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Design and Elaboration of a Predictive Factors Model for Entrepreneurial Opportunities in International Companies Using a Mixed Methods Approach

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A B S T R A C T

Objective: The present study aims to design a model of predictive factors for entrepreneurial opportunities in international companies.

Methodology: This study employs a mixed methods approach (qualitative-quantitative), with data collection conducted in both qualitative and quantitative sections. In the qualitative section, data were gathered through the study of documented sources and semi-structured interviews with 17 managers and experts in the field of entrepreneurship. These individuals were selected using purposive and snowball sampling and data were analyzed using the software MAXQDA18 through the grounded theory method. In the quantitative section, data from 148 senior and mid-level managers of international companies based in Tehran were collected using a researcher-made questionnaire and convenience sampling, and then tested using structural equation modeling.

Findings: The results indicated that causal conditions (unexpected events, industry-based changes, market structure changes, method-based deficiencies, value and cognition-based changes, new knowledge, and demographic characteristics) impact the phenomenon of entrepreneurial opportunities. The strategies included organizational strategies, market-related strategies, business strategies, and effective performance management. Contextual conditions (capital, corporate factors, individual characteristics, and social factors) and intervening conditions (environmental factors, personality traits, driving forces, economic factors, and errors) also influenced the strategies, which in turn had a positive impact on the outcomes.

Conclusion: The results suggest that based on the views and opinions of senior and mid-level managers of international companies regarding the indigenous model of predictive factors for entrepreneurial opportunities, planners should leverage the effective factors in this model to advance their objectives.

Keywords: *Predictive Factors, Entrepreneurial Opportunities, Grounded Theory, Mixed Methods Approach*

1 Introduction

According to entrepreneurship researchers, opportunity identification plays a crucial role in entrepreneurial activities. Alonso et al. (2016) argue that entrepreneurship is a way of thinking and acting based on opportunities. Entrepreneurship leads to the creation and recreation of value for owners and stakeholders, with opportunity being the heart of this process. Although opportunity identification is considered a core characteristic of entrepreneurs and entrepreneurial activity cannot occur without it, not everyone is capable of recognizing opportunities. Therefore, not everyone can engage in entrepreneurial activities (Jabeur et al., 2022).

Numerous studies have been conducted on the factors affecting opportunity identification to enhance the recognition of entrepreneurial opportunities. However, despite the importance of opportunity recognition in the entrepreneurial process, a research gap remains in this area (Ahmadi et al., 2018; Ardichvili et al., 2003; Baron & Ensley, 2006; Gaglio, 2004; Gaglio & Katz, 2001; Hamzei Tehrani et al., 2022; Hill & Birkinshaw, 2010; Ozgen & Baron, 2007; Virasa et al., 2022; Zivdar, 2020; Ziyae et al., 2022). With the expansion of internationalization processes, companies can no longer achieve adequate growth solely through the production of goods and services for domestic markets. They need to exchange goods and services, transfer information, technology, financial flows, and international capital to develop economically. Many company owners no longer view entering the international arena as a hobby but consider it essential for the company's economic survival. Engaging in international exchanges and entering foreign markets allows companies to discover new ideas and offer their products with better quality to domestic and international markets, reducing risk by diversifying income sources (Gaglio, 2004; Jabeur et al., 2022; Shane, 2000; Zolin & Kropp, 2009).

A company's international activity is inherently an entrepreneurial endeavor as it involves identifying and discovering new business opportunities in new environments. This requires an innovative and proactive mindset, as well as the assumption of additional risks associated with operating in unknown competitive environments, where the likelihood of failure is higher. As a result, various authors have highlighted the importance of recognizing entrepreneurial opportunities in the internationalization of businesses, noting that companies unable to leverage international entrepreneurial opportunities and continue to limit their activities to local domains will eventually be eliminated from the competition (Ziyae et al., 2022).

In recent years, the attention of national officials to entrepreneurship has increased, and actions have been taken in this regard. However, global statistics indicate that these efforts have been insufficient, and Iran does not hold a favorable position in global rankings. A closer look at the "Global Entrepreneurship Report" provides more comprehensive information. This report, based on research from Babson College in the United States and the London School of Business, published in the first half of 2017, indicates that Iran achieved a 10th place ranking among the 64 countries studied in terms of entrepreneurial success, with an approximately 80% success rate. However, Iran ranked 15th with a 59.3% rate in terms of recognizing and identifying capacities, while in the field of understanding and discovering entrepreneurial opportunities, Iran ranked 46th with a 34.4% rate. The existing contradictions in various aspects indicate a lack of management of entrepreneurial tools in Iran. Despite a relatively acceptable rank in goal setting, Iran has not achieved an acceptable rank in providing the infrastructure and discovering opportunities for entrepreneurship (Ahmadi et al., 2018; Hamzei Tehrani et al., 2022).

Given the critical role of opportunity recognition in the development of entrepreneurship, it can be stated that one of the main reasons for the reduction in employment in the country and the lack of identification of numerous existing potentials and capabilities is the low capability in recognizing entrepreneurial opportunities. Therefore, the solution to many unemployment crises in the country lies in enhancing individuals' and companies' capabilities to recognize entrepreneurial opportunities (Ahmadi et al., 2018; Ardichvili et al., 2003; Baron, 2007; Baron & Ensley, 2006; Casson & Wadeson, 2007; Goss, 2007; Hamzei Tehrani et al., 2022; Hill & Birkinshaw, 2010; Ozgen &

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Baron, 2007; Zolin & Kropp, 2009). Zolin and Kropp (2019) believe that entrepreneurship is a way of thinking and acting based on opportunity (Zolin & Kropp, 2009). Entrepreneurship leads to the creation, enhancement, and recreation of value for owners and stakeholders, with opportunity recognition being the heart of this process. Overall, the process through which entrepreneurs seek, take hold of, and refine new ideas that lead to business opportunities is called opportunity recognition (Virasa et al., 2022).

Many recent definitions of entrepreneurship focus significantly on opportunity recognition and its predictive factors as the most critical step in the entrepreneurial process (Frese & Gielnik, 2023). Recognizing entrepreneurial opportunities is a relatively new subject that is seen as an effective and sustainable approach to economic and social development in countries, increasingly attracting broader societal attention (Baron, 2007; Baron & Ensley, 2006; Casson & Wadeson, 2007). The importance of recognizing entrepreneurial opportunities lies in finding predictive factors effective in identifying profitable opportunities that can be implemented in most parts of the world (Ahmadi et al., 2018; Hill & Birkinshaw, 2010). Our country is also taking steps toward development and progress, and presenting comprehensive research on the predictive factors of entrepreneurial opportunities in Iran can accelerate the progress. Moreover, Iran, with its rich history in entrepreneurial activities, can activate existing potential capabilities by adopting a new approach in this field.

Frese and Gielnik (2023) examined the psychology of entrepreneurship: action and process. This study reviews entrepreneurial psychology research over the past decade, focusing on two key themes in entrepreneurship research: action and process. By combining action and process in a model of entrepreneurial psychology, they present the entrepreneurial action process theory model as a guiding framework for investigation. They discuss theories of action such as effectuation/causation, bricolage, planned behavior theory, and action theory. Additionally, they adopt a process perspective to discuss the antecedents of actions in terms of cognition, motivation, and emotions and how these develop throughout the entrepreneurial process. The study's findings indicate that the entrepreneurial action process theory model provides a useful starting point for explaining the psychological dynamics of entrepreneurship (Frese & Gielnik, 2023).

Jabeur et al. (2022) investigated predicting macro-level determinants of entrepreneurial opportunities using artificial intelligence models. Using panel data from 149 countries between 2007 and 2018 and six machine learning models, their findings revealed that entrepreneurs prefer to seize opportunities in countries with stable economic governance, high educational standards, health, social capital, and a safe and natural environment (Jabeur et al., 2022).

Doanh (2021) explored the role of contextual factors in predicting entrepreneurial intent among Vietnamese students. This quantitative study used meta-analysis and structural equation modeling (SEM) with a sample of 2,218 final-year students from fourteen universities in two main regions of Vietnam, selected through stratified random sampling. The results indicated that social capital had no direct relationship with entrepreneurial intent but had an indirect and significant impact through attitudes towards entrepreneurship, perceived behavioral control, and entrepreneurial self-efficacy. Additionally, the regulatory dimension negatively influenced entrepreneurial intent, while the normative dimension positively enhanced this intent. University education impacted entrepreneurial intent both directly and indirectly through the antecedents of the planned behavior theory (Doanh, 2021).

Bazkiaei et al. (2020) conducted a study titled "Does Entrepreneurship Education and the Big Five Personality Traits Predict Entrepreneurial Intent among University Students?" Using a quantitative approach, they collected data from 165 respondents via a questionnaire. Structural equation modeling (SEM) and path analysis using AMOS 24 were performed. The results showed that attitudes towards entrepreneurship mediated the relationship between entrepreneurship education, the Big Five personality traits, and entrepreneurial intent. Entrepreneurship education and the Big Five personality traits themselves influenced entrepreneurial intent (Bazkiaei et al., 2020).

Hamzei Tehrani et al. (2022) conducted a qualitative study on designing a network of themes for recognizing entrepreneurial opportunities in the medical tourism sector. This developmental-applied research utilized field methods and thematic analysis for data analysis. Using purposive and snowball sampling, 15 entrepreneurs and experts in the medical tourism sector were selected for interviews. After data analysis, 44 basic themes were identified, organized into five themes: opportunity typology, business environment, technology, individual factors, and environmental factors, and the theme network was presented based on the findings (Hamzei Tehrani et al., 2022).

Zivdar (2019) examined the concept of opportunity in a study titled "Entrepreneurial Opportunities: Patterns and

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Approaches, Assumptions and Perspectives." This study, referencing definitions and the central role of opportunity in the scientific literature on entrepreneurship, reviewed the perspectives of prominent scholars in economics and entrepreneurship. The study concluded that the economic supply and demand approach, based on philosophical assumptions and goal-instrument frameworks, forms three main patterns of entrepreneurial opportunity recognition: allocation, discovery, and creation (Zivdar, 2020).

Ahmadi et al. (2018) identified entrepreneurial opportunities in social sciences and explained the sociological factors affecting the exploitation of opportunities in Iran using both qualitative and quantitative methods. In the qualitative framework, experienced social science professors and experts were identified, and after in-depth interviews, some of the most important entrepreneurial opportunities in social sciences in Iran were recognized. Subsequently, a quantitative survey method was conducted. The statistical population included PhD sociology students nationwide, with 121 randomly selected individuals. Research instruments for measuring variables included researcher-made questionnaires, validated through content and construct validity, and reliability assessed by Cronbach's alpha. Findings indicated that cultural capital and entrepreneurial spirit significantly influenced the exploitation of entrepreneurial opportunities with coefficients of 0.54 and 0.36, respectively, whereas economic capital had no significant effect. The multiple correlation coefficient of the structural equation model indicated that independent variables could explain 33% of the changes in the exploitation of entrepreneurial opportunities (Ahmadi et al., 2018).

A comprehensive review of studies in the field of entrepreneurial opportunities has shown that despite the importance of identifying entrepreneurial opportunities, limited quantitative and empirical research has been conducted on it as a business concept. Furthermore, no research has been conducted in our country on designing a model of predictive factors for entrepreneurial opportunities. Therefore, more research is needed on this subject to gain a better understanding of the predictive factors of entrepreneurial opportunities. This motivated the researcher to explore the predictive factors of entrepreneurial opportunities by acquiring sufficient knowledge and leveraging the expertise and experiences of academic experts and company managers, aiming to identify the dimensions, indicators, and a comprehensive model for the predictive factors of entrepreneurial opportunities, and to address the key question: what is the model of predictive factors for entrepreneurial opportunities?

2 Methods and Materials

This mixed-method research, based on the principles of pragmatism, is exploratory in orientation and developmental-applied in purpose. The research strategy in the qualitative phase employs grounded theory according to Strauss and Corbin, while the quantitative phase utilizes structural equation modeling (SEM). To validate the qualitative findings and examine the validity of the conceptual model derived from coding stages, expert confirmation was used. The expert panel members were selected using a combination of judgmental and snowball sampling, considering criteria such as faculty membership or at least five years of management or entrepreneurial experience. The designed model was reviewed and confirmed by 10 experts. In the quantitative phase, data were collected using a researcher-made questionnaire with 81 questions, distributed among 148 senior and mid-level managers of international companies selected through convenience sampling. The reliability of the questionnaire was confirmed using composite reliability and Cronbach's alpha, and its validity was assessed and confirmed using convergent and divergent validity. Data analysis in the quantitative phase was performed using Smart PLS3 software.

3 Findings and Results

In the qualitative phase, the research data were analyzed using the grounded theory method based on Strauss and Corbin's three-stage approach (open coding, axial coding, selective coding).

Open Coding: At this stage, initial concepts were extracted from the raw data. Although deriving concepts from data is a key feature of the grounded theory strategy, the researcher's creativity is also an essential part of this strategy. As a result of open coding the texts used, 305 initial concepts were extracted. Among these, 281 concepts were derived from interviews and 24 concepts from past articles and research. In the second stage of open coding, by categorizing concepts with semantic proximity, 69 subcategories emerged.

Axial Coding: This is the second step in data analysis in the grounded theory method. The purpose of this step is to establish relationships between the categories identified in the previous stage. Axial coding focuses on placing one

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category as the central category and then relating other categories as subcategories to it. After determining the central category, by re-coding the data, various conditions affecting the central category, including causal, contextual, intervening conditions, strategies, outcomes, and results derived from them, are identified. Therefore, during axial coding, the categories identified in open coding are placed into six groups: central category, contextual conditions, causal conditions, intervening conditions, strategies, and outcomes.

Table 1

Main and Subcategories Derived from Axial Coding

Framework Elements	Main Categories	Subcategories	Number of Concepts
Central Phenomenon	Internal Factors	Innovation, Creativity, Individual Factors	35
	External Factors	Entrepreneurial Alertness, Systematic Search	
Causal Conditions	Unexpected Events	Unexpected Success, Unexpected Failure	31
	Industry and Market Structure Changes	-	
	Method-Based Deficiency	-	
	Contradictory Situation	-	
	Value and Cognition-Based Changes	-	
	New Knowledge	Scientific Knowledge, Non-scientific Knowledge	
	Demographic Characteristics	Societal Changes	
Contextual Conditions	Capital	Financial Factors, Time Scale, Commercial Feasibility	73
	Corporate Factors	Corporate Capabilities, Team Effectiveness, Employee Capabilities	
	Social Learning	Learning, Ethics, Incremental Learning	
	Information Collection and Study	Information Collection, Database	
	Individual Characteristics	Cognitive Activities, Prior Knowledge	
	Social Factors	Social Network, Information Flows, Education and Mentorship	
Intervening Conditions	Strengthening Factors	Environmental Factors, Personality Traits, Driving Forces, Intellectual Capital, Inherent Patterns	65
	Weakening Factors	Economic Factors, Errors	
Strategies	Organizational Strategies	Firm Knowledge Base, Creation of Social Networks	70
	Market-Related Strategies	Market Knowledge Acquisition, Intellectual Property, Unique Information Acquisition	
	Business Strategies	-	
	Effective Performance Management	Evaluation Process, Evaluation Domains	
Outcomes	Financial and Tangible	Growth, Profitability, Liquidity, Efficiency, Revenue	31
	Non-financial and Intangible	Customer Orientation, Employee Orientation, Competition Orientation, Strategic Collaboration	

Selective Coding: At this stage of coding, a theory is derived from the relationships between the categories present in the axial coding model. The research propositions can be presented as follows:

Proposition 1: Unexpected events, industry and market structure changes, method-based deficiencies, contradictory situations, value and cognition-based changes, new knowledge, and demographic characteristics are causal conditions for the realization of the predictive factors model for entrepreneurial opportunities.

Proposition 2: Capital, corporate factors, social learning, information collection and study, individual characteristics, and social factors provide the context and background for the realization of the predictive factors model for entrepreneurial opportunities.

Proposition 3: Environmental factors, personality traits, driving forces, intellectual capital, inherent patterns, economic factors, and errors are intervening conditions of the predictive factors model for entrepreneurial opportunities.

Proposition 4: Organizational strategies, market-related strategies, business strategies, and effective performance management are determined as strategies for the realization of the predictive factors model for entrepreneurial opportunities.

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Proposition 5: Financial and tangible and non-financial and intangible outcomes are considered results and consequences of the predictive factors model for entrepreneurial opportunities.

For validating measurement models, three important indicators—indicator reliability, convergent validity, and divergent validity—are used. Indicator reliability is measured using two criteria: Cronbach's alpha and composite reliability (CR). A value greater than 0.7 indicates suitable reliability of the measurement tool. Convergent validity is assessed using the AVE criterion, which indicates the correlation of a construct with its indicators. The higher the AVE value, the better the model fit. The conditions for convergent validity are summarized as follows:

$$CR \geq 0.7, CR \geq AVE, AVE \geq 0.5$$

The coefficients obtained from calculating Cronbach's alpha, composite reliability, and convergent validity are shown in Table 2.

Table 2

Results of Measurement Model Test

Construct	Cronbach's Alpha	Composite Reliability	Average Variance Extracted	CR ≥ AVE
Causal Factors	0.89	0.72	0.57	✓
Central Phenomenon	0.91	0.72	0.58	✓
Contextual Factors	0.78	0.75	0.63	✓
Intervening Factors	0.80	0.73	0.69	✓
Strategies	0.75	0.72	0.68	✓
Outcomes	0.73	0.73	0.53	✓

Divergent validity is acceptable when the square root of AVE for each construct is greater than the shared variance between that construct and other constructs (the correlation coefficient between the construct in question and other constructs) in the model. The results in Table 3 confirm the existence of divergent validity between the constructs in the designed model.

Table 3

Results of Divergent Validity Test Using Fornell and Larcker Method

Index	Causal Factors	Central Phenomenon	Contextual Factors	Intervening Factors	Strategies	Outcomes
Strategies	0.615	-	-	-	-	-
Contextual Factors	0.514	0.575	-	-	-	-
Causal Factors	0.535	0.538	0.522	-	-	-
Intervening Factors	0.588	0.502	0.426	0.536	-	-
Central Phenomenon	0.302	0.403	0.377	0.458	0.761	-
Outcomes	0.446	0.435	0.467	0.522	0.344	0.731

In the structural model fit section, criteria such as t significance coefficients, R^2 coefficient, and overall model fit (GOF) are examined. As shown in Figure 1, the absolute values of the significance coefficients of all variables and their dimensions are greater than 1.96, indicating the confirmation of the relationships between the variables in the structural model at a 95% confidence level.

R^2 is an indicator that represents the extent to which changes in each dependent variable of the model are explained by the independent variables. The R^2 value is only provided for endogenous variables in the model, and for exogenous constructs, its value is zero. The higher the R^2 value for the endogenous constructs, the better the model fit. Chin and Tsang introduced values of 0.19, 0.33, and 0.67 as benchmarks for weak, moderate, and strong R^2 values. Given the existence of three endogenous variables in the designed model as the central phenomenon, strategies, and outcomes, the coefficients for each were obtained as 0.44, 0.57, and 0.40, respectively, indicating moderate to strong predictions of the endogenous variables by the exogenous variables in the model. The most important fit index in the partial least squares method is the GOF index. This index is calculated using the geometric mean of R^2 and the average of communalities. Values of 0.01, 0.25, and 0.36 are considered weak, moderate, and strong values, respectively.

By calculating the average AVE and R^2 values as 0.61 and 0.47 and substituting them into the formula, the overall

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model fit based on the GOF index was obtained as 0.53, indicating a strong fit of the model with the collected data.

After confirming the fit of the measurement and structural models, the hypotheses based on the research propositions were tested using path coefficients. The path coefficient indicates the existence of a linear causal relationship and the strength and direction of this relationship between two latent variables.

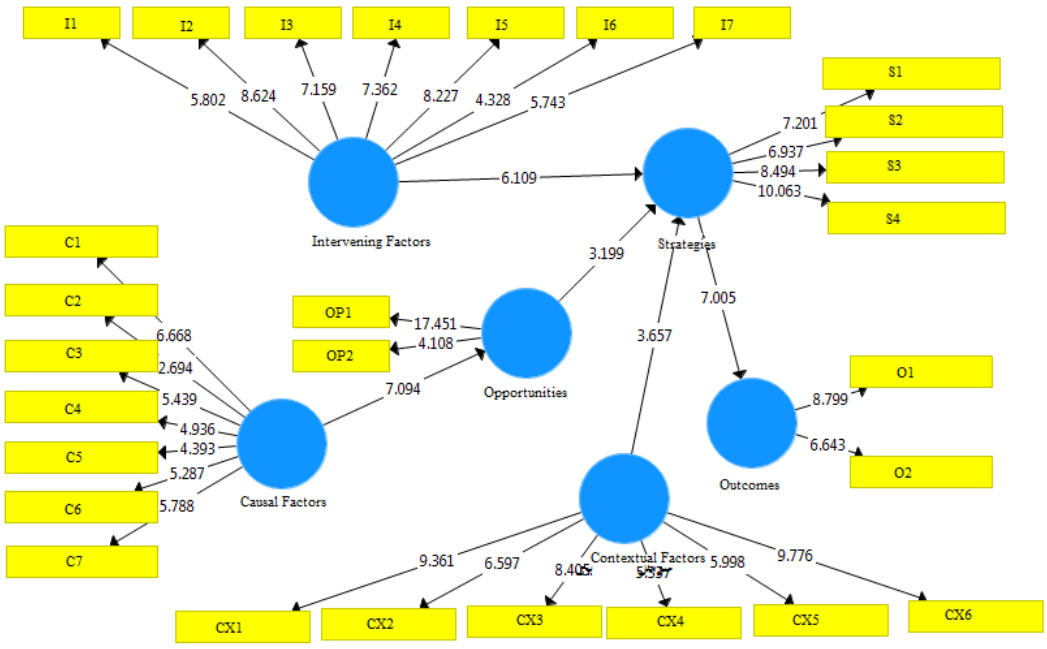
Table 4

Results of Hypothesis Testing

No.	Hypothesis	Path Coefficient	t Statistic	Result
1	Causal factors (unexpected events, industry and market structure changes, method-based deficiencies, contradictory situations, value and cognition-based changes, new knowledge, and demographic characteristics) influence entrepreneurial opportunities in international companies.	0.68	7.09	Confirmed
2	Entrepreneurial opportunities influence the strategies of the predictive factors model for entrepreneurial opportunities in international companies.	0.43	3.199	Confirmed
3	Contextual factors (capital, corporate factors, social learning, information collection and study, individual characteristics, and social factors) influence the strategies of the predictive factors model for entrepreneurial opportunities in international companies.	0.55	3.657	Confirmed
4	Intervening factors (environmental factors, personality traits, driving forces, intellectual capital, inherent patterns, economic factors, and errors) influence the strategies of the predictive factors model for entrepreneurial opportunities in international companies.	0.44	6.109	Confirmed
5	The implementation of strategies for establishing predictive factors for entrepreneurial opportunities in international companies influences financial and tangible, as well as non-financial and intangible outcomes.	0.45	7.005	Confirmed

Figure 1

Model with T-Values



4 Discussion and Conclusion

The research aimed to design and explain the model of predictive factors for entrepreneurial opportunities in international companies using the grounded theory method, resulting in the identification of 305 initial concepts, categorized into 69 subcategories and 28 main categories, forming the conceptual model of the research. The first hypothesis, which explored causal conditions as factors influencing the formation of predictive factors for entrepreneurial opportunities, was confirmed with a path coefficient of 0.68 and a significance statistic of 7.09 at a 95% confidence level. Causal conditions, defined as a set of

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events and conditions affecting the central category, were identified in seven main categories: unexpected events, industry and market structure changes, method-based deficiencies, contradictory situations, value and cognition-based changes, new knowledge, and demographic characteristics. Following this result, it can be said that certain events and incidents inherently create new opportunities for entrepreneurship. Therefore, being alert and attentive to such events in the environment, like unexpected events and industry and market structure changes, can provide good opportunities for companies. In this regard, societal change trends are also very important, Furthermore, the placement of unexpected events and new knowledge in causal factors aligns with the prior findings (Jabeur et al., 2022).

The second hypothesis, which posited the impact of entrepreneurial opportunities on strategies, was confirmed with a path coefficient of 0.43 and a significance statistic of 3.199. The positive and significant impact of entrepreneurial opportunities on strategies in the studied community suggests that the successful formulation and implementation of strategies in various domains, such as organizational, market-related, business, and effective performance management, largely depend on the source of the opportunity. Since opportunities either arise from internal factors and individual characteristics or from individuals' alertness to external factors, considering the source of the opportunity allows for the design and execution of more effective strategies.

The third hypothesis, with a path coefficient of 0.55 and a significance statistic of 3.657, confirmed the impact of contextual factors on the strategies of the predictive factors model for entrepreneurial opportunities. Contextual conditions, which provide the space for the implementation and realization of entrepreneurial opportunity recognition, were defined in six main categories: capital, corporate factors, social learning, information collection and study, individual characteristics, and social factors. It can be asserted that no activity in an organization or company will succeed unless the necessary capital and capabilities exist. Regarding capital, consisting of financial factors, time scale, and commercial feasibility, it can be said that capital and its dimensions are among the most important factors in utilizing entrepreneurial opportunities in business. Considering the economically viable period for return on investment and commercial feasibility of investments in different countries will lead to better utilization of opportunities internationally. These results align with Doanh's (2021) findings on social learning and individual characteristics as factors enabling entrepreneurial opportunity recognition (Doanh, 2021).

Intervening conditions, considered as the broader structural context related to the central category, positively and significantly influence the strategies of predictive factors for entrepreneurial opportunities with a path coefficient of 0.44 and a significance statistic of 6.109. Intervening conditions were categorized into strengthening and weakening factors. Strengthening factors included environmental factors, personality traits, driving forces, intellectual capital, and inherent patterns, while weakening factors included economic factors and errors. The environmental and personality traits of managers and employees play a significant role in the success or failure of a company in discovering and exploiting entrepreneurial opportunities. Among these, personality traits are the most important, as discovering and utilizing opportunities always involve risk, and managers' and employees' risk-taking tendencies and achievement orientation are crucial. Hamzei Tehrani et al. (2022) also confirmed personality traits and environmental factors as strengthening factors in recognizing entrepreneurial opportunities in their research (Hamzei Tehrani et al., 2022).

The final hypothesis, which posited the impact of strategies on outcomes and results, was confirmed with a path coefficient of 0.45 and a significance statistic of 7.005 at a 95% confidence level. This means that the successful implementation of entrepreneurial opportunity strategies can lead to financial and tangible outcomes, such as income growth, profit growth, annual sales growth, and sales return, as well as non-financial and intangible outcomes, such as customer satisfaction, increased customer service visits, and increased customer purchases. Customer satisfaction, customer service visits, purchase volume per customer, and customer growth as outcomes of utilizing predictive factors for entrepreneurial opportunities align with the prior findings (Baron, 2007; Baron & Ensley, 2006; Ozgen & Baron, 2007).

Regarding the comparison of research results with the findings of domestic and international studies, it can be stated that focusing on identifying predictive factors for entrepreneurial opportunities as the key responsibility of company managers, especially in international companies, has led to comprehensive attention to discovering entrepreneurial opportunities. In addition to revealing hidden aspects, it has consolidated scattered indices from various studies into a comprehensive and localized model. However, none of the studies on entrepreneurial opportunity

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recognition has separately discussed predictive factors and have generally focused on the role of entrepreneurial opportunities in company progress, leading to generalizations about multiple management activities and responsibilities. Ultimately, the obtained model is more complete and comprehensive compared to other models. The reviewed studies related to designing and explaining the model of predictive factors for entrepreneurial opportunities in international companies using a data-driven approach show that, firstly, the conducted studies have not considered the predictive factors comprehensively, and secondly, they have not been systematically data-driven. That is, they have not addressed all aspects such as social, economic, political, cultural, etc., in designing and modeling predictive factors for entrepreneurial opportunities in international companies with a data-driven approach. In contrast, the present research has addressed all aforementioned aspects and identified indices and components for each, demonstrating the model's comprehensiveness. Overall, the studies conducted in this field somewhat confirm and validate the indices and components derived from this research.

It must be acknowledged that no study or research is without flaws, and there are always limitations that prevent the results from being ideal. This research is no exception and faced some limitations associated with conducting mixed-method studies. The researcher's theoretical perspective in categorizing qualitative data and the involvement of the researcher's mindset, experience, and knowledge in classifying and naming categories was one of the limitations of this research. Efforts were made to minimize this limitation by having qualitative data analyzed by evaluators outside the research.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

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