and specialized skills in the field of startup accounting"; "Academic and practical competencies of accountants in the field of startups"; "Sufficient experience in the field of startup accounting"; "Formation of specialized startup accounting teams"

Table 5. Coding of "Contextual Conditions" using the Strauss and Corbin Approach

Selective Code	Axial Codes	Open Codes
Contextual Conditions	Infrastructure of the Financial Business Ecosystem	"Presence of professional accountants in the financial business ecosystem"; "Competition among specialized accountants in the ecosystem"; "Existence of suitable platforms for growth and activity in the ecosystem"; "Rate of entry of startups into the financial business ecosystem"; "Supervision of the financial business ecosystem"; "Maturity of the startup financial business ecosystem"
	Financial Resources of the Financial Business Ecosystem	"Presence of business angels in the startup ecosystem"; "Amount of venture capital investment in the business ecosystem"; "Amount of financial flows in the business ecosystem"; "Investors' awareness of startup accounting"; "Intensity of competition in the financial business ecosystem"; "Atmosphere and culture of using accounting in the ecosystem"

Table 6. Coding of "Central Phenomenon" using the Strauss and Corbin Approach

Selective Code	Axial Codes	Open Codes
Central Phenomenon	Startup Accounting	"Recording financial transactions accurately and separately in accounting records"; "Continuously monitoring and controlling startups' cash flows"; "Commitment and compliance with tax and startup laws and regulations"; "Regular analysis and reporting of startups' financial performance"; "Budgeting and investment of startups"; "Observing the principles of transparency and gaining the trust of stakeholders"; "Financial forecasting and analysis to identify financial threats and opportunities"; "Monitoring and controlling costs to improve startups' financial efficiency"

Table 7. Coding of "Intervening Conditions" using the Strauss and Corbin Approach

Selective Code	Axial Codes	Open Codes
Intervening Conditions	Laws Governing the Financial Business Ecosystem	"Clear and transparent professional financial laws"; "Clear accounting standards"; "Enforcement of accounting laws and standards"; "Adherence to accounting standards in the business ecosystem"; "Public awareness and knowledge of financial laws in the ecosystem"; "Existence of supervisory bodies for accounting laws and standards"

Table 8. Coding of "Strategies and Actions" using the Strauss and Corbin Approach

Selective Code	Axial Codes	Open Codes
Strategies and Actions	Technological Strategy	"Developing a long-term plan for providing technology services"; "Ease of use of startup accounting technology services"; "Usefulness of technology-based accounting operations"; "Speed of operation and timely response"; "Technology reengineering of accounting processes"
	Financial Strategy	"Formulating a structured financial plan from the perspective of startup accounting"; "Aligning startups' financial mission with accounting principles"; "Transparent financial mechanisms in startup accounting"; "Providing a distinct experience in financial and accounting services"; "Adaptability and flexibility of the financial plan to environmental changes"

Table 9. Coding of "Consequences" using the Strauss and Corbin Approach

Selective Code	Axial Codes	Open Codes
Consequences	Startup Financial Performance	"Transparency of startups' financial performance"; "Prevention of fraud and scams in financial operations"; "Increased reliability of financial statements"; "Attracting more investors for startups"; "Improving startups' financial decision-making"; "Improving the quality of startups' financial data"; "Improving startups' financial performance"
	Startup Non-Financial Performance	"Identifying key performance levers of startups"; "Establishing better relationships with key business stakeholders"; "Gaining competitive advantage in the business ecosystem"; "Improving startups' performance management"; "Improving market-oriented performance in the business ecosystem"

These 69 codes were categorized into 12 categories in the axial coding stage. After this stage, it is time for selective coding, which is performed based on the systematic approach of Strauss and Corbin.

Step 3: Selective Coding

Selective coding means integrating and refining the theory, which is achieved by discovering the core category. In this stage, the identified categories, which are separate from each other, are placed together in an integrated and meaningful framework, and the relationships between these categories are determined. In fact, in the grounded theory process, after collecting, analyzing, and interpreting data, it is time to present the model, conclude, and summarize the research.

Based on this process, the paradigmatic model of accounting for startup companies in the financial business ecosystem is presented in Figure 2.

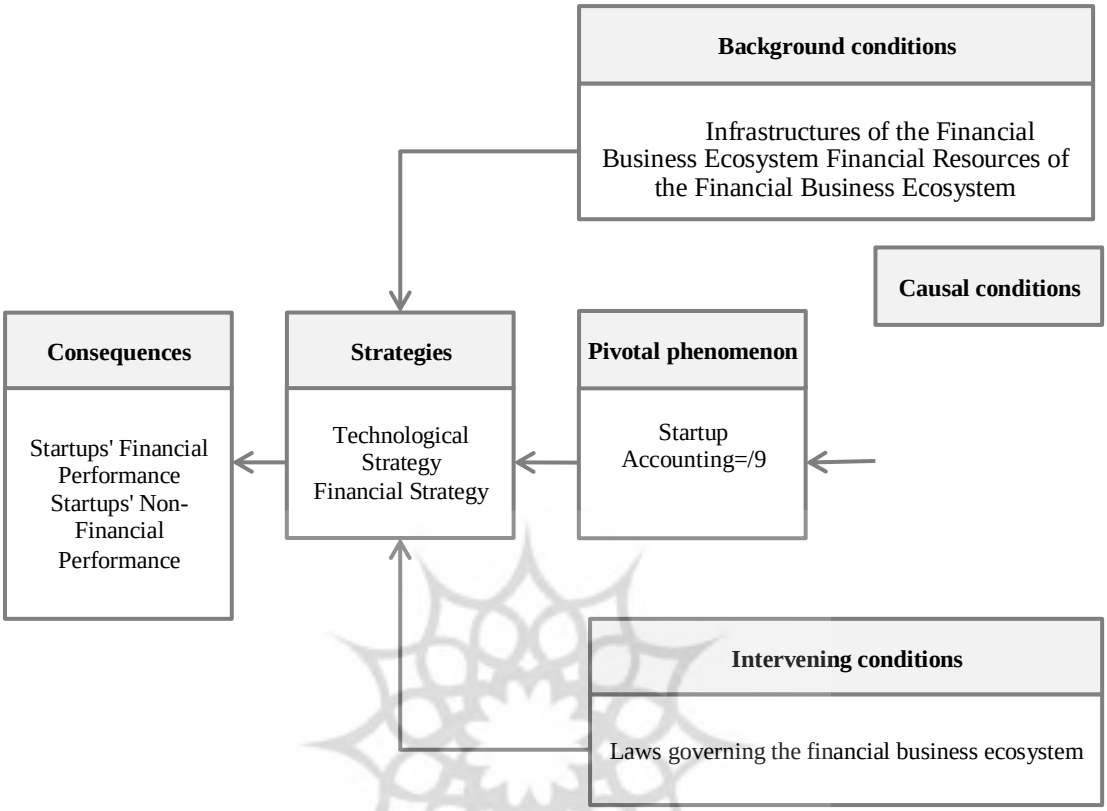

Figure 2. Accounting Model for Startup Companies in the Financial Business Ecosystem

Weighting the Indicators Using SWARA

Next, in order to determine the weight of the indicators of the paradigmatic model of accounting for startup companies in the financial business ecosystem, the Step-wise Weight Assessment Ratio Analysis (SWARA) method was used. The SWARA method is one of the new multi-criteria decision-making methods introduced in 2010 by Violeta Kersuliene, Zavadskas, and Turskis. In this method, experts first rank the indicators based on their importance. The more important indicator is prioritized and receives a score of one. Then, the relative importance of each indicator compared to the previous indicators is determined. Finally, the indicators are ranked based on the average relative importance values (Habibi & Afridi, 2022). These values are listed in the "Average Relative Importance" column in Table 10, which is (Si).

In the third step of the SWARA method, the coefficient (Ki) is calculated.

The coefficient (Ki) for the indicator "Managers' awareness and knowledge of startup accounting," which is the most important, is one. This value was also estimated for other indicators of the paradigmatic model of accounting for startup companies in the financial business ecosystem.

To calculate the initial weight of each indicator, the following formula was used:

$$Q_i = \frac{Q_{i-1}}{K_i}$$
$$Q_1 = 1$$
$$Q_2 = \frac{Q_1}{K_2} = \frac{1}{1.09} = 0.917$$
$$Q_3 = \frac{Q_2}{K_3} = \frac{0.917}{1.24} = 0.740$$

These values in the "Initial Weight" column in Table 10. To calculate the final weight, the linear normalization method was used according to the following formula:

$$W_i = \frac{Q_i}{\sum Q_i}$$

In this way, the final weight of the indicators of the paradigmatic model of accounting for startup companies in the financial business ecosystem was estimated.

Table 10. Priority of Indicators of the Paradigmatic Accounting Model for Startups in the Financial Business Ecosystem

Code	Criterion	Relative Importance Average	Kj	Initial Weight	Normalized Weight
S07	Managers' awareness and knowledge of startup accounting	1	1	1	0.1174
S37	Adherence to transparency principles and gaining stakeholder trust	0.08	1.08	0.926	0.1087
S59	Preventing fraud and deception in financial operations	0.14	1.14	0.812	0.0953
S60	Increasing the reliability of financial statements	0.05	1.05	0.774	0.0908
S34	Commitment and compliance with tax and startup regulations	0.19	1.19	0.65	0.0763

S63	Improving the quality of startup financial data	0.27	1.27	0.512	0.0601
S53	Clear accounting standards	0.11	1.11	0.461	0.0541
S04	Access to data in a coherent manner	0.05	1.05	0.439	0.0515
S64	Improving startup financial performance	0.09	1.09	0.403	0.0473
S52	Clear and transparent professional financial regulations	0.12	1.12	0.36	0.0422
S50	Intensity of competition in the financial business ecosystem	0.21	1.21	0.297	0.0349
S10	Establishing a culture of financial transparency in startups	0.18	1.18	0.252	0.0296
S49	Investors' awareness of startup accounting	0.25	1.25	0.202	0.0237
S41	Competition among specialized accountants in the ecosystem	0.18	1.18	0.171	0.0200
S61	Attracting more investors for startups	0.31	1.31	0.13	0.0153
S43	Entry rate of startups into the financial business ecosystem	0.04	1.04	0.125	0.0147
S28	Alignment of the startup's financial mission with accounting principles	0.11	1.11	0.113	0.0133
S66	Establishing better communication with key business stakeholders	0.21	1.21	0.093	0.0110
S47	Amount of venture capital investment in the business ecosystem	0.09	1.09	0.086	0.0101
S33	Monitoring and continuous control of startup cash flows	0.013	1.013	0.085	0.0099
S40	Presence of professional accountants in the financial business ecosystem	0.09	1.09	0.078	0.0091
S31	Adaptability and flexibility of the financial plan to environmental changes	0.12	1.12	0.069	0.0081
S30	Providing a distinct experience in financial and accounting services	0.22	1.22	0.057	0.0067
S36	Startup budgeting and investment	0.31	1.31	0.043	0.0051

S27	Formal financial planning from the perspective of startup accounting	0.07	1.07	0.04	0.0048
S32	Recording financial transactions accurately and separately in accounting records	0.011	1.011	0.04	0.0047
S19	Scientific and practical competencies of accountants in the field of startups	0.09	1.09	0.037	0.0043
S14	Government incentives for startups to move towards accounting	0.21	1.21	0.03	0.0036
S16	Theoretical knowledge of accountants in the field of startup accounting	0.04	1.04	0.029	0.0034
S55	Adherence to accounting standards in the business ecosystem	0.06	1.06	0.028	0.0032
S46	Presence of business angels in the startup ecosystem	0.16	1.16	0.024	0.0028
S45	Maturity of the financial business ecosystem of startups	0.31	1.31	0.018	0.0021
S56	Public awareness and knowledge of financial regulations in the ecosystem	0.05	1.05	0.017	0.0020
S18	Technical and specialized skills in the field of startup accounting	0.19	1.19	0.015	0.0017
S35	Regular analysis and reporting of startup financial performance	0.27	1.27	0.011	0.0013
S68	Improving startup performance management	0.05	1.05	0.011	0.0013
S67	Gaining a competitive advantage in the business ecosystem	0.19	1.19	0.009	0.0011
S06	Support of startup founders for startup accounting	0.27	1.27	0.007	0.0008
S08	Acceptance of the need for startup accounting	0.11	1.11	0.006	0.0008
S51	Atmosphere and culture of using accounting in the ecosystem	0.05	1.05	0.006	0.0007
S62	Improving startup financial decision-making	0.09	1.09	0.006	0.0007

S21	Forming specialized startup accounting teams	0.08	1.08	0.005	0.0006
S42	Existence of suitable platforms for growth and activity in the ecosystem	0.12	1.12	0.005	0.0005
S38	Financial forecasting and analysis to identify financial threats and opportunities	0.06	1.06	0.004	0.0005
S13	The country's tax decisions are based on accounting documents	0.06	1.06	0.004	0.0005
S58	Transparency of startup financial performance	0.21	1.21	0.003	0.0004
S23	Ease of using startup accounting technology services	0.18	1.18	0.003	0.0003
S26	Technological reengineering of accounting processes	0.08	1.08	0.003	0.0003
S03	Up-to-date and standard software platforms	0.12	1.12	0.002	0.0003
S09	Startups' experience with accounting	0.12	1.12	0.002	0.0003
S69	Improving market-oriented performance in the business ecosystem	0.06	1.06	0.002	0.0002
S02	Providing technology-oriented hardware equipment and platforms	0.06	1.06	0.002	0.0002
S29	Transparent financial mechanisms in startup accounting	0.21	1.21	0.002	0.0002
S65	Identifying key performance levers of startups	0.18	1.18	0.001	0.0002
S05	Creating large and secure databases	0.18	1.18	0.001	0.0001
S39	Monitoring and controlling costs to improve startup financial efficiency	0.06	1.06	0.001	0.0001
S54	Enforcement of accounting laws and standards	0.12	1.12	0.001	0.0001
S25	Performance speed and timely response	0.06	1.06	0.001	0.0001
S20	Sufficient experience in the field of startup accounting	0.06	1.06	0.001	0.0001
S48	Number of financial flows in the business ecosystem	0.21	1.21	0.001	0.0001
S44	Supervision of the financial	0.18	1.18	0.001	0.0001

	business ecosystem				
S11	Government supervision of startup financial performance	0.08	1.08	0.001	0.0001
S22	Developing long-term plans for providing technological services	0.12	1.12	0	0.0001
S57	Existence of regulatory bodies overseeing accounting laws and standards	0.12	1.12	0	0.0001
S01	Using specialized accounting software	0.06	1.06	0	0
S17	Academic and university literacy of startup accountants	0.06	1.06	0	0
S24	Usefulness of technology-oriented accounting operations	0.21	1.21	0	0
S15	Government influence on startup accounting	0.18	1.18	0	0
S12	Continuous review of accounting documents by government agencies	0.06	1.06	0	0

The indicator "Managers' awareness and knowledge of startup accounting" (S07) is the priority, with a weight of 0.1174. The indicator "Adherence to transparency principles and gaining stakeholder trust" (S37) is the second priority with a weight of 0.1087. The indicator "Preventing fraud and deception in financial operations" (S59) is the third priority with a weight of 0.0953. The indicator "Increasing the reliability of financial statements" (S60) is the fourth priority with a weight of 0.0908. The indicator "Commitment and compliance with tax and startup regulations" (S34) is the fifth priority with a weight of 0.0763. "

Discussion and Conclusion

This research aims to model accounting for startups within the financial business ecosystem. By comparing the results of this research model with previous studies in startup accounting, apparent similarities and differences can be observed, indicating both alignment and innovation in this study. In the research model, causal conditions, including various technical, managerial, governmental, and accounting-related factors influencing the core phenomenon (startup accounting), have been identified. This aligns with the findings of Hosseini et al. (2024), who highlighted the role of contextual factors such as team structure, accountability, and systemic elements. Both studies emphasize

the importance of providing suitable conditions to enhance startup accounting performance. Additionally, Asadzadeh and Moghaddam (2024) addressed improving auditing standards and using advanced analytical tools, which are similar to the technical and managerial factors in the present research model.

In the current research model, contextual conditions such as the infrastructure of the financial business ecosystem and financial resources are introduced as influential factors on startup accounting, which is consistent with the findings of Noormohammadi Liasi et al. (2023), who emphasize the role of the accounting system and financing. Also, Mohsen and Shamshiri (2023) have highlighted the importance of the flexibility of accounting systems in supporting startups, similar to the intervening conditions in the research model, such as regulations governing the financial business ecosystem.

Another notable point is the strategies and actions in the research model, which refer to the impact of new technologies and the use of financial and technological solutions to improve accounting systems and startup performance. These findings are similar to the studies of Esmaeili Hesari et al. (2024) and Mohaghegh and Shamshiri (2023), who emphasize the flexibility of accounting systems and the use of new technologies to address startup challenges. In foreign studies, Oflangan (2025) and Gao (2024) have addressed the importance of innovative technologies and digital accounting in startup growth, aligning with the research model's technological strategy.

Finally, in the present research model, various consequences, including startups' financial and non-financial performance, have been identified as the results of using technological and financial strategies. These results are consistent with the research of Noormohammadi Liasi et al. (2023), who point to the impact of the accounting system and financing on startup success, and show that creating and strengthening accounting systems can help improve the financial and non-financial performance of startups.

However, compared to previous studies, the present research model has used an exploratory and data-driven approach to identify and analyze influential factors and accounting consequences. This innovative and systematic approach in startup accounting analysis differs significantly from previous reviews and questionnaire-based studies. Specifically, this research has more comprehensively modeled the various interactions in the financial business ecosystem of startups and can be considered a new paradigmatic model in startup accounting.

By presenting a comprehensive model, this research not only provides a deeper analysis of the current situation but also helps develop startup

accounting systems to effectively respond to challenges and rapid environmental changes and move towards improving their financial and non-financial performance.

Based on the obtained results, the following recommendations are provided:

Regarding technical factors: It is recommended that, in addition to using specialized accounting software, technology-oriented hardware equipment and platforms should also be provided. Choosing the right software based on the size and specific needs of startups can facilitate improving financial processes. These software programs should have automation, reporting, security, and integration capabilities with other systems. Furthermore, strengthening up-to-date and standard software platforms is crucial. Accounting software should be able to interact with government and banking systems in terms of connection to tax and banking systems. This can automate financial and tax processes and prevent errors. Creating large and secure databases is also essential for coherently accessing information.

Regarding managerial factors, it is recommended that startup founders provide more support for accounting. Increasing managers' accounting awareness helps them utilize this strategic and operational decision-making tool. In the past, many founders saw accounting as a secondary task, but now this process has become a tool for managing liquidity and attracting investors.

Regarding governmental factors, it is recommended that government supervision of startup financial performance be increased. This supervision can create a transparent and legal environment and prevent financial corruption. Also, financial transparency can be increased by using financial regulations and regular reporting from startups, and startup performance can be improved.

Regarding accountant-related factors, it is recommended that when hiring accountants, their theoretical knowledge in startup accounting is considered. This knowledge includes understanding accounting principles, tax laws, financial data analysis, and the use of various techniques to develop financial reports.

Regarding the technological strategy, it is recommended that, in developing long-term plans, the ease of using startup accounting technology services should also be considered. This strategy should include using new technologies to improve accounting processes, increase accuracy and efficiency, and reduce errors.

Regarding the financial strategy, it is recommended that formal financial

planning be addressed first. Aligning the startup's financial mission with accounting principles and using transparent financial mechanisms are among the main pillars of this strategy. Also, the flexibility of the financial plan in the face of environmental changes helps achieve financial goals.

Regarding startup accounting, it is recommended that operational processes be improved by accurately and separately recording financial transactions and continuously monitoring cash flows. Compliance with tax laws and regular financial performance analysis are also important. Also, startup budgeting and investment should be accompanied by principles of transparency and gaining stakeholder trust.

Regarding the infrastructure of the financial business ecosystem, it is recommended that hiring professional accountants creates competition among specialized accountants. Also, the existence of suitable platforms for startup growth and increased supervision of the ecosystem can contribute to the maturity of this ecosystem.

Regarding the financial resources of the financial business ecosystem, it is recommended that business angels be employed, and the amount of venture capital investment be considered. Investors' awareness of startup accounting can attract more financial resources. Also, competition in the financial business ecosystem and the culture of using accounting should be considered.

Regarding the regulations governing the financial business ecosystem, it is recommended that clear and transparent financial regulations be developed, and the necessary enforcement guarantees for their implementation. Creating regulatory bodies overseeing accounting standards and increasing public awareness of these regulations can facilitate their effective implementation. By implementing these strategies, achieving consequences such as improved financial and non-financial performance of startups will be possible.

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