Providing a Model for Entrepreneurship Development with an Industrial Employment Approach for Graduates of Islamic Azad University, Yazd Province Branches

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Abstract: The present study is an applied research in terms of purpose and a descriptive research in terms of data collection method. The statistical population of this research consists of experienced managers and experts in the field of entrepreneurship development and entrepreneurship graduates. The qualitative section includes theoretical experts and practical experts. The theoretical experts include university professors in the field of entrepreneurship management. The practical experts include employment and entrepreneurship managers from the Technical and Vocational Training Organization of Yazd Province across various departments. A purposive sampling method was used to select experts for interviews, and interviews continued until theoretical saturation was reached, ultimately incorporating the perspectives of 16 individuals. Finally, experts were also used to evaluate the model fit and validate it using the Partial Least Squares (PLS) method. The statistical population in the quantitative section includes graduates from Islamic Azad University, Yazd Province branches. Since the number of professional individuals in the quantitative section is unlimited, Cochran's formula for an unlimited population was used, resulting in a sample size of 384 individuals. Library research was used to collect information on the literature and research background. To collect information for identifying indicators in the qualitative section, field methods using library studies and interviews were employed. Additionally, in the quantitative section, field methods using a questionnaire tool were employed for data collection. A total of 400 questionnaires were distributed, of which 389 were used. Qualitative data content analysis was conducted using meta-synthesis through MAXQDA software to combine studies derived from a systematic review on the subject of this research. The Fuzzy Delphi technique was used to screen identified indicators and select key indicators. The Interpretive Structural Modeling (ISM) technique was employed to determine suitable activities for public sector companies, rank their importance, and identify relationships between indicators. Finally, Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to test the measurement model and research hypotheses. According to the results, five main indicators were identified. The main indicators include infrastructure and support, education and culture, policymaking and planning, integrated management, and the integration of technology and knowledge. Based on interpretive structural analysis, a four-level model was obtained. Infrastructure and support play a crucial role in strengthening and developing entrepreneurship education and culture in the entrepreneurship development model with an industrial employment approach for

graduates of Islamic Azad University, Yazd Province branches. Additionally, based on the obtained results, the proposed model was shown to have a good fit using the Partial Least Squares Structural Equation Modeling method.

Keywords: Entrepreneurship, Industrial Employment, Islamic Azad University Yazd.

1. Introduction

In recent years, despite efforts aimed at entrepreneurship development, significant and sustainable growth in the development of entrepreneurship and small and medium-sized enterprises (SMEs) has not been observed in the country. Unfortunately, many entrepreneurs in Iran face obstacles such as changing government policies and the implementation of arbitrary policies, an unhealthy business environment, instability among managers and state employers, inappropriate and non-supportive regulations, lack of environmental certainty, absence of commercial infrastructure, lack of social and cultural norms supporting entrepreneurship, an unsuitable market, and high interest rates on bank loans, which have created an unfavorable business environment for them. These challenges have led many potential entrepreneurs to refrain from starting their businesses, while those who do often cease operations midway or ultimately abandon their entrepreneurial ventures [1].

As a result, only 10% of entrepreneurs in Iran succeed in starting their businesses, while the remaining 90% are halted during the startup phase. Overall, the social, political, economic, and cultural environment of contemporary Iranian society does not motivate individuals toward entrepreneurship [2]. Therefore, the question arises as to why, despite the efforts of national authorities and the emphasis of the country's economic development programs on privatization and entrepreneurship development, significant progress is still not observed [3]. Creating an enabling and nurturing environment, relying on formal and informal education systems, cultural promotion, incentives, role models, and specialized and psychological support networks, can influence the cultivation of entrepreneurial individuals in society who are capable of recognizing opportunities and leveraging them to create value.

Entrepreneurship development affects every country's growth, recognized through the mutual dependencies between economic growth and institutions, which also influence other characteristics such as governance quality, access to capital and other resources, and entrepreneurs' perceptions [4]. Entrepreneurship development serves as a primary tool for economic growth, impacting it through various mechanisms, including knowledge dissemination, creativity, innovation, increased competition, and product and service diversification available to society. Additionally, entrepreneurship development, through mechanisms such as job creation, the introduction of innovations across various domains, and the enhancement of economic productivity, contributes to the accumulation of human knowledge through the emergence of new innovations and the identification of consumer preferences by offering a wide range of products [5].

Entrepreneurs are considered pivotal catalysts in the modernization of societies. In seeking to identify the characteristic traits of those leading economic development, efforts are made to understand their motivations and aspirations. Political scientists regard entrepreneurs as impartial offspring of the political system who need substantial support to emerge and thrive within society. Several mechanisms through which entrepreneurship positively affects economic growth have been identified [6].

The economic structure of industrial employment in today's world differs fundamentally from the past. The hardware indicators and tangible assets that once played a decisive role in a business entity have been replaced by

innovation, invention, the creation of new products, and software assets [7]. While the wealthiest individuals in the past were those with greater financial resources, such as the Rockefellers, today's wealthiest individuals are knowledge-based entrepreneurs like Bill Gates, the founder of Microsoft in the United States. Thus, the economic development and industrial employment of today's world are founded on innovation, creativity, and the utilization of knowledge, accompanied by entrepreneurship development.

The production, utilization, and dissemination of knowledge across social domains create capability and power within society. Countries that account for a significant portion of knowledge production are industrially developed and possess high economic and political power. It is evident that knowledge production is achieved through research [8]. There is a direct relationship between investment in research, knowledge production, and the economic and political capabilities of countries. The application of knowledge and management in any society serves as the foundation for innovation and creativity. Therefore, economic growth in today's world necessitates the development of centers for knowledge production, technology, and technical skills, with industrial employment in research centers being paramount [9].

Industrial employment and research centers, as essential pillars of comprehensive national development, must be supported in every aspect, and researchers and academics should hold a distinguished status to comfortably nurture young, knowledge-seeking individuals into thoughtful, innovative, and creative citizens [10].

Various studies have addressed entrepreneurship development and employment challenges, underscoring factors such as skill frameworks, access to finance, and university-based ecosystems. For instance, Sunday et al. (2024) emphasized that practical, discipline-based entrepreneurial skill frameworks enhance youth employability in Nigeria [11], while Shahriar et al. (2024) showed how financial access and practical entrepreneurship programs significantly boost students' entrepreneurial intentions in Bangladesh [12]. Abreu and Grinevich (2024) highlighted the entrepreneurial university's multifaceted missions—research, teaching, commercialization, and civic engagement—in response to external pressures [13], and Bradales et al. (2024) concluded that strengthening students' entrepreneurial skills meaningfully fosters local economic development through supportive educational approaches, financial backing, and targeted policies [14]. Along similar lines, Ayala et al. (2024) found that introducing entrepreneurial ecosystem elements within universities in emerging economies increases the likelihood of venture creation before graduation [15], and Zhu et al. (2022) revealed that students who receive entrepreneurship education amid the unstable post-COVID-19 labor market tend to persist in entrepreneurial endeavors, especially when supported by a conducive local environment [16]. Turning to research conducted in Iran, Abdi et al. (2024) demonstrated a positive, significant impact of entrepreneurial development components on preventing environmental damage in the national petroleum refining industry [17], whereas Masoudi and Asgari (2024) reported that positive GDP shocks increase industrial entrepreneurship, in contrast to inflation and unemployment shocks [18]. Jalilian et al. (2023) proposed an entrepreneurship ecosystem model based on employability capabilities for knowledge-based firms in Tehran's science and technology park, showing that human, financial, market, cultural, political, and supportive capital each contain various subsystems [19]. Yazdani et al. (2023) reviewed entrepreneurship approaches in employment programs of Iran's fourth and fifth development plans, uncovering relatively high realization rates in areas such as strategy, resources, management structure, reward systems, growth structure, and entrepreneurial culture [20]. Likewise, Birnk and Yalpanyan (2022) identified a cohesive entrepreneurial education system, entrepreneurial leadership, university vision, graduate employability, a culture of entrepreneurship, and innovative research as central to developing entrepreneurship with a graduate-employment focus [21]. In a similar vein, Abbasnejad et al. (2020) confirmed that

factors including integrated entrepreneurial education systems, entrepreneurial leadership, university entrepreneurial vision, graduate employability, entrepreneurial culture, and individual entrepreneurial traits positively influence graduate entrepreneurship development [22], with an earlier study by Abbasnejad et al. (2019) revealing that all research variables possessed suitable validity and highlighting the need for managers to establish adequate educational infrastructures [23].

This study explores entrepreneurial development enterprises, including innovative, learning-oriented individuals and industrial employment. Science and technology parks, capable of providing incubation services to entrepreneurs and idea owners, must be established in suitable locations across the country. These parks support entrepreneurs while reducing the costs of establishing SMEs. In constructing such facilities, leveraging the experiences of other countries and existing domestic experiences is essential. Industrial management employment, with over 50 years of active presence in the country's economic and social landscape and substantial efforts in educational, advisory, and research domains, commits to supporting entrepreneurship development, management capacity building, organizational transformation, and achieving national economic and social development goals through consulting, education, and research. It strives to assist business leaders of all scales in preparing for future challenges. Furthermore, it aids national enterprises in adopting suitable strategies for designing and implementing effective changes to enhance performance and productivity in entrepreneurship development. It also provides the theoretical knowledge and essential skills required by organizational leaders and managers for entrepreneurship development, while supporting managers and policymakers in identifying challenges and selecting strategies through consulting and research. Given that this study investigates the impact of entrepreneurship development and industrial employment among graduates and recognizing the existing research gaps on this subject, the main research question is: What are the indicators of entrepreneurship development with an industrial employment approach, and what is the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches?

2. Methodology

The present study is considered an applied research in terms of its objective and a descriptive research in terms of data collection method. The research method is inductive, where theoretical foundations and research background were collected through library studies, articles, and the internet. Inductive reasoning was employed to generalize the results by using appropriate statistical methods to either reject or confirm the research hypotheses. Therefore, the research was conducted within the framework of deductive-inductive reasoning.

The statistical population in the qualitative section includes theoretical experts and practical experts. Theoretical experts comprise university professors in the field of entrepreneurship management, while practical experts include managers in the employment and entrepreneurship sectors of the Technical and Vocational Training Organization of Yazd Province across various departments. In qualitative methods, purposive sampling, which is a non-probability sampling method, was used. This method involves the deliberate selection of research units to gain knowledge or information. This type of sampling does not aim to establish fixed laws or generalize results but seeks to better understand each phenomenon within its specific context. The three main types of purposive sampling include sampling for representativeness or comparability, sampling of unique or special cases, and sequential sampling. Data saturation is considered the gold standard for ending sampling in qualitative research. After defining the experts and conducting interviews, the selection of experts continued until ten interviews were completed. If the analysis results were insufficient, additional interviews would be conducted.

Purposive sampling was used to select experts for interviews, and interviews continued until data saturation was achieved, ultimately incorporating the perspectives of 16 individuals. Finally, experts were also utilized to assess model fit and validate it using the Partial Least Squares (PLS) method.

The statistical population in the quantitative section includes graduates from Islamic Azad University, Yazd Province branches. Quantitative analysis methods in the present study are based on multi-criteria decision-making. Multi-criteria decision-making questionnaires are generally referred to as expert questionnaires because the respondents are experts, managers, and academics with expertise in the subject matter, inherently limiting the pool of qualified respondents. In the final quantitative section of the study, due to the use of interpretive structural modeling (ISM) and operations research approaches, the population under study consists of graduates from Islamic Azad University, Yazd Province branches. Given that the number of professionals in the quantitative section is unlimited, Cochran's formula for an unlimited population was used, resulting in a sample size of 384 individuals.

The data collection methods in this study are divided into two categories: library and field methods. Library research was used to collect information on the literature and research background. Field methods, aided by library studies and interviews, were employed to collect information for identifying indicators in the qualitative section, yielding acceptable and impactful results in identifying the components. In the quantitative section, field methods using questionnaires were employed for data collection. To study theoretical topics related to the research subject and review the literature and research background, written sources including specialized books on entrepreneurship development with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, and related research articles were utilized.

Interviews with several experts were conducted to gain familiarity, awareness, and understanding of the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, and to ensure greater coordination and identification of research variables. This method yielded acceptable and impactful results in identifying the components. In the quantitative phase, data collection was carried out using questionnaires. Questionnaire 1 was used to collect data for testing the main research hypotheses. Questionnaire 2, the Fuzzy Delphi questionnaire, was employed to identify and screen the identified indicators. Questionnaire 3 was used in the interpretive structural modeling phase, and Questionnaire 4 was related to the structural equation modeling technique. The questionnaires were distributed electronically via a link, with 400 questionnaires distributed and 389 completed questionnaires used for analysis.

Validity and reliability are criteria used to evaluate research quality in the conventional positivist research paradigm. In this study, the main technique for ensuring reliability and confirmability was through auditing the research processes and findings. Reliability was established by examining the consistency of research processes, while confirmability was ensured by assessing the internal coherence of the research output, including data, findings, interpretations, and recommendations. Elements used in these audits included raw data, field notes, theoretical memos, coding guides, process notes, and more. The auditing process was carried out in five stages: pre-registration, determination of auditability, formal agreement, reliability and confirmability, and negotiations.

Qualitative data content analysis was conducted using meta-synthesis through MAXQDA software to combine studies derived from a systematic review on the subject of this research. The Fuzzy Delphi technique was used to screen identified indicators and select key indicators. The Interpretive Structural Modeling (ISM) technique was employed to determine suitable activities for public sector companies, rank their importance, and identify relationships between indicators. Finally, Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to test the measurement model and research hypotheses.

3. Findings and Results

In the present study, in the first step, the dimensions of entrepreneurship development with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, were identified using the meta-synthesis method. To achieve this objective, the meta-synthesis method following the Sandelowski and Barroso (2007) model was employed. From the extracted indicators from related articles, after eliminating synonymous and frequently repeated indicators, and finally categorizing the final indicators, 12 categories and 64 codes were obtained. At this stage of coding, the main and sub-categories of the research were identified. After identifying the research indicators based on content analysis and determining the units of analysis (words and themes), Shannon's entropy method was used for data analysis. Therefore, in the first step, the decision matrix was formed. The scores obtained from the decision matrix regarding the subject under study are presented in the table below:

Table 1. Determining the Importance and Emphasis of Previous Research

Code	Frequency	∑P_ij×lnP_ij	Uncertainty Ej	Importance Coefficient Wj	Rank
Industrial entrepreneurship vision in the country	4	-4.63957	-0.04483	0.010378	27
Creating new entrepreneurship platforms in industry	10	-3.72328	-0.08993	0.020821	7
Access to physical communication infrastructure	4	-4.63957	-0.04483	0.010378	27
Access to ICT infrastructure	3	-4.92725	-0.0357	0.008266	61
Access to skilled and semi-skilled labor	5	-4.41643	-0.05334	0.012349	20
Availability of sufficient hardware and software facilities	3	-4.92725	-0.0357	0.008266	61
Availability of opportunities for industrial entrepreneurship development	11	-3.62797	-0.0964	0.022317	5
Government support services for industrial entrepreneurship	2	-5.33272	-0.02576	0.005964	78
Financial and moral support for entrepreneurial and innovative centers	7	-4.07996	-0.06898	0.015971	14
Allocation of necessary funds to research institutes	14	-3.38681	-0.11453	0.026515	2
Technology-based industry businesses	10	-3.72328	-0.08993	0.020821	7
Science and technology parks	14	-3.38681	-0.11453	0.026515	2
Focus on accelerators in promoting entrepreneurship	4	-4.63957	-0.04483	0.010378	27
Utilization of technical knowledge	4	-4.63957	-0.04483	0.010378	27
Establishing technology-based startups in industry	11	-3.62797	-0.0964	0.022317	5
Focus on artificial intelligence	14	-3.38681	-0.11453	0.026515	2
Innovation infrastructure in information security	15	-3.31782	-0.12021	0.027831	1
Focus on blockchain and cryptocurrencies	5	-4.41643	-0.05334	0.012349	20
Technology-based industrial products	4	-4.63957	-0.04483	0.010378	27
Entrepreneurial industrial universities	4	-4.63957	-0.04483	0.010378	27
Industrial entrepreneurship value network	4	-4.63957	-0.04483	0.010378	27
Industry-based knowledge	4	-4.63957	-0.04483	0.010378	27
Industrial entrepreneurship transfer and commercialization	6	-4.23411	-0.06136	0.014207	15
Market feasibility in industrial potentials	4	-4.63957	-0.04483	0.010378	27
Business expansion fields	4	-4.63957	-0.04483	0.010378	27
University-industry interactions	5	-4.41643	-0.05334	0.012349	20
Focus on social issues	10	-3.72328	-0.08993	0.020821	7
Accurate planning	4	-4.63957	-0.04483	0.010378	27
Management's attitude towards industrial technologies	4	-4.63957	-0.04483	0.010378	27
Prioritizing industrial entrepreneurship	4	-4.63957	-0.04483	0.010378	27
Core competencies	8	-3.94642	-0.07626	0.017655	12
Motivation and enthusiasm in industrial businesses	4	-4.63957	-0.04483	0.010378	27

Utilizing experienced managers with innovation and entrepreneurial spirit	6	-4.23411	-0.06136	0.014207	15
Implementing innovative management systems	3	-4.92725	-0.0357	0.008266	61
Avoiding traditional and non-practical education	3	-4.92725	-0.0357	0.008266	61
Teaching new industry-based skills in universities	5	-4.41643	-0.05334	0.012349	20
Alignment of industry education programs with labor market needs	4	-4.63957	-0.04483	0.010378	27
Problem-based industry courses and applied research projects	4	-4.63957	-0.04483	0.010378	27
Fostering creativity and innovation in students	8	-3.94642	-0.07626	0.017655	12
Availability of proper advisory services	2	-5.33272	-0.02576	0.005964	78
Emphasis on industrial internships and apprenticeships	4	-4.63957	-0.04483	0.010378	27
Cultural alignment between industrial entrepreneurship and specialized universities	3	-4.92725	-0.0357	0.008266	61
Similar motivations in industry and business sectors	4	-4.63957	-0.04483	0.010378	27
Scientific and research publications in industry	3	-4.92725	-0.0357	0.008266	61
Promoting research culture and inspiring industrial environments	3	-4.92725	-0.0357	0.008266	61
Encouraging industrial entrepreneurship motivation in students	4	-4.63957	-0.04483	0.010378	27
Promoting self-employment culture among industrial students	2	-5.33272	-0.02576	0.005964	78
Media, social norms, and industrial success stories	4	-4.63957	-0.04483	0.010378	27
Holding scientific conferences, seminars, and forums	2	-5.33272	-0.02576	0.005964	78
Supportive entrepreneurship culture in universities	3	-4.92725	-0.0357	0.008266	61
Trust between universities and industry for entrepreneurship development	4	-4.63957	-0.04483	0.010378	27
Existence of scientific and research centers for entrepreneurship	4	-4.63957	-0.04483	0.010378	27
Production, transfer, and transparent sharing of industry knowledge	6	-4.23411	-0.06136	0.014207	15
Conducting fundamental and applied research in entrepreneurship	3	-4.92725	-0.0357	0.008266	61
Collaborations with industries, associations, and national and international unions	2	-5.33272	-0.02576	0.005964	78
Technology transfer and commercialization	4	-4.63957	-0.04483	0.010378	27
Focus on invention and patenting	3	-4.92725	-0.0357	0.008266	61
Establishing industrial entrepreneurship fairs in universities	3	-4.92725	-0.0357	0.008266	61
Strong understanding of industry needs by entrepreneurs	4	-4.63957	-0.04483	0.010378	27
Emphasis on entrepreneurship in national policy-making	2	-5.33272	-0.02576	0.005964	78
Adoption of suitable and practical government programs for policy implementation	3	-4.92725	-0.0357	0.008266	61
Adequate insurance and welfare coverage	3	-4.92725	-0.0357	0.008266	61
Stability of managers and state employers	4	-4.63957	-0.04483	0.010378	27

To provide a model for entrepreneurship development with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, the interpretive structural modeling (ISM) method was employed. Based on ISM calculations, it was determined that infrastructure and support (C1) are independent exogenous variables that are not influenced by any other variable in the model. This variable is the most influential in the model, directly affecting education and culture (C2) and policymaking and planning (C3). Subsequently, these variables influence integrated management (C4). Ultimately, "integration of technology and knowledge" is achieved.

To describe the main research variables, indicators such as mean, standard deviation, and others were used. These indicators are presented in Table 2. Descriptive statistics, including mean, standard deviation, variance, skewness, and kurtosis, were used to examine the status of the research variables. The obtained means indicate that the "high" option was the most frequently selected among respondents. The highest mean corresponds to the current state of education. Additionally, based on the skewness and kurtosis values, which fall within the range of -2 to 2, the data are symmetric and normally distributed.

Table 2. Descriptive Statistics of Research Variables

Variables	N	Mean	Skewness	Kurtosis	Variance	Min	Max
Infrastructure and Support (C1)	380	3.790	0.766	0.002	0.490	2	5
Education and Culture (C2)	380	3.546	1.461	-0.584	0.446	1.67	5
Policymaking and Planning (C3)	380	4.0842	-0.058	-0.263	0.231	2.67	5
Integrated Management (C4)	380	3.825	-0.216	0.566	0.225	3	5
Integration of Technology and Knowledge (C5)	380	3.6729	-0.496	0.314	0.339	2.75	5

Since PLS analysis is derived from linear regression, the assumptions related to data in regression must also be examined in this approach. Before evaluating structural relationships, collinearity must be assessed to ensure that regression results are not biased. According to the results, the VIF values for the research components were less than 3, indicating no collinearity among the research components.

In the present study, structural equation modeling (SEM) using the partial least squares (PLS) method was employed to test the measurement model and research hypotheses. PLS software is less dependent on sample size, does not require normality of data, and focuses on maximizing variance, making it more suitable for real-world applications compared to LISREL and AMOS software. Each research hypothesis was analyzed separately using the PLS method, and the overall research model was also tested using this method.

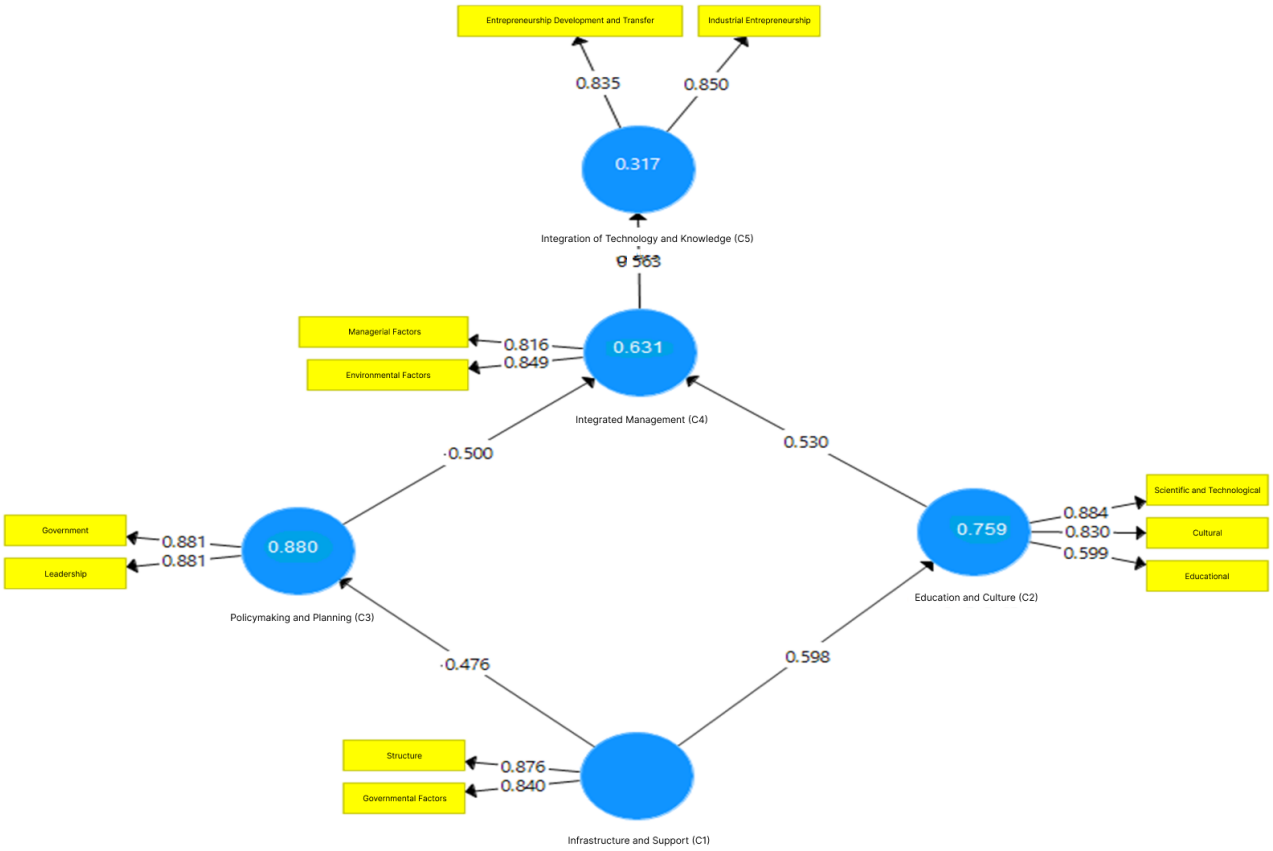

Figure 1. Factor Loadings of the Research Model (Outer Model)

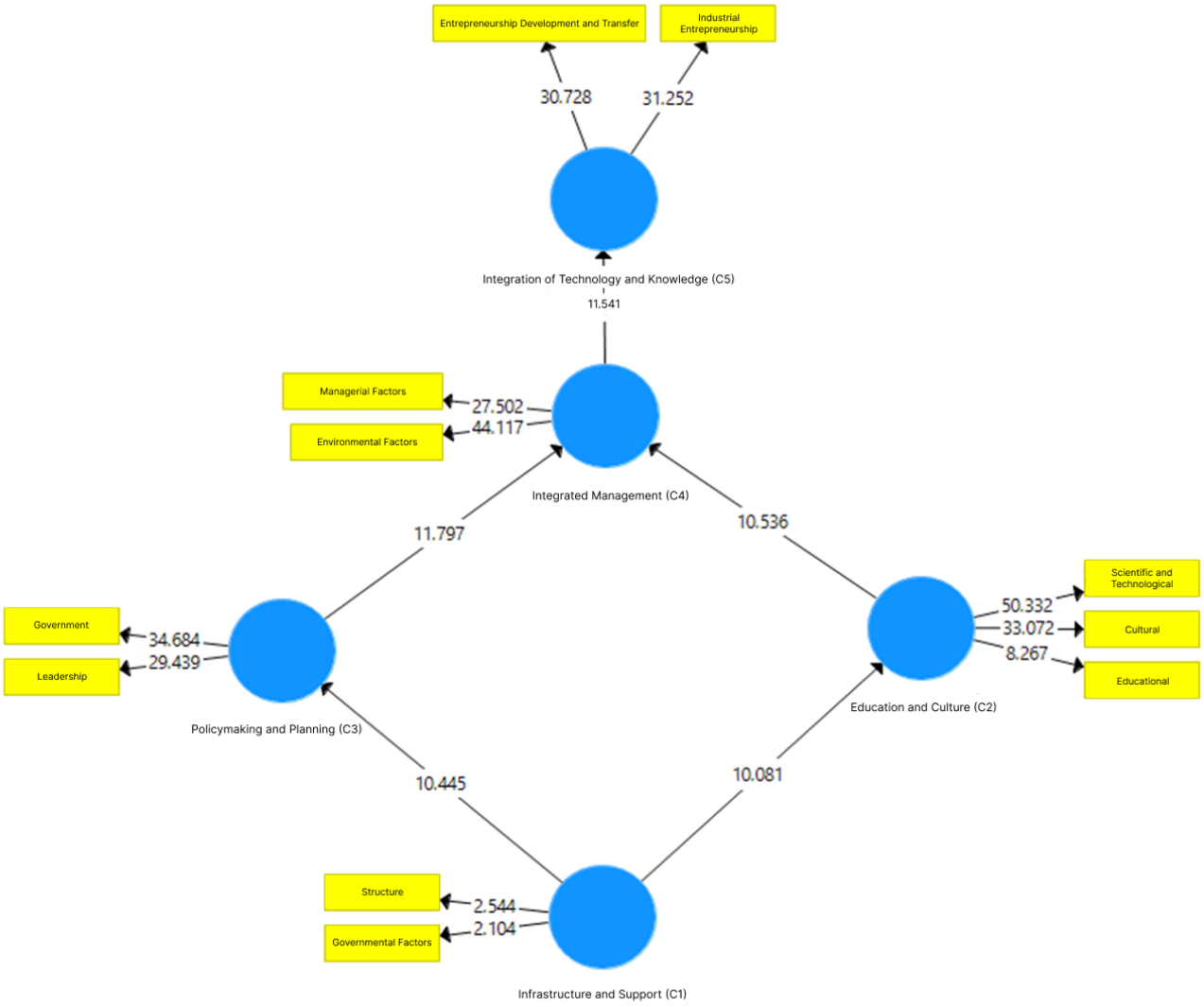

Figure 2. Bootstrapping T-Statistics of the Research Model (Outer Model)

To assess the validity and reliability of the measurement models in partial least squares structural equation modeling, Cronbach's alpha, composite reliability (CR), average variance extracted (AVE), and Fornell-Larcker criterion for discriminant validity were calculated and presented. According to the results in Table 3, Cronbach's alpha values for all variables exceeded 0.7, confirming the reliability of all variables. The AVE values were greater than 0.5, indicating convergent validity. The CR values were higher than both AVE and 0.7, and all constructs exhibited appropriate validity and reliability. Additionally, the Rho coefficient for reliability exceeded 0.7.

Table 3. Convergent Validity and Reliability of Research Variables

Variable	Cronbach's Alpha	AVE	CR	Rho
Infrastructure and Support (C1)	0.761	0.600	0.833	0.781
Education and Culture (C2)	0.736	0.687	0.825	0.744
Policymaking and Planning (C3)	0.769	0.651	0.828	0.769
Integrated Management (C4)	0.793	0.678	0.734	0.731
Integration of Technology and Knowledge (C5)	0.774	0.659	0.833	0.778

Divergent validity is another criterion for evaluating the fit of measurement models, covering the comparison of the correlation between indicators of a construct with that construct versus their correlation with other constructs, as well as the comparison of the correlation of a construct with its indicators versus its correlation with other constructs. As shown in Table 4, the values on the main diagonal of the matrix are greater than all values in their respective columns, indicating that the model has suitable divergent validity. If all values in the columns are less than 0.9, the model exhibits appropriate divergent validity. The main feature of this matrix is that the diagonal value is always one. The values on the main diagonal are then replaced with the square root of the variance extracted (AVE), resulting in Table 4.

Table 4. Fornell-Larcker Criterion

Variable	C1	C2	C3	C4	C5
Infrastructure and Support (C1)	0.774				
Education and Culture (C2)	0.551	0.828			
Policymaking and Planning (C3)	0.478	0.598	0.806		
Integrated Management (C4)	0.418	0.474	0.536	0.823	
Integration of Technology and Knowledge (C5)	0.513	0.509	0.587	0.470	0.811

According to Table 5, since all obtained values are less than 0.9, the HTMT criterion for divergent validity is acceptable.

Table 5. HTMT Criterion Results for Divergent Validity

	C1	C2	C3	C4	C5
Infrastructure and Support (C1)					
Education and Culture (C2)	0.737				
Policymaking and Planning (C3)	0.620	0.797			
Integrated Management (C4)	0.430	0.573	0.711		
Integration of Technology and Knowledge (C5)	0.748	0.684	0.485	0.739	

After ensuring the measurement models' reliability, convergent validity, and divergent validity, the structural model results can be presented. Unlike measurement models, structural models do not focus on the observed variables or questions but rather on the latent variables and the relationships between them. The structural model fit is assessed using criteria such as the coefficient of determination (R^2), effect size (F^2), and predictive relevance (Q^2).

The results indicate that the R^2 values for endogenous constructs in the research model are satisfactory. The coefficient of determination for the dependent components shows that 47% of the changes in the model's variables are explained by the total effects of the independent and dependent variables, which is highly acceptable. Wetzels et al. (2009) introduced 0.01, 0.025, and 0.36 as weak, moderate, and strong GOF values, respectively. Therefore, based on the GOF, the model is also confirmed. The effect size is another structural model fit index applicable to independent exogenous variables. As shown in Table 6, the Q^2 value, which reflects the model's predictive power for endogenous constructs, indicates strong predictive power for the research constructs.

Table 6. Effect Size Criterion (Cohen's Index)

Variables	Q^2	F^2
Infrastructure and Support (C1)	0.628	0.609
Education and Culture (C2)	0.811	0.549
Policymaking and Planning (C3)	0.457	0.487
Integrated Management (C4)	0.738	0.516
Integration of Technology and Knowledge (C5)	0.653	0.773

4. Discussion and Conclusion

Based on the results, using the meta-synthesis technique, five main indicators have been identified. These main indicators include infrastructure and support, education and culture, policymaking and planning, integrated management, and the integration of technology and knowledge. The subcategories of infrastructure and support consist of structure and governmental factors. The university structure in the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, plays a fundamental role in supporting the process of entrepreneurship training and education. By providing appropriate, market-oriented educational programs, the university imparts the knowledge and skills necessary for launching and managing new businesses. Additionally, through close collaboration with industry and the job market via research partnerships and industrial projects, numerous opportunities are created for students and graduates to enhance their practical experiences and applied knowledge. By establishing such relationships and resources, the university can act as a key institution in fostering entrepreneurship and employment in Yazd Province, thereby contributing to the improvement of the local economy and generating local added value.

The structure of governmental factors in the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, plays a significant role in creating suitable environmental conditions for the growth and development of entrepreneurship. Governmental factors can assist entrepreneurs and graduates by providing financial facilities, legal support, implementing appropriate fiscal and taxation policies, offering research and technological opportunities, and facilitating access to local and international markets. If these factors are effectively designed and executed, they can increase job creation and reduce unemployment rates in Yazd Province, ultimately contributing to the region's economic and social development.

The subcomponents of integrating technology and knowledge include the development and transfer of entrepreneurship and industrial entrepreneurship. In the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, the development and transfer of entrepreneurship is of great importance. Entrepreneurship development refers to strengthening and nurturing entrepreneurial capacities among graduates through suitable training, encouraging ideation and innovation, and creating supportive environments. On the other hand, the transfer of entrepreneurship refers to converting graduates' ideas and innovations into practical and profitable businesses by establishing effective connections with industry and the job market, creating support and advisory networks, and providing opportunities for access to financial and technical resources. With extensive collaboration and leveraging the innovative knowledge and expertise of graduates, these two factors can contribute to entrepreneurship development and job creation in various industries in Yazd Province and, overall, add dynamism and economic growth to the region.

Industrial entrepreneurship in the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, serves as a fundamental criterion with a highly significant role. This criterion pertains to the graduates' capability to establish and manage industry-based and production-oriented businesses. Considering the needs of the local and regional market and industry, industrial entrepreneurship enables graduates to transform their innovative ideas into practical projects and subsequently introduce them to the market. This process acts as a bridge between the university and industry, creating new job opportunities, fostering technology and innovation, and increasing production and added value

in various industries. By supporting industrial entrepreneurship, the university can function as the main driver of economic growth and sustainable development in Yazd Province, offering graduates substantial opportunities to launch successful businesses.

The subcomponents of education and culture consist of educational and cultural and scientific and technological dimensions. The educational criterion in the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, serves as one of the core foundations, playing a vital role in equipping and empowering graduates to identify and leverage entrepreneurial opportunities. This criterion encompasses the provision of appropriate educational programs, workshops, practical training courses, and the necessary skills for launching and managing new businesses. Through up-to-date and industry- and market-driven education, the university can transform students into scholars and entrepreneurs capable of creating innovative ideas and implementing them in practice. This process not only increases employment opportunities for graduates but also reinforces the culture of entrepreneurship within society and establishes direct connections with the industry and market to rapidly bring ideas to market and bolster the regional economy.

The cultural criterion in the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, represents one of the key factors, playing an essential role in shaping and strengthening the culture of entrepreneurship and innovation. This criterion encompasses the values, beliefs, motivations, and behaviors promoted within the university community and organizational culture. By fostering environments that encourage ideation, creativity, and risk-taking, the university can help individuals become self-taught, creative entrepreneurs. Entrepreneurship culture at the university includes offering educational and advisory opportunities, encouraging interdisciplinary and inter-institutional collaborations, and creating communication networks with industry and the job market. These efforts heighten awareness and facilitate access to the necessary resources and opportunities for entrepreneurs, helping them enter the market with greater confidence. Consequently, the university's entrepreneurial culture lays the groundwork for economic development and job creation, driving sustainable innovation and growth in the region. The findings of this study align with prior studies [1, 2, 6, 7, 11-20, 24-27].

The scientific and technological criterion in the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, serves as one of the most important factors, playing a fundamental role in entrepreneurship development. This criterion encompasses advanced research, technological innovations, and the university's close collaboration with industry and the job market. By establishing environments that promote both fundamental and applied research, the university can motivate its graduates to propose innovative solutions and advanced technologies for various industries. Through research collaborations with industry and providing opportunities to partner with companies and startups, the university can turn its graduates into active, successful entrepreneurs in complex and technical fields. Thus, science and technology act as a crucial catalyst for job creation and regional economic development, significantly contributing to the entrepreneurship development model in Yazd Province by boosting dynamism and innovation in local and regional industries.

Efficient governmental legislative policies have also been identified as factors exerting a positive influence on entrepreneurship development. This finding is well supported by existing literature in this field. The results of the present study align with prior studies [13, 16, 22, 28-32].

The subcomponents of policymaking and planning include government and leadership. The government criterion in the entrepreneurship development model with an industrial employment approach for graduates of

Islamic Azad University, Yazd Province branches, holds a critical and decisive role. Through implementing supportive policies and legislation, providing financial and tax incentives, and encouraging investment in economic infrastructure, the government can facilitate and support the entrepreneurship development process. This criterion covers the provision of budgets and financial resources for entrepreneurship programs and projects, facilitating access to new markets, and offering training opportunities related to entrepreneurship. Additionally, the government can aid local industries' development and job creation in Yazd Province by establishing favorable conditions for university-industry collaboration and promoting research and development. Among the key aspects of government involvement are creating regulations to safeguard intellectual property rights, supporting startups and young entrepreneurs, and offering financial and technical assistance to individuals and emerging companies—all of which strengthen the regional economy and increase job opportunities.

The leadership criterion in the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, stands as one of the fundamental and pivotal components. Leadership here refers to determining and guiding strategic direction and making strategic decisions for entrepreneurship development and industrial employment. An effective leader can elevate the university's and graduates' commitment to fostering an entrepreneurial culture and developing startups by formulating clear and coherent programs and policies. This criterion encompasses facilitating communication among the university, industry, and government; establishing collaborative and coordinated networks; and promoting interdisciplinary and inter-institutional partnerships. Moreover, leadership in this model involves motivation, inspiration, and building trust among university members and the model's key partners (industry and government) to advance entrepreneurship. Leadership's significance in this regard lies in leaders' capacity to establish a cooperative and dynamic environment that fosters entrepreneurship and employment, thus supporting sustainable development and economic growth in the region and enabling Yazd Province to access greater capabilities and resources.

The subcomponents of integrated management include environmental factors and managerial factors. The environmental factors criterion in the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, is one of the most influential variables. These factors include economic, social, cultural, political, and infrastructural conditions that impact entrepreneurship development and job creation. For example, economic conditions such as inflation, interest rates, and regional investment levels may influence innovation and the formation of new businesses. Social and cultural conditions, encompassing motivations, values, and preferences within the local community, can lead to the growth or decline of an entrepreneurial culture and new business development. Political conditions, through conducive or restrictive policies and regulations, can either facilitate or hinder entrepreneurship. Additionally, existing infrastructures, such as communication networks, support services, and available technologies, can stimulate or hamper new businesses and entrepreneurship in Yazd Province. Effectively understanding and managing these environmental factors can significantly foster entrepreneurship development and sustainable job creation, supporting the success of this model in advancing broader economic and social goals of the region.

The managerial factors criterion in the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, is highly critical. These factors include strategic management, human resource management, financial management, and operational management, each of which directly and indirectly influences entrepreneurship development and graduate employment. Strategic management assists in achieving goals and attaining unique competitive attributes while defining the direction and priorities of the entrepreneurial process. Human resource management, by selecting, training, developing, and

retaining skilled and dedicated personnel, plays a pivotal role in enhancing the quality and productivity of entrepreneurs. Financial management, through providing the necessary financial resources for launching and growing new businesses, supports their development and sustainability. Lastly, operational management, by optimizing processes, minimizing waste, and increasing production efficiency, enables businesses to improve their competitiveness and perform more effectively in the market. Through effective cooperation and coordination, these managerial factors can contribute to entrepreneurship development and sustainable job creation in Yazd Province while helping realize the region's desired economic and social objectives.

According to the findings, based on interpretive structural analysis, a four-level model has been derived. Infrastructure and support in the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, plays a crucial role in strengthening and promoting entrepreneurship education and culture. Such infrastructures include technical resources, technology, communication networks, research centers, and entrepreneurial spaces, which allow universities and students to engage in research and entrepreneurship in well-equipped, conducive environments, transforming their ideas into practical and commercial outcomes. By offering education- and entrepreneurship-related training, these infrastructures help students acquire the skills and knowledge required to launch and manage new businesses. Additionally, they provide spaces and synergies for collaboration among universities, industry, and government, enabling students to bring their ideas and innovations to market through various support and advisory services, thus contributing to job creation and added value in the regional economy. Consequently, suitable infrastructure and support can enhance the social and economic foundations of the region, leading to the development of entrepreneurship culture and improved employment indicators in Yazd Province.

Infrastructure and support in the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, also play a fundamental and highly effective role in policymaking and planning. These infrastructures encompass entrepreneurial spaces, research centers, communication networks, and financial and technical facilities, allowing organizations, governments, and related institutions to design and implement management strategies and policies that encourage entrepreneurship and employment in the region. By providing necessary information and data, these infrastructures assist decision-makers in resource allocation, priority setting, and implementing suitable policies to encourage the establishment and development of new businesses successfully. Additionally, through various support services such as consultations, training, and workshops, these infrastructures can educate graduates in entrepreneurship and, by enhancing their knowledge and skills, foster the creation of sustainable businesses and increased employment in the region. Ultimately, proper infrastructure and support not only optimize the policymaking and planning processes but also significantly improve the quality and efficiency of these processes, thus promoting entrepreneurship development in Yazd Province.

Education and culture, together with policymaking and planning, have a substantial impact on integrated management in the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches. Entrepreneurship education and culture, through diverse educational courses, workshops, and training programs, enhance graduates' entrepreneurship knowledge and skills. These training sessions emphasize ideation, business management, and innovation, thereby fostering an entrepreneurship culture within the university and the local community. Meanwhile, well-informed policymaking and planning, grounded in a deep understanding of prevailing needs and opportunities, align and coordinate the various pillars of this model. By offering macro-level policies and strategies, better coordination among the

university, industry, and government can be ensured to support entrepreneurship and employment creation. The findings of the present study are consistent with prior findings [7, 11, 22, 23, 25, 27, 31].

For example, an appropriate policy may define performance criteria and indicators for entrepreneurship development, encouraging productivity and thorough performance evaluation to improve integrated management. Additionally, an entrepreneurial culture within the university and the community, by motivating and encouraging interdisciplinary and inter-institutional cooperation, can prevent structural duplications and inconsistencies, thereby aiding alignment and coherence in decision-making. Thus, effective implementation of entrepreneurship education and culture, combined with intelligent policymaking and planning, strengthens integrated management and enhances overall performance in entrepreneurship development and employment in Yazd Province.

Integrated management in the entrepreneurship development model with an industrial employment approach for graduates of Islamic Azad University, Yazd Province branches, is vital in facilitating the integration of knowledge and technology. By fostering alignment and synergy among the university, industry, and government, this model creates an environment conducive to knowledge exchange and technology transfer. Moreover, through appropriate policies and strategies that encourage joint collaborations among these entities, integrated management can ensure the optimal use of existing knowledge and technology in the university and its transfer to the industry.

For instance, by creating platforms and collaborative networks between the university and industry, students and graduates can engage with research and industrial development teams to enhance their expertise. Such collaborations may result in joint projects, the production of innovations, and the evaluation of new technologies, ultimately improving industrial products and processes. Furthermore, with policy and strategic programs for technology development and transfer, integrated management can facilitate the flow of entrepreneurial activity from the university to the marketplace, providing favorable conditions for investment in startup projects and thereby contributing to employment creation and industrial development in the region. The findings of this study align with prior findings [27-29, 32-35].

A review of studies indicates that structural factors, especially entrepreneurship-oriented planning and course content in universities combined with information technology, can influence the entrepreneurial ecosystem process. Most research in this area focuses on entrepreneurship education, nurturing entrepreneurial traits and skills, revising curricula and university syllabi, changing student attitudes, focusing on internships during studies, and commercializing knowledge. Therefore, it is essential to consider the role of course content across different fields in entrepreneurship, the role of formal education and extracurricular programs in ensuring entrepreneurial competence, and the assessment of how well educational goals are met in each field for career success. At the micro-level of the entrepreneurial ecosystem, all of its elements, including entrepreneurs and related institutions or stakeholders, must be accounted for so that the presence of the entrepreneur also benefits the development of entrepreneurship. However, at the individual level, various factors affect sports entrepreneurship, notably the diverse personality traits of individuals—especially creativity and innovation. While financial investment, risk-taking, and entrepreneurial and social skills are also seen as important, it is evident that, in the country's economic context, securing even minimal financial capital can be very challenging.

According to the results, to evaluate the proposed model's fit, partial least squares structural equation modeling indicated that the model shows good fit. All model fit indices were confirmed. The results from examining the theoretical and methodological framework of articles, in alignment with the principles of the entrepreneurship

development paradigm, reveal that most studies conducted in this area have fundamental shortcomings in terms of ideological framework and the tools and methods employed.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

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

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Conflict of Interest

The authors report no conflict of interest.

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