

Investigating the Effect of Dynamic Information Technology Capabilities and Competitive Intelligence on the Sustainable Competitive Advantage of Managers of Non-Governmental Secondary Schools in West Azerbaijan Province: The Mediating Role of Organizational Agility

Zahra. Amani Ghossour¹, Maryam. Sameri^{2*}, Javad. Keyhan³

¹ Ph.D Student, Department of Educational Governance and Human Resources, Ur.C., Islamic Azad University, Urmia, Iran

² Associate Professor, Department of Educational Governance and Human Resources, Ur.C., Islamic Azad University, Urmia, Iran

³ Associate Professor, Department of Educational Studies and Curriculum Planning, Ur.C., Islamic Azad University, Urmia, Iran

* Corresponding author email address: Maryam.sameri@iau.ac.i

Article Info

Article type:

Original Research

How to cite this article:

Amani Ghossour, Z., Sameri, M., & Keyhan, J. (2027). Investigating the Effect of Dynamic Information Technology Capabilities and Competitive Intelligence on the Sustainable Competitive Advantage of Managers of Non-Governmental Secondary Schools in West Azerbaijan Province: The Mediating Role of Organizational Agility. *AI and Tech in Behavioral and Social Sciences*, 5(1), 1-16.

<https://doi.org/10.61838/kman.aitech.5983>



© 2027 the authors. Published by KMAN Publication Inc. (KMANPUB), Ontario, Canada. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License.

ABSTRACT

The purpose of the present study was to investigate the effect of dynamic information technology capabilities and competitive intelligence on the sustainable competitive advantage of managers of non-governmental secondary schools in West Azerbaijan Province, with organizational agility as a mediating variable. In terms of purpose, the study was applied, and in terms of methodology, it employed a descriptive-correlational design based on structural equation modeling. The statistical population consisted of 263 managers of non-governmental secondary schools in West Azerbaijan Province, from whom 170 participants were selected as the sample using the Cochran formula and random sampling. Data were collected using four standardized instruments: the Dynamic Information Technology Capabilities Questionnaire developed by Mikalef and Pateli (2017), consisting of 20 items; the Competitive Intelligence Questionnaire developed by Rouach and Santi (2001), consisting of 22 items; the Sustainable Competitive Advantage Questionnaire developed by Singh (2012), consisting of 22 items; and the Organizational Agility Questionnaire developed by Sharifi and Yang (2000), consisting of 28 items. Data were analyzed using partial least squares structural equation modeling (PLS-SEM) and SmartPLS software, and the direct and indirect relationships among the variables, as well as the mediating role of organizational agility, were examined. The findings of the structural model indicated that dynamic information technology capabilities and competitive intelligence had positive and significant effects on organizational agility and sustainable competitive advantage. Furthermore, organizational agility had a positive and significant effect on sustainable competitive advantage. The results of the indirect effects analysis also indicated that organizational agility played a significant mediating role in the relationship between dynamic information technology capabilities and sustainable competitive advantage, as well as in the relationship between competitive intelligence and sustainable competitive advantage. Accordingly, creating sustainable competitive advantage in non-governmental schools cannot be achieved solely through access to technology or the possession of competitive information; rather, it requires the ability of schools to transform these capabilities into rapid, flexible, and context-appropriate responses to environmental changes. Overall, the findings emphasize the importance of simultaneously developing technological capabilities, competitive intelligence, and organizational agility to enhance the sustainable competitive position of non-governmental secondary schools.

Keywords: Dynamic Information Technology Capabilities, Competitive Intelligence, Sustainable Competitive Advantage, Organizational Agility, Non-Governmental Schools

1. Introduction

Rapid technological advancements, the digitalization of educational processes, changing expectations among students and parents, and intensifying competition among educational service providers have fundamentally transformed the traditional foundations of value creation in private schools. In such a dynamic educational environment, possessing physical resources, a long operational history, a favorable location, or even highly capable human resources alone is no longer sufficient to ensure the preservation of a school's competitive position. Sustained superior performance increasingly depends on an organization's ability to identify changes, acquire and interpret information, reconfigure resources, and respond rapidly to environmental shifts (Ahmadpour Dariani et al., 2020; Probojakti et al., 2024).

These circumstances have transformed schools from relatively stable organizations based on traditional practices into knowledge-driven, information-oriented, and competitive entities. Maintaining survival and achieving long-term success in this environment require the development of capabilities that extend beyond existing resources (Chamba & Chinakidzwa, 2023; Chinakidzwa & Chamba, 2024). In this context, school principals play a pivotal role in transforming technological resources and environmental information into strategic decisions. Technology creates organizational value only when managers are able to analyze the information generated through technological systems, identify opportunities and threats, and reconfigure school resources and processes in alignment with changing conditions (Awwad et al., 2022; Rahmani et al., 2022).

Therefore, the competitiveness of private secondary schools cannot be adequately explained solely within the framework of current service quality. Instead, it should be analyzed through the integrated perspective of dynamic capabilities, information capabilities, competitive intelligence, and organizational agility (Satar et al., 2023; Tayebi Abolhasani & Ebrahimi, 2019).

The concept of dynamic capabilities in strategic management literature emphasizes an organization's ability to integrate, develop, and reconfigure internal and external resources in response to changing environments. From this perspective, competitive advantage is not considered a result of static ownership of resources; rather, it emerges from an organization's capacity to continuously transform

and renew its resources and capabilities (Tayebi Abolhasani & Ebrahimi, 2019).

In their investigation of dynamic capability development, Ahmadpour Daryani, Abdoli Mohammadabadi, and Sokhdari (2020) demonstrated that organizations operating in dynamic environments require capabilities that enable them to identify changes, respond effectively (Ahmadpour Dariani et al., 2020), and rearrange resources to maintain performance. However, their study was conducted in the context of dynamic business environments and did not address the distinctive characteristics of educational organizations or the role of information technology in developing such capabilities.

Information technology dynamic capabilities can be regarded as a specialized manifestation of this perspective, whereby organizations are able to reconfigure their IT resources, infrastructures, knowledge, and technological capacities in accordance with environmental changes and utilize them to develop new organizational capabilities (Rahmani et al., 2022). Rahmani, Zakipour, and Abedi (2022) found that IT dynamic capabilities influence the performance of small and medium-sized enterprises, with innovative capability serving as a mediating mechanism in this relationship (Rahmani et al., 2022). Nevertheless, their research focused on business organizations, and the mechanism through which IT dynamic capabilities contribute to sustainable competitive advantage in educational organizations, as well as the role of organizational agility in this process, remained unexplored.

Similarly, Cepeda and Arias-Pérez (2019) demonstrated that information technology capabilities are associated with organizational agility and that open innovation capability can mediate this relationship (Cepeda & Arias-Pérez, 2019). However, their model primarily focused on the relationship between technological capabilities and agility, without incorporating competitive intelligence as a complementary information capability or examining sustainable competitive advantage as the ultimate organizational outcome within an integrated framework.

Awad, Ababneh, and Krasneh (2022) also showed that information technology capabilities mediate the relationship between dynamic capabilities and organizational agility (Awwad et al., 2022). However, their study was conducted within the information technology sector in Jordan, and the direct transferability of their findings to educational organizations—particularly private secondary schools—requires independent empirical

validation due to differences in organizational structure, mission, and competitive dynamics.

The importance of information technology dynamic capabilities in schools stems from the fact that information technology is no longer merely a tool for automating administrative tasks; rather, it has evolved into a critical infrastructure for generating, storing, analyzing, and disseminating educational and managerial data. Consequently, IT capabilities have the potential to transform decision-making processes, communication with parents, performance management, learning monitoring, educational planning, and service delivery (Chamba & Chinakidzwa, 2023; Chinakidzwa & Chamba, 2024).

Arinfar and Rajabifarjad (2022) demonstrated that information technology mechanisms can enhance organizational agility; however, their study did not directly explain how this effect is transformed into sustainable competitive advantage within educational organizations (Arin-far & Rajabi-farjad, 2022). Similarly, Shamsi Goushki, Yazdani, Hajipour, and Soltani (2020), emphasizing dynamic capabilities, strategic thinking and learning, and information technology capabilities, proposed a framework for strategic agility (Shamsi Goshki et al., 2020). Nevertheless, their model was not examined within educational organizations or in relation to the competitive characteristics of schools.

Chahal and Dehiman (2024), in their study of higher education institutions, found that organizational capabilities can influence the relationship between agility and performance (Chahal & Dhiman, 2024). However, structural differences between universities and schools—particularly regarding decision-making levels, organizational size, stakeholder characteristics, and the intensity of local competition—limit the direct generalizability of these findings to private secondary schools.

Chamba and Chinakidza (2023) examined schools' resource requirements and capabilities within dynamic technological environments; however, their focus was primarily on learning and assessment needs, and the relationship between technological capabilities and the sustainable competitive advantage of school administrators was not investigated (Chamba & Chinakidzwa, 2023). Likewise, Chinakidza and Chamba (2024) emphasized the need for developing new capabilities for teaching in dynamic technological environments but did not examine dynamic capability at the school management level or its

relationship with organizational agility and competitiveness (Chinakidzwa & Chamba, 2024).

In addition to information technology dynamic capabilities, competitive intelligence represents another important information-based capability that influences an organization's strategic behavior. In competitive environments, organizations require more than internal information; they must continuously monitor and analyze competitors' activities, customer needs, environmental trends, emerging opportunities, and potential threats (Rezaeimanesh et al., 2021).

In this context, competitive intelligence refers to a systematic process of collecting, analyzing, and interpreting environmental information to enhance the quality of strategic decision-making. Its value becomes evident when environmental information is transformed into actionable knowledge and subsequently translated into organizational actions.

Rezaeimanesh, Rezaeian, Amirkabiri, and Fartookzadeh (2021) examined the factors contributing to the achievement of sustainable competitive advantage through business intelligence; however, their study primarily focused on business intelligence and did not investigate school principals' competitive intelligence in relation to information technology dynamic capabilities and organizational agility.

Similarly, Mehrani, Sadeghi, and Safdari (2019) investigated the relationship between systems thinking, business intelligence, and competitive intelligence among managers of industrial companies (Mehrani et al., 2019). Nevertheless, the industrial context of their study differs substantially from the educational environment of schools, and technological capabilities and organizational agility were not examined simultaneously within their model.

Safavi, Piran, and Taherzadeh Mousavian (2021) explored the relationship between competitive intelligence, employee empowerment, and organizational responsiveness in science and technology parks in Tehran (Safavi et al., 2021). However, their study did not address the role of competitive intelligence in developing sustainable competitive advantage or the mediating mechanism of organizational agility.

Furthermore, Yavari, Jafari, Gholighorcheian, and Zamani (2022) proposed a model for enhancing competitive intelligence in industrial universities; however, their focus was limited to industrial higher education institutions. Consequently, the competitive conditions of private secondary schools and the direct role of school

principals in monitoring and interpreting the competitive environment were not examined.

Sustainable competitive advantage refers to an organization's ability to create superior value compared with competitors and maintain this distinction over time. It is achieved when organizational resources and capabilities are combined in a manner that makes them difficult for competitors to imitate, substitute, or transfer (Delbaze et al., 2021; Prabowo et al., 2021).

Within the school context, this concept should be redefined in accordance with the distinctive nature of educational services. Accordingly, sustainable competitive advantage may be reflected in perceived educational service quality, school reputation, family satisfaction and loyalty, the ability to attract and retain students, the quality of teaching-learning processes, innovation in educational services, responsiveness, and the capacity to adapt to environmental changes (Bayat et al., 2020; Van Hoang et al., 2025).

Delbaze, Sadeh, and Paghah (2021) proposed a model of sustainable competitive advantage based on technological entrepreneurial capabilities; however, their study was conducted in dairy cooperative companies and did not consider the institutional and educational characteristics of schools (Delbaze et al., 2021). Bayat, Gholichli, and Alam Tabriz (2020) also demonstrated that customer orientation capabilities and service innovation are associated with competitive advantage; nevertheless, their study did not specifically address educational and service organizations.

Bagherzadeh, Kefashpour, Bahrami, and Pourkian (2023) examined the effect of strategic leadership on sustainable competitive advantage through the mediating roles of innovation ambidexterity and human capital (Bagherzadeh et al., 2023). However, information technology dynamic capabilities and competitive intelligence were not included in their model, and organizational agility was not examined as a mechanism through which these effects are transmitted.

Zarif, Khalili, and Ranjbar (2023) investigated the effect of human resource development on sustainable competitive advantage with organizational innovation as a mediator (Zarif et al., 2023); however, their study was conducted in Parsian Gas Refinery Company and did not address the information-related and competitive capabilities of managers within educational settings.

Furthermore, Farghani and Shafiei (2024) examined the roles of open innovation, organizational learning, ambidexterity, and knowledge management capability in

sustainable competitive advantage (Forghani & Shafiei, 2024). Nevertheless, their model did not simultaneously incorporate information technology dynamic capabilities and competitive intelligence, nor did it consider organizational agility as a mediating variable.

The existing literature demonstrates that the relationships among technological capabilities, dynamic capabilities, organizational agility, and competitive advantage are supported by substantial theoretical and empirical foundations. However, several important research gaps remain.

First, a significant proportion of previous studies have been conducted in industrial, commercial, banking, information technology, municipal, and higher education contexts, while research specifically focusing on private secondary schools remains limited (Chahal & Dhiman, 2024; Rahimi, 2020; Safavi et al., 2021).

Second, previous studies have generally examined technological capabilities, competitive intelligence, or organizational agility separately. Few studies have developed an integrated model that considers information technology dynamic capabilities and competitive intelligence as complementary information resources and explains their effects on sustainable competitive advantage through the mediating role of organizational agility (Awwad et al., 2022; Rahmani et al., 2022; Rezaeimanesh et al., 2021).

Third, many existing studies have focused primarily on organizational performance, whereas sustainable competitive advantage represents a distinct construct that emphasizes an organization's ability to maintain superiority over competitors over time (Prabowo et al., 2021; Satar et al., 2023).

Fourth, in many existing models, organizational agility has been considered merely as a direct outcome of organizational capabilities, while its role as a process mechanism that transforms informational and competitive capabilities into sustainable advantage has received comparatively limited empirical examination (Probojakti et al., 2024; Rahimi, 2020).

Fifth, studies conducted in the field of education have largely focused on digital transformation, technological resource requirements, curriculum issues, or the performance of higher education institutions. In contrast, relatively little attention has been devoted to the strategic competitiveness of schools and the role of school principals in transforming information and technology into sustainable competitive advantage (Chahal & Dhiman,

2024; Chamba & Chinakidzwa, 2023; Chinakidzwa & Chamba, 2024).

2. Methods and Materials

The present study aims to investigate the effects of information technology dynamic capabilities and competitive intelligence on the sustainable competitive advantage of private secondary school principals in West Azerbaijan Province, with organizational agility serving as a mediating variable. In terms of its objective, this study is applied in nature, and in terms of its methodology, it employs a descriptive–survey correlational design and falls within the category of quantitative research.

The primary objective of this research is to examine the direct relationships between information technology dynamic capabilities and competitive intelligence with sustainable competitive advantage, as well as to assess the mediating role of organizational agility in these relationships. Since the research variables are examined in real-world school settings without experimental intervention or manipulation, the research design is non-experimental, and the required data were collected through questionnaires. Structural equation modeling (SEM) was employed to test the conceptual model and examine the relationships among the study variables.

The statistical population of the study consisted of all principals of private secondary schools in West Azerbaijan Province. According to information obtained from the Human Resources Management Department of the General Directorate of Education of West Azerbaijan Province, the number of private secondary school principals during the academic year under investigation was estimated at 263 individuals. Given the limited size of the population and the need to obtain an appropriate sample size for statistical analyses and structural equation modeling, the sample size was determined using Cochran's formula for finite populations. Accordingly, 170 principals were selected as the research sample.

The selection of school principals as the unit of analysis was based on the nature of the research variables, as decisions regarding the utilization of information technology, monitoring the competitive environment, responding to changes, allocating resources, and developing and maintaining organizational capabilities in schools largely fall within the responsibilities and authority of school managers. Participants were selected using a random sampling method.

In this study, information technology dynamic capabilities, competitive intelligence, and sustainable competitive advantage were considered, respectively, as independent and dependent variables, while organizational agility was treated as a mediating variable. Information technology dynamic capabilities refer to the school's ability to identify environmental and technological changes, coordinate information and technological resources, learn from information and experience, integrate IT capabilities, and reconfigure technological resources and processes.

Competitive intelligence refers to the capacity of school principals to collect, analyze, and utilize information related to the competitive environment, competing schools, educational trends, emerging technologies, and stakeholder needs in managerial decision-making processes. Sustainable competitive advantage represents the school's ability to create and maintain a superior position compared with competing schools through quality, efficiency, innovation, and responsiveness. Organizational agility refers to the school's capacity to identify changes, respond rapidly, demonstrate flexibility, and appropriately address environmental transformations and the emerging needs of students, parents, and other stakeholders.

Data collection was conducted using both library-based and field-based methods. In the library phase, information required for developing the theoretical framework, reviewing previous research, and designing the conceptual model was obtained through the study of books, scientific articles, theses, dissertations, and reputable academic databases. In the field phase, the data required for hypothesis testing were collected by distributing questionnaires among selected principals of private secondary schools in West Azerbaijan Province.

The primary data collection instrument was a standardized questionnaire developed based on the constructs of the research model. The questionnaire consisted of two main sections. The first section included demographic and professional characteristics of respondents, including gender, age, educational level, field of study, and managerial experience. The second section contained items related to the four main constructs of the study.

Information technology dynamic capabilities were measured using the standardized questionnaire developed by Mikalef and Pateli (2017). In the present study, this instrument consisted of 20 items and assessed IT dynamic capabilities across five dimensions: environmental sensing, coordination, learning, integration, and reconfiguration.

Competitive intelligence was measured using the standardized questionnaire developed by Rouach and Santi (2001). This questionnaire included 22 items and evaluated four dimensions: business intelligence, competitor intelligence, technological intelligence, and social intelligence.

Sustainable competitive advantage was assessed using Singh's (2012) standardized questionnaire. This instrument consisted of 22 items covering four dimensions: quality, efficiency, innovation, and responsiveness. Organizational agility was measured using the standardized questionnaire developed by Sharifi and Yang (2000), which included 28 items assessing four dimensions: speed, competency, flexibility, and responsiveness.

To ensure the suitability of the standardized instruments for the research context, the questionnaires were translated, adapted to the terminology and managerial conditions of private secondary schools, and reviewed by experts in educational management, information technology management, and research methodology. The experts evaluated the relevance of items to the intended constructs, clarity of statements, and appropriateness for the private school context. Necessary modifications were implemented before the final administration of the questionnaires. Accordingly, content validity was assessed based on expert judgments.

Construct validity was evaluated during data analysis using measurement model indices within the structural equation modeling framework. Specifically, factor loadings, average variance extracted (AVE), and discriminant validity were examined to determine whether the items appropriately measured their corresponding theoretical constructs. Furthermore, instrument reliability was assessed using Cronbach's alpha coefficients and composite reliability. Acceptable values for these indicators confirmed the internal consistency and stability of the research constructs.

After collecting the questionnaires, the data were screened, and incomplete or invalid questionnaires were excluded from the analysis process. The final dataset was entered into statistical software, coded, and prepared for descriptive and inferential analyses. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to describe respondent characteristics and the status of research variables.

In the inferential analysis phase, relationships among the research constructs were initially examined, followed by evaluation of the measurement model and structural model.

Given the structure of the conceptual model, partial least squares structural equation modeling (PLS-SEM) was considered appropriate because it enables simultaneous examination of relationships among multiple latent constructs and evaluation of direct and indirect effects.

The model was analyzed using SmartPLS software. In the first stage, the measurement model was evaluated through factor loadings, composite reliability, Cronbach's alpha, average variance extracted, and discriminant validity. In the second stage, the structural model was assessed through path coefficients, coefficient of determination (R^2), effect size, and predictive relevance indices. The statistical significance of relationships was examined using the bootstrapping procedure.

To evaluate the mediating role of organizational agility, the indirect effects of information technology dynamic capabilities on sustainable competitive advantage through organizational agility, as well as the indirect effects of competitive intelligence on sustainable competitive advantage through organizational agility, were calculated. If these indirect effects were statistically significant, the mediating role of organizational agility was confirmed.

Additionally, the direct effects of information technology dynamic capabilities and competitive intelligence on sustainable competitive advantage were examined to determine whether sustainable competitive advantage in private secondary schools is achieved exclusively through organizational agility or whether the independent variables also exert direct effects beyond the indirect pathways.

Finally, the results obtained from the measurement and structural model analyses were used to test the research hypotheses. The status of the hypothesized relationships in the conceptual model was determined based on path coefficients and significance levels. Accordingly, the research methodology provides an empirical framework for explaining the relationships among information technology dynamic capabilities, competitive intelligence, organizational agility, and sustainable competitive advantage within the context of private secondary schools in West Azerbaijan Province.

3. Findings and Results

Based on the descriptive statistics, the demographic characteristics of private secondary school principals in West Azerbaijan Province were examined in terms of gender, age, years of service, and educational level. The

distribution of respondents indicated the presence of principals with diverse demographic and professional profiles, suggesting an appropriate level of heterogeneity within the study population in terms of managerial experience and individual characteristics. The analysis of years of service further revealed that a substantial proportion of participants possessed adequate professional and managerial experience. This factor is particularly important when evaluating information technology dynamic capabilities, competitive intelligence, organizational agility, and sustainable competitive advantage, as assessing a school's technological and competitive capacities requires managers to have sufficient knowledge of managerial processes, competitive environments, and school performance mechanisms.

Before testing the structural relationships among information technology dynamic capabilities, competitive intelligence, organizational agility, and sustainable

competitive advantage, the statistical characteristics of the collected data were examined. Initially, the distribution of the data was assessed using skewness and kurtosis indices as well as the Kolmogorov–Smirnov test. These analyses were conducted to determine the distributional characteristics of the variables and to select an appropriate analytical approach for evaluating the conceptual model of the study.

Considering the nature of the proposed model and the research objectives, which involved simultaneously examining the direct relationships of information technology dynamic capabilities and competitive intelligence with sustainable competitive advantage, as well as evaluating the mediating role of organizational agility, the measurement model and structural model were analyzed using partial least squares structural equation modeling (PLS-SEM).

Table 1

Assessment of Normality of Research Variables

Variable	Skewness	Kurtosis	Kolmogorov–Smirnov Test	Significance Level
Information Technology Dynamic Capabilities	0.717	0.799	1.63	0.021
Competitive Intelligence	0.026	-0.463	1.65	0.015
Organizational Agility	-0.235	0.336	1.75	0.002
Sustainable Competitive Advantage	-0.208	-0.474	1.050	0.214

To ensure the accuracy of inferential analyses and structural equation modeling, the assumption of normal distribution was initially examined for the research variables. As presented in Table 1, the skewness and kurtosis values indicated that most variables demonstrated approximately normal distributions. For example, information technology dynamic capabilities showed skewness of 0.717 and kurtosis of 0.799, while competitive intelligence showed skewness of 0.026 and kurtosis of -0.463, both of which fall within acceptable ranges and indicate no substantial deviation from normality.

Organizational agility also demonstrated an approximately normal distribution, with skewness of -0.235 and kurtosis of 0.336. Similarly, sustainable competitive advantage showed skewness of -0.208 and kurtosis of -0.474, indicating acceptable distributional characteristics.

Following the assessment of data distribution characteristics, the quality of the measurement model was evaluated. At this stage, the validity and reliability of the constructs, including information technology dynamic capabilities, competitive intelligence, organizational agility, and sustainable competitive advantage, were examined. Evaluating the measurement model is essential because, prior to analyzing structural relationships, it is necessary to ensure that the indicators of each construct reliably and validly measure the intended theoretical concepts.

For this purpose, internal consistency reliability was assessed using Cronbach's alpha and composite reliability, while convergent validity was evaluated using the average variance extracted (AVE). In addition, discriminant validity was examined using the Fornell–Larcker criterion and the heterotrait–monotrait ratio (HTMT).

Table 2

Reliability and Validity Assessment of the Measurement Model

Variable	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Information Technology Dynamic Capabilities	0.781	0.766	0.563
Competitive Intelligence	0.889	0.905	0.500
Organizational Agility	0.746	0.803	0.523
Sustainable Competitive Advantage	0.824	0.859	0.506

The results presented in Table 2 indicate that the measurement model demonstrated satisfactory reliability and convergent validity. The average variance extracted (AVE) values were 0.563 for information technology dynamic capabilities, 0.500 for competitive intelligence, 0.523 for organizational agility, and 0.506 for sustainable competitive advantage. Since the AVE values for all constructs exceeded the minimum acceptable threshold of 0.50, it can be concluded that each construct explains more than half of the variance of its associated indicators. Therefore, convergent validity of the measurement model was confirmed.

The examination of Cronbach's alpha coefficients showed values of 0.781 for information technology dynamic capabilities, 0.889 for competitive intelligence, 0.746 for organizational agility, and 0.824 for sustainable competitive advantage. All coefficients exceeded the recommended threshold of 0.70, indicating acceptable internal consistency among the indicators of each construct.

Furthermore, composite reliability values were 0.766 for information technology dynamic capabilities, 0.905 for competitive intelligence, 0.803 for organizational agility, and 0.859 for sustainable competitive advantage. Since all composite reliability coefficients exceeded 0.70, the stability and reliability of the measurement constructs were confirmed.

Discriminant validity is one of the essential criteria for evaluating construct validity in reflective measurement models. It is considered acceptable when a latent variable shares greater variance with its own indicators than with other latent variables in the model. The Fornell–Larcker criterion was used to assess discriminant validity. According to this criterion, the square root of AVE for each construct should be greater than its correlations with other constructs. In other words, the square root of AVE is placed on the diagonal of the latent variable correlation matrix, and discriminant validity is established when these diagonal values exceed inter-construct correlations.

Table 3

Discriminant Validity Based on the Fornell–Larcker Criterion

Constructs	1	2	3	4
Information Technology Dynamic Capabilities	0.750			
Competitive Intelligence	0.599	0.707		
Organizational Agility	0.502	0.616	0.722	
Sustainable Competitive Advantage	0.581	0.561	0.450	0.711

The results presented in Table 3 confirm the discriminant validity of the measurement model based on the Fornell–Larcker criterion. According to this criterion, the square root values of AVE for each construct should exceed the correlation coefficients between that construct and other constructs in the model. The diagonal values of the matrix were 0.750 for information technology dynamic capabilities, 0.707 for competitive intelligence, 0.722 for organizational agility, and 0.711 for sustainable competitive advantage.

Comparison of the diagonal values with the inter-construct correlation coefficients demonstrates that the square root of AVE for each construct was higher than its correlations with other constructs in all cases. This pattern indicates that each construct shares greater variance with its own indicators than with other constructs and is empirically distinct from the remaining constructs. Therefore, the findings presented in Table 3 confirm satisfactory discriminant validity of the measurement model.

Table 4

Discriminant Validity of the Measurement Model

Constructs	1	2	3	4
Information Technology Dynamic Capabilities	—			
Competitive Intelligence	0.225	—		
Organizational Agility	0.463	0.514	—	
Sustainable Competitive Advantage	0.436	0.247	0.355	—

The results presented in Table 4 demonstrate the discriminant validity of the measurement model based on the correlation matrix among the constructs. The reported values represent the strength of relationships among information technology dynamic capabilities, competitive intelligence, organizational agility, and sustainable competitive advantage.

The correlation coefficient between information technology dynamic capabilities and competitive intelligence was 0.225, while the correlations between information technology dynamic capabilities and organizational agility and between competitive intelligence and organizational agility were 0.463 and 0.514, respectively. Furthermore, the correlation coefficients between information technology dynamic capabilities and sustainable competitive advantage, competitive intelligence and sustainable competitive advantage, and organizational agility and sustainable competitive advantage were 0.436, 0.247, and 0.355, respectively.

The pattern of correlation coefficients indicates that all relationships among the constructs are positive and within

the low-to-moderate range. None of the coefficients reached a level that would suggest severe conceptual overlap or insufficient distinction among the constructs. The strongest correlation was observed between competitive intelligence and organizational agility (0.514), whereas the weakest correlation was found between information technology dynamic capabilities and competitive intelligence (0.225).

Accordingly, although the constructs demonstrate conceptual relationships with one another, they maintain adequate empirical distinctiveness, with each construct representing a separate component of the theoretical framework. Therefore, the findings of Table 4 confirm the satisfactory discriminant validity of the measurement model and provide the necessary conditions for examining the structural relationships among the research variables. Consequently, the structural model and the direct and indirect relationships among the variables can be analyzed with acceptable confidence.

Table 5

Factor Loadings of Measurement Model Indicators

Variable	Dimension	Factor Loading	t-value
Information Technology Dynamic Capabilities	Environmental sensing	0.740	6.445
	Coordination	0.760	4.471
	Learning	0.750	9.894
	Integration	0.770	6.714
	Reconfiguration	0.730	4.660
Competitive Intelligence	Business intelligence	0.700	2.083
	Competitor intelligence	0.710	3.642
	Technological intelligence	0.690	6.451
	Social intelligence	0.730	6.551
Sustainable Competitive Advantage	Quality	0.710	10.190
	Efficiency	0.720	9.642
	Innovation	0.700	11.451
	Responsiveness	0.720	10.551
Organizational Agility	Speed	0.710	4.564
	Competency	0.720	11.646
	Flexibility	0.649	6.009
	Responsiveness	0.740	6.112

The results presented in Table 5 indicate that all standardized factor loadings of the measurement model indicators exceeded the threshold value of 0.40. Therefore, the indicators demonstrated adequate explanatory power for their corresponding constructs, confirming the adequacy of the measurement model.

Following the confirmation of construct validity and reliability, the structural model of the study was evaluated using the PLS-SEM approach. The structural model assessment was conducted based on path coefficients (β), t-values, and coefficient of determination (R^2). Path coefficients indicate the direction and strength of relationships among the research constructs, whereas t-values demonstrate the statistical significance of the hypothesized paths.

At the 95% confidence level, absolute t-values greater than 1.96 were considered indicative of statistically significant relationships. In addition, R^2 values were used to evaluate the explanatory power of endogenous constructs and determine the proportion of variance explained by predictor constructs.

Accordingly, acceptance or rejection of the research hypotheses was determined based on the direction and magnitude of path coefficients, statistical significance of relationships, and explanatory power of endogenous constructs. The detailed results of structural relationship testing and model evaluation indices are presented in the following sections.

Figure 1

Path Coefficient Model of the Research

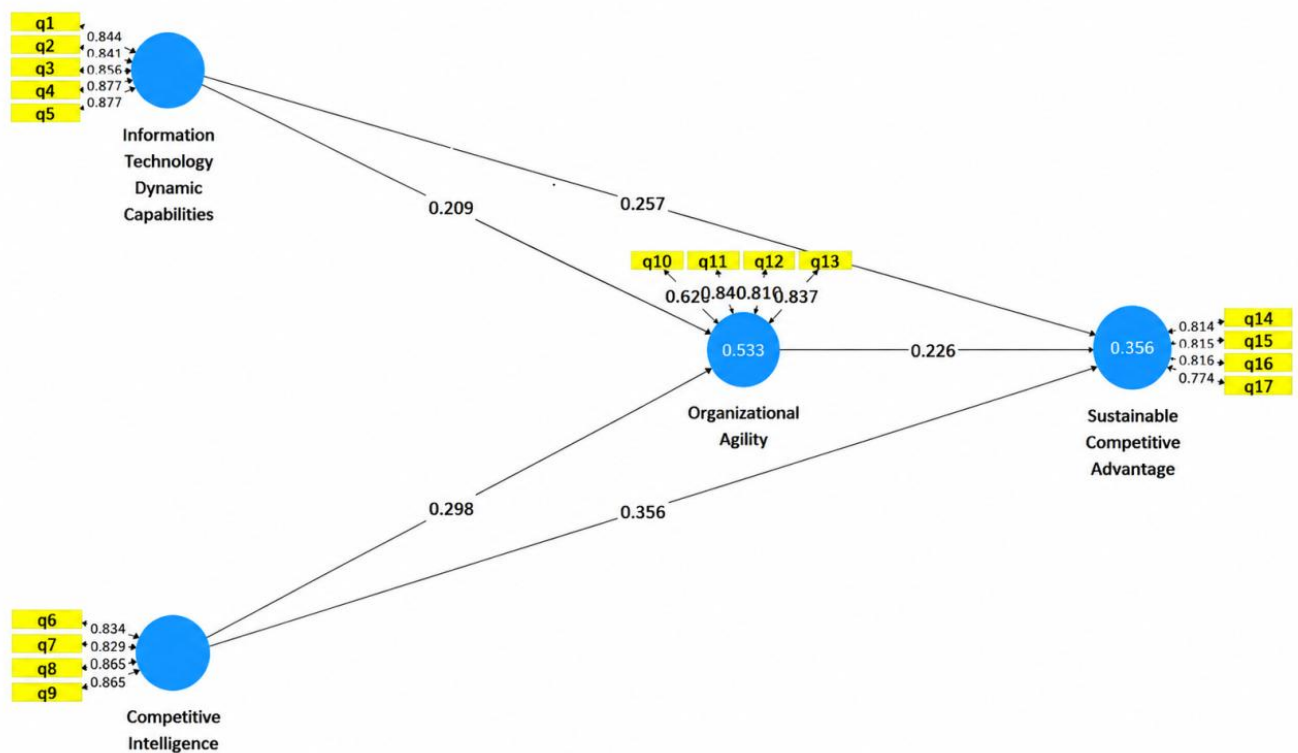
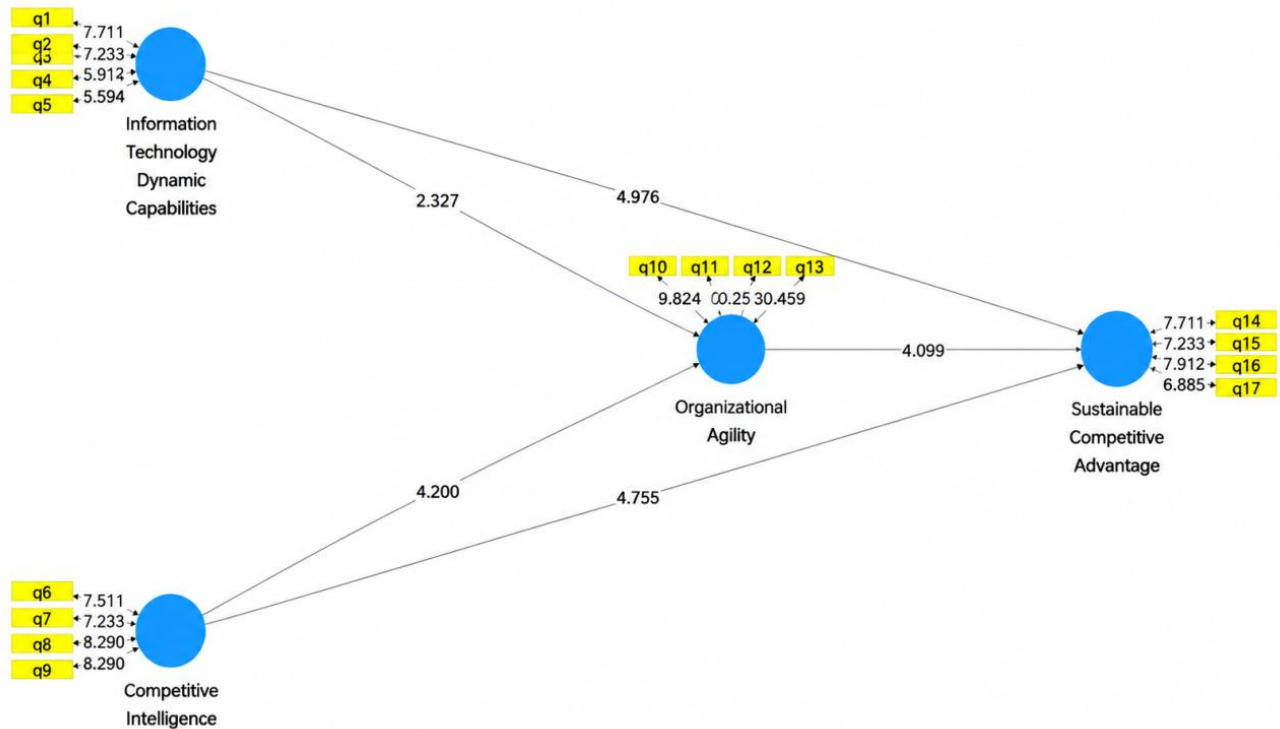


Figure 2

Standardized Path Coefficient Model of the Research



Structural Model Estimation and Path Coefficients

The results obtained from the estimation of the structural model and path coefficients indicated that artificial intelligence capabilities and competitive intelligence not only have direct effects on sustainable competitive advantage but can also influence this organizational outcome indirectly through enhancing organizational agility.

According to the results, artificial intelligence capabilities had a positive and significant effect on organizational agility, with a path coefficient of 0.209 and a t-value of 2.327. This finding indicates that increasing artificial intelligence capabilities in schools is associated with strengthening the organization's ability to respond rapidly, flexibly, and appropriately to environmental changes.

Furthermore, the findings revealed that artificial intelligence capabilities had a positive and significant effect on sustainable competitive advantage, with a path coefficient of 0.257 and a t-value of 4.976. Therefore, developing artificial intelligence capabilities can directly contribute to improving schools' sustainable competitive advantage by enhancing decision-making processes, enabling more effective use of information, and increasing

the capacity to respond to changing environmental requirements. Consequently, these capabilities can strengthen the competitive position of schools.

Similarly, competitive intelligence demonstrated a positive and significant effect on organizational agility, with a path coefficient of 0.298 and a t-value of 4.200. This result suggests that when school managers have greater capabilities in monitoring the competitive environment, identifying changes, analyzing competitor-related information, and recognizing environmental opportunities and threats, the school organization's ability to respond quickly and flexibly is enhanced.

In addition, the direct effect of competitive intelligence on sustainable competitive advantage was positive and significant, with a path coefficient of 0.356 and a t-value of 4.755. From this perspective, competitive intelligence represents an important mechanism in developing sustainable competitive advantage in schools because effective access to and utilization of environmental information facilitates more informed decision-making, timely identification of changes in the educational market, and better alignment with stakeholders' expectations.

The structural model results further showed that organizational agility had a positive and significant effect

on sustainable competitive advantage, with a path coefficient of 0.226 and a t-value of 4.099. This finding indicates that schools with higher levels of organizational agility possess greater capacity to respond rapidly to environmental changes, redesign organizational processes, make timely decisions, and exploit emerging opportunities. These capabilities can contribute to strengthening and sustaining their competitive advantage.

Regarding the explanatory power of the structural model, the coefficient of determination (R^2) for organizational agility was 0.533. This indicates that artificial intelligence capabilities and competitive intelligence collectively explained 53.3% of the variance in organizational agility. This level of explained variance demonstrates the considerable explanatory power of the model in predicting changes in organizational agility and highlights the important role of technological and information-based capabilities in developing agile organizational capacity within schools.

Moreover, the R^2 value for sustainable competitive advantage was 0.356, indicating that 35.6% of the variance in sustainable competitive advantage was explained by artificial intelligence capabilities, competitive intelligence, and organizational agility. Therefore, the structural model successfully explained a substantial proportion of variations

in sustainable competitive advantage based on a combination of technological, informational, and organizational capabilities.

Regarding the significance of structural paths, all direct relationships demonstrated t-values greater than the critical value of 1.96 at the 95% confidence level. Therefore, all direct structural paths in the model were statistically significant. Accordingly, artificial intelligence capabilities can influence sustainable competitive advantage both directly and indirectly through organizational agility. Likewise, competitive intelligence contributes to sustainable competitive advantage not only through its direct effect but also by enhancing organizational agility.

Since all t-values for the direct paths exceeded the threshold of 1.96, all hypothesized direct structural relationships were supported at the 95% confidence level. Thus, the findings confirm the direct effects of artificial intelligence capabilities and competitive intelligence on sustainable competitive advantage, as well as the direct role of organizational agility in strengthening sustainable competitive advantage.

However, confirmation of the mediating role of organizational agility requires testing the significance of indirect effects using the bootstrapping method.

Table 6

Indirect Effects and the Mediating Role of Organizational Agility

Indirect Path	β	t	p	95% BCa Confidence Interval	Result
Information Technology Dynamic Capabilities → Organizational Agility → Sustainable Competitive Advantage	0.265	2.533	0.001	0.020 to 0.153	Significant
Competitive Intelligence → Organizational Agility → Sustainable Competitive Advantage	0.286	3.114	0.002	0.034 to 0.142	Significant

The results of the bootstrapping analysis of indirect effects indicated that organizational agility plays a significant mediating role in both hypothesized mediation relationships. The indirect effect of information technology dynamic capabilities on sustainable competitive advantage through organizational agility was found to be positive and significant ($\beta = 0.265$, $t = 2.533$). Furthermore, the 95% BCa confidence interval did not include zero (0.020 to 0.153), confirming the statistical significance of this indirect effect. Therefore, enhancing information technology dynamic capabilities contributes to improving schools' sustainable competitive advantage through strengthening organizational agility.

Similarly, the indirect effect of competitive intelligence on sustainable competitive advantage through organizational agility was also positive and significant ($\beta = 0.286$, $t = 3.114$), and the 95% BCa confidence interval (0.034 to 0.142) did not contain zero. Accordingly, competitive intelligence can enhance sustainable competitive advantage not only through its direct effect but also indirectly by increasing the organization's capacity for rapid response, flexibility, and adaptation to environmental changes.

Overall, the significance of both indirect effects confirms the mediating role of organizational agility in the structural model and demonstrates that part of the influence of information technology dynamic capabilities and

competitive intelligence on sustainable competitive advantage is transmitted through organizational agility.

After evaluating the measurement model and the structural model, the overall model fit was assessed using the fit indices applicable within the PLS-SEM framework. At this stage, the Standardized Root Mean Square Residual

(SRMR) and Root Mean Square Theta (RMS Theta) indices were examined to evaluate the degree of consistency between the observed correlation matrix and the model-implied correlation matrix. The results for the saturated model and the estimated model are presented in Table 7.

Table 7

Model Fit Indices

Index	Saturated Model	Estimated Model
SRMR	0.012	0.009
RMS Theta	0.11	0.08

The results indicate that the SRMR value was 0.012 for the saturated model and 0.009 for the estimated model. Both values are considerably lower than the commonly accepted threshold of 0.08, indicating an excellent fit between the observed correlation matrix and the model-implied correlation matrix.

Furthermore, the RMS Theta value decreased from 0.11 in the saturated model to 0.08 in the estimated model. Since lower RMS Theta values indicate lower levels of residual error in the correlation relationships of reflective measurement models, and values below 0.12 are generally considered indicative of an acceptable model fit, this index also supports the adequacy and reliability of the proposed model.

Overall, the obtained fit indices confirm that the structural model demonstrates an appropriate level of goodness-of-fit within the PLS-SEM framework, supporting the validity of the proposed research model.

4. Discussion and Conclusion

The findings of this study demonstrated that information technology dynamic capabilities and competitive intelligence are both significant factors contributing to the development of sustainable competitive advantage in private secondary schools in West Azerbaijan Province. Information technology dynamic capabilities, by enabling the acquisition, processing, integration, and effective utilization of information and technology, enhance schools' managerial capacities and allow school administrators to respond more effectively to environmental changes, students' needs, educational developments, and competitive conditions in the educational market.

Similarly, competitive intelligence assists school managers in making more informed competitive decisions

and allocating school resources toward creating differentiation and sustainable value through the identification and analysis of competitor-related information, stakeholder needs, environmental trends, and existing opportunities and threats. Furthermore, the results indicated that organizational agility plays a critical role in transforming information technology capabilities and competitive intelligence into sustainable competitive advantage. In other words, access to technology and competitive information can lead to sustainable advantage only when schools possess the necessary capacity for rapid response, flexibility, resource reconfiguration, and adaptation to environmental changes.

The significance of the indirect effects further demonstrated that part of the influence of information technology dynamic capabilities and competitive intelligence on sustainable competitive advantage is transmitted through organizational agility. The finding regarding the effect of competitive intelligence on sustainable competitive advantage is consistent with the results reported by Yavari, Jafari, Gholi Qorchiian, and Zamani (2022) (Yavari et al., 2022). In their study of top-ranked industrial universities in Tehran, they emphasized the role of competitive intelligence in improving organizational capabilities and competitive positioning in higher education institutions. The consistency between these findings suggests that competitive intelligence is not merely an informational tool for understanding competitors but rather a managerial capability that transforms environmental information into strategic decisions and favorable competitive positions.

The findings regarding the mediating role of organizational agility are also consistent with the study by Miri, Mahdati, and Hassanvand Mofrad (2023) (Miri et al., 2023). They introduced organizational agility as an

approach for enhancing organizational capabilities in dealing with environmental changes and uncertainty. The present study extends this perspective to the context of private schools and indicates that agility is not only a desirable organizational characteristic but also a mechanism through which technological and informational capabilities are transformed into competitive outcomes.

The finding concerning the relationship between technological capabilities and sustainable competitive advantage is consistent with the research of Delbaze, Sadeh, and Pagheh (2021), who emphasized the role of technological capabilities in developing sustainable competitive advantage (Delbaze et al., 2021). This consistency indicates that technological capabilities become a source of competitive advantage when organizations are able to embed and integrate them into their managerial and operational processes.

Furthermore, the relationship between information technology capabilities and organizational agility is consistent with the findings of Awad, Ababneh, and Krasneh (2022), who demonstrated that information technology capabilities can strengthen organizational agility through organizational mechanisms (Awwad et al., 2022). The findings of the present study are also aligned with Cepeda and Arias-Pérez (2019), who highlighted the role of information technology capabilities in enhancing organizational agility and improving organizations' ability to respond to environmental changes (Cepeda & Arias-Pérez, 2019). In the field of education, the findings of Chahal and Diman (2024) further support the conclusion that organizational capabilities can improve the performance and effectiveness of educational organizations through strengthening organizational agility (Chahal & Dhiman, 2024). In addition, the results reported by Chamba and Chinakidu (2023) are consistent with the present findings, emphasizing the necessity for educational organizations to possess appropriate technological resources and capabilities in dynamic and changing educational environments (Chamba & Chinakidzwa, 2023).

From the perspective of dynamic capability theory, sustainable competitive advantage is not merely the outcome of possessing valuable resources; rather, it emerges from an organization's ability to identify changes, exploit opportunities, and continuously reconfigure resources and capabilities. In private secondary schools, information technology dynamic capabilities perform precisely this function. A school capable of timely collecting and analyzing educational data, market

information, feedback from parents and students, technological trends, and competitive environmental information will have greater capacity to redesign educational services, improve managerial processes, and create differentiation.

From this perspective, competitive intelligence represents the cognitive and informational component of the model, whereas organizational agility functions as the transformational mechanism that converts information and capabilities into organizational action. Competitive intelligence enables school managers to understand the direction of competitive environmental changes; information technology capabilities provide the means to process and utilize such information; and organizational agility determines the speed and flexibility with which schools can act based on this knowledge.

Therefore, sustainable competitive advantage is not the result of a simple linear relationship between technology and competition; rather, it is the outcome of synergy among technological capabilities, environmental intelligence, and organizational responsiveness. The importance of the mediating role of organizational agility lies in the fact that possessing information technology or competitive information alone does not guarantee competitive advantage. If school managers are unable to redesign structures, processes, human resources, and decision-making approaches in accordance with environmental changes, technological and informational capabilities may merely lead to information accumulation with limited competitive value.

Conversely, an agile school can transform information derived from technology and competitive intelligence into rapid decision-making, educational innovation, improved stakeholder responsiveness, and service redesign. Accordingly, the model developed in this study can be considered a capability-based framework for explaining sustainable competitive advantage in private schools, in which information technology dynamic capabilities and competitive intelligence represent the primary value-generating resources, while organizational agility constitutes the mechanism through which these capabilities are translated into sustainable competitive advantage.

This interpretation is consistent with previous domestic and international studies while extending these relationships to the context of private secondary schools. It demonstrates that competition in the contemporary educational environment increasingly depends not only on physical resources or school reputation but also on

managers' ability to intelligently understand the environment, leverage technology, and rapidly transform information into organizational action.

Authors' Contributions

All authors equally contributed to this study.

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.

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

Funding

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

Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

References

- Ahmadpour Dariani, M., Abdoli Mohammadabadi, T., & Sokhdari, K. (2020). Designing a model for developing dynamic capabilities in dynamic businesses. *Journal of Entrepreneurship Development*, 13(2), 161-180. https://jed.ut.ac.ir/article_77831.html
- Arin-far, M., & Rajabi-farjad, H. (2022). Investigating the effect of information technology mechanisms on organizational agility with the role of IT ambidexterity. *Journal of Information Technology Management*, 8(2), 169-202. https://www.sid.ir/fa/VEWSSID/J_pdf/4045514010207.pdf
- Awwad, A. S., Ababneh, O. M. A., & Karasneh, M. (2022). The mediating impact of information technology capabilities on the association between dynamic capabilities and organizational agility: The case of the Jordanian information technology sector. *Global Journal of Flexible Systems*

- Management*, 23(3), 315-330. <https://doi.org/10.1007/s40171-022-00303-2>
- Bagherzadeh, M. S. N., Kafashpour, A., Bahrami, M., & Pourkian, S. (2023). Investigating the effect of strategic leadership on creating sustainable competitive advantage with the mediating role of innovation ambidexterity and human capital in companies of Ferdowsi University of Mashhad Science and Technology Park. *Journal of Transformation Management*, 15(1), 99-125. <https://www.sid.ir/paper/1509815/fa>
- Bayat, F., Gholichli, B., & Alam Tabriz, A. (2020). Customer orientation capability and competitive advantage with service innovation. *Journal of Business Management Explorations*, 12(24), 239-257. <https://www.sid.ir/paper/962664/fa>
- Cepeda, J., & Arias-Pérez, J. (2019). Information technology capabilities and organizational agility: The mediating effects of open innovation capabilities. *Multinational Business Review*, 27(2), 198-216. <https://doi.org/10.1108/MBR-11-2017-0088>
- Chahal, H., & Dhiman, S. (2024). Mediating role of capabilities in organisational agility and performance in higher education institutions: Insights from J&K, India. *International Journal of Educational Management*, 38(7), 1862-1883. <https://doi.org/10.1108/IJEM-08-2023-0397>
- Chamba, L. T., & Chinakidzwa, M. (2023). Resources and capability needs for learning and assessment in dynamic technological environments: Evidence from schools in Harare. *Journal of Advanced Education and Sciences*, 3(3), 5-15.
- Chinakidzwa, M., & Chamba, L. T. (2024). Resources and capability needs for teaching in dynamic technological environments: Evidence from schools in Harare, Zimbabwe. *E-Learning and Digital Media*, 21(6), 593-609. <https://doi.org/10.1177/20427530231217040>
- Delbaze, H., Sadeh, E., & Paghe, A. (2021). Investigating the sustainable competitive advantage model based on technological entrepreneurial capabilities in cooperative companies of dairy industries of Mazandaran and Golestan provinces. *Journal of Entrepreneurship in Agriculture*, 8(1), 85-104. <https://www.sid.ir/fileservers/jf/39930-284582-x-1367235.pdf>
- Forghani, M., & Shafiei, N. (2024). Investigating the effect of open innovation on sustainable competitive advantage considering the role of organizational learning, ambidexterity and knowledge management capacity: A case study of Yazd University of Medical Sciences. *Journal of New Research Approaches in Management and Accounting*, 8(29), 1252-1271. <https://www.majournal.ir/index.php/ma/article/view/2757>
- Mehrani, H., Sadeghi, M., & Safdari, M. (2019). Investigating the relationship between dimensions of systems thinking and business intelligence and competitive intelligence of industrial companies' managers. *Journal of Andisheh Amad*, 18(68), 107-141. <https://www.sid.ir/paper/379144/fa>
- Miri, M., Mehdati, M. M., & Hassanvand Mofrad, M. (2023). Explaining the organizational agility approach based on religious teachings. *Journal of Religion, Spirituality and Management*, 10(19), 55-82. https://journals.rihu.ac.ir/article_1934.html
- Prabowo, H., Sriwidadi, T., & Ikhsan, R. B. (2021). The influence of dynamic capability on sustainable competitive advantage. *The Journal of Asian Finance, Economics and Business*, 8(6), 949-959.
- Probojakti, W., Utami, H. N., Prasetya, A., & Riza, M. F. (2024). Building sustainable competitive advantage in banking

- through organizational agility. *Sustainability*, 16(19), 8327. <https://doi.org/10.3390/su16198327>
- Rahimi, M. (2020). The mediating role of organizational agility in the relationship between knowledge management and organizational innovation among employees of District 10 Municipality of Shiraz. *Journal of Applied Research in Management and Accounting*, 20, 23-33. <https://www.sid.ir/paper/527545/fa>
- Rahmani, M., ZakiPour, M., & Abedi, H. (2022). Investigating the effect of dynamic information technology capabilities on the performance of small and medium enterprises through the moderating role of transformational leadership and the mediating role of innovative capability. *Journal of Management and Sustainable Development Studies*, 2(3), 81-108. <https://www.noormags.ir/view/en/articlepage/2028543/>
- Rezaeimanesh, H. A., Rezaeian, A., AmirKabiri, A. R., & Fartoukzadeh, H. R. (2021). Determining effective components on achieving sustainable competitive advantage through business intelligence. *Journal of Business Management*, 52, 174-193. <https://www.noormags.ir/view/en/articlepage/2010484/>
- Safavi, S., Piran, A., & Taherzadeh Mousavian, S. F. (2021). Investigating the relationship between competitive intelligence and employee empowerment and organizational responsiveness of Tehran Science and Technology Parks staff. *Journal of New Research in Entrepreneurship Management and Business Development*, 2, 261-288. <https://www.noormags.ir/view/en/articlepage/1800396/>
- Satar, A., Al Musadieq, M., & Hutahayan, B. (2023). Enhancing sustainable competitive advantage: The role of dynamic capability and organizational agility in technology and knowledge management: Indonesian Stock Exchange evidence. *International Journal of Operations and Quantitative Management*, 29(2), 431-457.
- Shamsi Goshki, S., Yazdani, H. R., Hajipour, B., & Soltani, M. (2020). Designing a strategic agility framework with dynamic capabilities approach: Examining the role of thinking, strategic learning and IT capability. *Journal of Interdisciplinary Studies in Strategic Knowledge*, 6(4), 387-414. http://journals.sndu.ac.ir/article_1201.html?lang=en
- Tayebi Abolhasani, S. A., & Ebrahimi, M. (2019). Rethinking the concept of dynamic capabilities. *Journal of International Business Management*, 2(1), 101-147. <https://www.sid.ir/paper/268547/fa>
- Van Hoang, D., Thi Hien, N., Van Thang, H., Nguyen Truc Phuong, P., & Thi-Thuy Duong, T. (2025). Digital capabilities and sustainable competitive advantages: The case of emerging market manufacturing small and medium-sized enterprises. *SAGE Open*, 15(2), 21582440251329967. <https://doi.org/10.1177/21582440251329967>
- Yavari, M., Jafari, P., Gholighorchian, N., & Zamani, A. (2022). Presenting a model for promoting competitive intelligence of top industrial universities in Tehran: A case study of Sharif, Amirkabir and Khajeh Nasir Toosi Universities of Technology. *Iranian Journal of Engineering Education*, 24(96), 31-51. <https://www.sid.ir/paper/1084470/fa>
- Zarif, E., Khalili, A. R., & Ranjbar, M. (2023). Investigating the effect of human resource development on sustainable competitive advantage with the mediating role of organizational innovation: A case study of Parsian Gas Refining Company. *Journal of Human Resource Training and Development*, 4(3), 67-81.