



## تحليل IPA لقدرة تطبيق الابتكار في ظروف الأزمات وعدم الاستقرار البيئي لمراكز الخدمات الرياضية والترفيهية في إقليم كردستان العراق

[Ali.karim@garmian.edu.krd](mailto:Ali.karim@garmian.edu.krd)

أ.م علي كريم علي

[Salam.karim@garmian.edu.krd](mailto:Salam.karim@garmian.edu.krd)

م.د سلام كريم زامن

[Peshraw.othman@garmian.edu.krd](mailto:Peshraw.othman@garmian.edu.krd)

م.م بيشرو عثمان كريم

جامعة كرميان / كلية التربية الأساسية / قسم التربية الرياضية

تاريخ استلام البحث: ٢٠٢٥/١٢/١٥

تاريخ قبول البحث: ٢٠٢٥/١٢/٢٦

الكلمات المفتاحية: ابتكار الأعمال، إدارة الأزمات، الابتكار الرياضي، الصناعة الرياضية، الرياضة العراقية  
مستخلص البحث:

(م = ٠,٨٥)، مما يشير إلى مجال يتطلب تحسيناً عاجلاً، بينما مثل "الابتكار المفتوح والمدخلات الخارجية" (م = ٢,٠٠) وتخصيص الموارد والدعم" (م = ١,٦٦) نقاط قوة تنظيمية. سجل "ثقافة وموقف الابتكار" أدنى درجة في كل من الأهمية والأداء (م = ٣,٤٧ و ٠,٩٦)، مما يبرز الحاجة إلى تطوير ثقافي تدريجي. فيما يتعلق بأنواع الابتكار، احتل "ابتكار المنتجات والخدمات" أعلى أهمية (م = ٤,٦١)، بينما حقق "ابتكار التكنولوجيا والمنصات الافتراضية" أعلى أداء (م = ١,٩٢)، في حين حصل "إدارة الأعمال" و"ابتكار نموذج الأعمال" على أدنى تقييم في الأهمية والأداء (م = ٣,٤٧ و ٠,٩٢). تشير هذه النتائج إلى أن المؤسسات تعطي

حللت هذه الدراسة قدرة وتطبيق الابتكار في ظل الأزمات وعدم الاستقرار البيئي في المراكز الرياضية والترفيهية متعددة الأغراض في إقليم كردستان العراق، باستخدام منهج الأساليب المختلطة وإطار تحليل الأهمية-الأداء (IPA). في المرحلة النوعية، تمت مراجعة ٣٥ مقالة علمية لاستخراج ٣٣ مؤشراً، تم التحقق من صحتها لاحقاً عبر طريقة دلفي من قبل ثمانية خبراء في الإدارة والتسويق الرياضي، محققين مستويات إجماع تراوحت بين ٠,٦٦-٠,٩٢. تضمنت عينة تحليل الأهمية-الأداء ٣٧ مديراً ومتخصصاً بمتوسط خبرة عمل بلغ ٩,٦٢ سنة. كشفت النتائج أن بُعد "تخطيط وتنفيذ الابتكار" أظهر أعلى أهمية (م = ٤,٦١) لكن أدنى أداء



represented organizational strengths. “Innovation Culture & Attitude” scored lowest in both importance and performance ( $M = 3.47$  and  $0.96$ ), highlighting the need for gradual cultural development. Regarding innovation types, “Product & Service Innovation” held the highest importance ( $M = 4.61$ ), while “Technology & Virtual Platform Innovation” achieved the highest performance ( $M = 1.92$ ), whereas “Business Management” and “Business Model Innovation” were rated lowest in importance and performance ( $M = 3.47$  and  $0.92$ ). These findings indicate that organizations prioritize product- and technology-driven innovations over managerial and structural innovations, providing a strategic framework for balanced innovation development during crises.

**Keywords:** Business innovation, crisis management, sports innovation, sports industry, Iraqi sports.

## Introduction

The contemporary sports and recreation sector operates within a highly competitive landscape marked by swift economic, social, and technological transformations. This volatile environment, characterized by frequent disruptions and uncertainties, necessitates robust mechanisms for agile organizational responses (Papaioannou et al., 2024). Within this context, innovation extends beyond merely introducing novel products or services—it encompasses process enhancement, resource optimization, and elevating customer experience (Tjønndal, 2016). An organization's innovative capability represents its capacity to integrate and leverage creative and technological assets when confronting challenges in unpredictable settings (Hammerschmidt et al., 2024). By adopting emerging technologies, analytical tools, and strategic management frameworks, organizations strengthen their adaptability and

الأولوية للابتكارات القائمة على المنتجات والتكنولوجيا على حساب الابتكارات الإدارية والهيكليّة، مما يوفر إطاراً استراتيجياً لتطوير الابتكار المتوازن خلال الأزمات .

## IPA Analysis of Capacity and Innovation Application in Crisis Conditions and Environmental Instability for Sports and Recreational Service Centers in the Kurdistan Region of Iraq Garmian University/ School of Basic Education / Sport Department

Asst.prof. Ali Karim Ali  
Dr.Salam kareem zamn  
Asst.Lect.peshraw Othman karim

## Abstract

This study analyzed the capacity and application of innovation under crisis and environmental instability in multi-purpose sports and recreational centers in the Kurdistan Region of Iraq, employing a mixed-methods approach and the Importance-Performance Analysis (IPA) framework. In the qualitative phase, 35 scientific articles were reviewed to extract 33 indicators, subsequently validated via the Delphi method by eight experts in management and sports marketing, achieving consensus levels of 0.66–0.92. The IPA sample included 37 managers and specialists with an average of 9.62 years of work experience. Results revealed that the “Innovation Planning & Execution” dimension exhibited the highest importance ( $M = 4.61$ ) but the lowest performance ( $M = 0.85$ ), indicating an urgent area for improvement, whereas “Open Innovation & External Input” ( $M = 2.00$ ) and “Resource Allocation & Support” ( $M = 1.66$ )



and the Kurdistan Region, sports and recreation centers navigate significant economic, social, and infrastructural obstacles that amplify the requirement for innovative and management capabilities (Zardo, Biçer et al., 2018). Technology adoption and resource management significantly enhance productivity and service quality while strengthening organizations' capacity for rapid environmental adaptation (Al-Qaysi & Hussein, 2019). Innovative leadership, particularly among technical supervisors, serves as a critical element in building organizational resilience and flexibility (Al Kalabi & Mohammed, 2021; Ghanam et al., 2025). Technological infrastructure and information management systems offer practical tools for performance improvement, facilitating optimal utilization of human and material assets (Affes & Abed, 2023). Applying innovation across organizational processes and audience engagement increases user satisfaction and establishes competitive advantages (Saber et al., 2023). In contexts dominated by financial limitations and persistent instability, developing communication networks and deploying digital technologies contribute to sustainable advancement (Abdulrazzaq, 2025). Economic and social disruptions, including budget reductions and pandemic effects, impose substantial stress on organizational functioning and underscore the necessity for innovative crisis management solutions (Akbay et al., 2016; 2021). Building innovative capacity means cultivating the ability to identify opportunities, develop creative responses, and execute effective changes under uncertainty (Al-Ameedee & Abd Alzahrh, 2021). Simultaneously addressing human, managerial, and technological dimensions establishes an organizational culture receptive to innovation, empowering organizations to navigate environmental shifts successfully (Zardo, Biçer et al., 2018). Ultimately, innovative capacity and its effective implementation play an

sustain long-term performance (Lv, Wang et al., 2022). The synergy among innovation, creative thinking, and strategic planning facilitates competitive differentiation, sustainable growth, enhanced productivity, and greater stakeholder satisfaction (Meier et al., 2019). In volatile circumstances, innovative approaches enable organizations to mitigate crisis impacts and address urgent demands effectively (Li, C., Li, and Huang, 2024). Integrating innovation with resource stewardship and creativity offers a comprehensive solution for preserving consistent performance and service standards amid challenging conditions (Aghamohammadi et al., 2022). Given its inherently dynamic and unpredictable nature, the sports and recreation field demands innovative capabilities to recognize prospects and minimize vulnerabilities (Ringuet-Riot et al., 2013). Digital advancement and transformation facilitate superior resource allocation, consumer behavior insights, and enriched service delivery (Trequattrini et al., 2016). Innovation represents an organization's ability to implement beneficial modifications across products, services, operations, or management structures, encompassing the absorption and deployment of technological, administrative, and human resources during periods of instability (Lv, Wang et al., 2022). The sports, leisure, and tourism sector constitutes a fluid ecosystem profoundly shaped by economic, societal, and technological shifts, making innovative capacity especially vital (Tjønndal, 2016). Innovation here includes creating new offerings, enhancing operational workflows, implementing digital solutions, and utilizing data analytics to optimize both customer experiences and organizational outcomes (Hammerschmidt et al., 2024). Advanced technologies such as artificial intelligence and blockchain enhance organizational agility during crises (Meier et al., 2019). Within Iraq



innovation implementation. Without systematic capacity assessment, organizations cannot identify strengths and weaknesses, resulting in speculation-based decisions. This produces operational limitations, reduced service quality, stakeholder dissatisfaction, and decreased resilience. These circumstances demand frameworks for prioritizing innovative capabilities, strengthening decision-making, and coordinating resources. The gap between existing capacities and operational needs significantly hinders sustainable development and crisis performance. Weak emphasis on innovative capabilities causes facilities to react defensively during crises, lacking strategic agility for sustained performance. Limited technology and analytics adoption reduces ability to anticipate challenges, with decisions often based on assumptions. The absence of innovation-embracing cultures discourages employee creativity and constrains crisis responses. Insufficient evaluation approaches widen gaps between sustainability goals and actual outcomes, exposing organizations to environmental changes. These deficiencies in identifying, implementing, and assessing innovation capacity obstruct resilience and sustainability, demonstrating that without systematic frameworks, performance in unstable conditions remains limited. Research on innovation, crisis management, and facility performance shows growing attention to innovative capabilities in high-risk contexts, yet critical dimensions remain unexplored. International studies emphasize innovation's role in strengthening organizational resilience, though most remain broad with limited practical focus on capacity prioritization. Domestic Iraqi and Kurdistan studies have examined service quality and resource management but largely overlooked innovation integration and crisis management. A key research gap is the absence of coherent approaches for evaluating innovative

essential role in reinforcing the resilience, adaptability, and sustainable development of sports and recreation centers throughout Iraq and the Kurdistan Region.

## Research gap and problem

Sports and recreation facilities in Iraq's Kurdistan Region face complex economic, social, and technological challenges that compromise service quality delivery. Budget constraints, financial instability, and inadequate infrastructure have heightened management pressures, necessitating innovative solutions. Organizations must exhibit flexibility, rapid decision-making, and resource optimization to maintain effectiveness and sustainability. The lack of systematic methods for identifying innovative capabilities reduces productivity and limits responsiveness to stakeholder needs. Poor coordination among technology, personnel, and management systems hinders the creation of innovation-friendly organizational cultures. These issues weaken crisis management capacity and organizational resilience against unexpected disruptions. High-risk environments require strategies that enable organizations to seize opportunities, minimize threats, and improve service delivery. Many facilities lack data-driven analytical tools, leading to reactive, short-term decisions that diminish innovation impact. Environmental complexities prevent many sports and recreation organizations from fully identifying and optimizing innovative capabilities. Facilities often underuse creative and technological resources, implementing innovations in fragmented, unprioritized manners. This fragmentation creates gaps between strategic goals and operational performance, limiting crisis adaptability. Poor integration across management, technology, and human resources prevents effective



## Methodology

The research employed a mixed-methods approach, integrating both qualitative and quantitative techniques, as the study problem involved both theoretical and practical dimensions that required conceptual analysis alongside quantitative assessment of indicators. In the qualitative phase, thematic analysis of scientific texts (articles) was conducted, and the researcher reviewed 35 scientific articles (refer to the reference list at the end) to extract the initial indicators and dimensions of the study. This approach enabled systematic identification and categorization of key concepts, ensuring comprehensive coverage of relevant dimensions and enhancing the depth and rigor of the findings.

In the quantitative phase, the Delphi technique was first applied to validate the indicators and dimensions identified in the qualitative stage. The Delphi method was chosen due to its ability to reach consensus among experts on complex and multidimensional topics. The Delphi panel consisted of eight specialists, including university professors in management and sports marketing with relevant practical experience, who evaluated the indicators in terms of importance and applicability. A minimum consensus level of 70% was set to confirm the indicators, ensuring both scientific and practical validity.

The study population included managers and specialists in recreational and sports centers in the Kurdistan Region who were knowledgeable about management and recreational services. For the IPA analysis, the sample consisted of 37 managers and experts from both public and private centers. The sample size was determined according to standard criteria for strategic survey analyses (30–60 participants). Purposive sampling was used, selecting individuals based on occupation, education, expertise, and experience to ensure that

capabilities during crises, resulting in organizations implementing innovations without clear frameworks. Existing studies predominantly describe current conditions with minimal emphasis on crisis-period strategic decision-making. This reveals the need for research that systematically evaluates innovation capacities and their relationship with organizational adaptability. Research significance manifests in several ways: innovation capacity management enhances facility resilience during crises, enabling threat-to-opportunity transformation. Given limited resources and economic pressures in the Kurdistan Region, effective capability utilization can optimize processes and improve service quality. The absence of integrated assessment approaches has created gaps between strategic goals and performance. Sustainable development requires precise capacity understanding and coordinated solutions. Addressing these gaps can improve organizational performance and contribute to industry sustainable development and regional resilience. Given environmental, economic, and social challenges facing facilities in Iraq's Kurdistan Region, innovation capacity utilization is crucial for organizational resilience. The absence of frameworks for identifying and prioritizing capabilities, along with inconsistencies among technology, human resources, and management, have prevented facilities from addressing environmental changes effectively. Research gaps indicate that systematic innovation capacity assessment under crisis conditions has not been comprehensively conducted. The primary research question examines how to identify, evaluate, and effectively utilize innovation capacities under crisis conditions to enhance resilience, flexibility, and performance quality, and what strategies are necessary to achieve this objective.



## Findings and results

### Demographic Characteristics of the Sample:

Table 1 presents the demographic and professional characteristics of the study participants. The Delphi panel consisted of 8 experts, including managers and university professors in sports management, with an average work experience of 12.75 years. The IPA analysis sample included 37 managers and specialists from public and private sports and recreational centers, with an average work experience of 9.62 years. In both groups, the male-to-female ratio was approximately 3:1. Educational qualifications included PhD and MSc degrees in sports management, reflecting the participants' expertise and suitability for evaluating business innovation in crisis conditions.

Table 1. Demographic Characteristics of the Delphi Panel and IPA Sample

Sample Group	N	Mean Work Experience (Years)	Position / Expertise	Organization	Gender (Count)	Education
Delphi Panel	8	12.75	Manager & Sports Management Professor	University & Sports Centers	Male: 6, Female: 2	PhD: 8
IPA Analysis	37	9.62	Manager & Sports Management Specialist	Public & Private Sports Centers	Male: 28, Female: 9	PhD: 10, MSc: 27

responses accurately reflected domain knowledge.

Research instruments in the qualitative phase included a checklist for extracting indicators from scientific sources, which facilitated systematic coding and recording of identified dimensions. In the quantitative phase, two questionnaires were designed: one for the Delphi panel and another for IPA analysis. The Delphi questionnaire listed the extracted indicators and dimensions for expert evaluation. The IPA questionnaire comprised 33 final items, with each item measured using a five-point scale (1 = very low, 5 = very high), enabling simultaneous assessment of both importance and performance.

Validity was ensured through several approaches. In the qualitative phase, the credibility of the reviewed scientific articles served as the primary criterion. In the quantitative phase, Delphi validity was assessed based on expert consensus exceeding 70%, and the content validity of the IPA questionnaire was confirmed by multiple experienced researchers, with Levinger's coefficient calculated to verify scale validity. Reliability was tested using Cronbach's alpha, and given the expertise level of respondents, the measures were deemed reliable and acceptable.

Data analysis in the qualitative phase involved conceptual coding and thematic analysis to extract the core dimensions of business innovation. In the quantitative phase, Delphi and IPA data were analyzed using descriptive statistics in SPSS. The IPA analysis included computing mean importance and performance scores and generating a four-quadrant Importance-Performance Matrix, facilitating the identification of strengths and weaknesses for each dimension. SPSS was selected due to its capabilities for precise survey data processing, descriptive analysis, and generation of publication-quality charts suitable for academic research.



		and idea-generation methods		
		Financial support for innovative projects	0.88	10
		Allocation of specialized human resources for innovation	0.91	11
		Provision of supportive infrastructure for innovation	0.84	9
	Innovation Planning and Implementation	Existence of structured innovation programs	0.76	6
		Evaluation and monitoring systems for innovations	0.74	5
		Alignment of innovation with strategic goals	0.78	7
	Open Innovation and External Sourcing	Collaboration with external institutions	0.82	8
		Utilizing feedback from customers and target community	0.85	9
		Learning from experiences of other organizations during crises	0.81	7
Business Innovation in Business Systems	Business Management Innovation	Use of flexible management structures (e.g., short-term projects)	0.72	6
		Designing innovative crisis management methods (e.g., crisis teams)	0.73	5

**Determining indicators and dimensions and verifying them in Delphi:** Table 2 presents the results of the Delphi panel and the frequency of each indicator in the reviewed scientific articles. The Delphi consensus among the eight experts ranged from 0.66 to 0.92, indicating a moderate to high level of agreement on the relevance and applicability of the indicators. Indicators related to resource allocation, technology, and product/service innovation received the highest consensus scores, while some aspects of business model innovation and organizational culture showed slightly lower agreement levels. The frequency of each indicator in the literature review varied between 2 and 11, demonstrating that certain indicators, such as teamwork capability and allocation of specialized human resources, were more frequently discussed in the sources. Overall, the table highlights the validation of the 33 indicators across the two main dimensions and eight sub-dimensions, providing a solid foundation for subsequent IPA analysis.

Table 2. Delphi Panel Consensus and Indicator Frequency in Reviewed Literature

Main Dimension	Sub-dimension	Indicator / Item	Delphi Consensus	Frequency in Review
Business Innovation Capacity in Crisis Conditions	Organizational Culture and Attitudes	Willingness of members to accept change	0.71	5
		Collective support for innovative ideas	0.73	6
		Valuing innovation in organizational culture	0.69	4
	Skills of Members and Teams Resource Allocation and Support	Problem-solving skills in crisis	0.81	9
		Teamwork capability for innovation	0.86	11
		Mastery of creativity	0.79	8



		consumption under constraints		
Technology & Virtual Platform Innovation		Digitalization of recreational and sports services	0.85	9
		Development of virtual platforms for interaction and learning	0.88	10
		Leveraging modern technologies for customer relationship management	0.92	11

**IPA Analysis of Innovation Capacity and Capability:** Table 3 summarizes the mean values of importance and performance for each innovation dimension and its indicators. The results show that the “Innovation Planning & Execution” dimension received the highest importance score ( $M = 4.61$ ), indicating that experts view systematic planning and alignment with strategic goals as the most critical factor in fostering innovation during crises. Conversely, this dimension demonstrated the lowest performance level ( $M = 0.85$ ), suggesting a significant gap between perceived importance and practical implementation. In contrast, “Open Innovation & External Input” achieved the highest performance mean ( $M = 2.00$ ), reflecting that collaboration and external feedback were relatively well-established mechanisms among organizations. Meanwhile, “Innovation Culture & Attitude” scored the lowest importance and performance means ( $M = 3.47$  and  $M = 0.96$ , respectively), implying that cultural and attitudinal readiness for innovation remains underdeveloped in the studied context. Overall, the findings highlight uneven innovation capacity across different dimensions, underscoring the need to

		Facilitating fast and creative decision-making in crises	0.77	6
Business Model Innovation		Redesigning revenue models according to crisis	0.66	3
		Adapting the value chain to changing environmental conditions	0.68	4
		Designing low-cost and collaborative service models	0.71	5
Marketing & Communication Innovation		Crisis-adapted digital marketing	0.79	7
		Use of interactive media to engage audience	0.82	8
		Direct and flexible communication with customers	0.83	9
Products & Services Innovation		Innovative design of recreational and sports services	0.86	10
		Innovative packaging and delivery of services	0.89	11
		Innovative production and supply of recreational products	0.82	9
Physical Facilities & Environment Innovation		Rearrangement of physical spaces to follow protocols	0.71	4
		Updating equipment based on crisis needs	0.76	5
		Optimizing resource	0.73	6



Innovation & External Input	with external institutions		
	Using customer and community feedback	4.09	2.05
	Adopting experiences from other organizations in crises	4.03	2.07
	Dimension Mean	4.04	2.00

Figure 1 illustrates the Importance–Performance Analysis (IPA) of innovation dimensions in crisis conditions. The quadrants reveal clear performance and priority differences among the components. “Innovation Planning & Execution,” positioned in the high-importance/low-performance quadrant, indicates a critical area requiring immediate attention and improvement. “Open Innovation & External Input” and “Resource Allocation & Support” fall within the high-importance/high-performance area, representing strategic strengths that should be maintained. “Team Skills in Innovation” lies close to the intersection, suggesting a balanced but improvable capacity. In contrast, “Innovation Culture & Attitude” occupies the low-importance/low-performance quadrant, reflecting a secondary priority that nonetheless warrants gradual development to foster a sustainable innovation mindset. The chart provides a comprehensive visual summary, guiding decision-makers toward more balanced innovation development during instability or crisis.

strengthen internal cultural support and structured innovation management.

Table 3. Mean Values of Importance and Performance for Innovation Dimensions

Dimension	Indicator	Importance (Mean)	Performance (Mean)
Innovation Culture & Attitude	Members' willingness to embrace change	3.42	0.93
	Collective support for new ideas	3.46	1.03
	Valuing innovation in organizational culture	3.53	0.92
	Dimension Mean	3.47	0.96
Team Skills in Innovation	Problem-solving skills during crises	4.12	1.36
	Teamwork capability for innovation	4.19	1.49
	Mastery of creativity and ideation methods	4.06	1.33
	Dimension Mean	4.12	1.39
Resource Allocation & Support	Financial support for innovation projects	4.29	1.58
	Allocating specialized human resources for innovation	4.36	1.72
	Providing infrastructures to support innovation	4.31	1.68
	Dimension Mean	4.32	1.66
Innovation Planning & Execution	Existence of structured innovation programs	4.60	0.85
	Evaluation and monitoring systems for innovations	4.55	0.81
	Alignment of innovation with strategic goals	4.67	0.90
	Dimension Mean	4.61	0.85
Open	Collaboration	4.01	1.88



	decision-making in crises		
	Dimension Mean	3.47	1.01
Business Model Innovation	Redesigning revenue models adapted to crises	3.78	0.89
	Adapting the value chain to changing environmental factors	3.82	0.92
	Designing collaborative, low-cost service delivery models	3.85	0.94
	Dimension Mean	3.82	0.92
	Marketing & Communication Innovation	Crisis-oriented digital marketing	4.05
Use of interactive media for audience engagement		4.09	1.41
Flexible and direct customer communication		4.12	1.46
Dimension Mean		4.09	1.40
Product & Service Innovation	Innovation in designing leisure & sports services	4.56	1.56
	Innovation in packaging and delivering services	4.61	1.63
	Innovation in supplying and producing leisure products	4.67	1.68
	Dimension Mean	4.61	1.62
Facility & Physical Environment Innovation	Redesigning physical spaces for health protocols	4.01	1.46

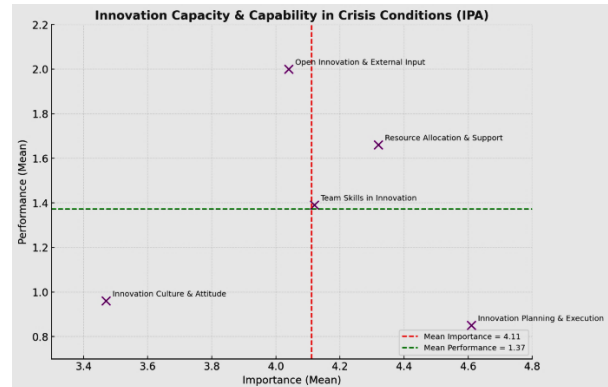


Figure 1. IPA Chart of Innovation Capacity and Capability

**IPA Analysis of Innovation Types:** Table 4 presents the mean importance and performance scores across different types of innovation implemented by organizations operating in crisis environments. The results indicate that not all innovation types receive the same level of attention or are executed with equal success. The highest mean importance belongs to product and service innovation ( $M = 4.61$ ), emphasizing that organizations place the greatest value on developing or redesigning offerings to meet shifting demands during unstable periods. In contrast, managerial innovation shows the lowest level of perceived importance ( $M = 3.47$ ), suggesting that changes in leadership or organizational structures are viewed as less urgent compared with more tangible innovation efforts.

Table 4. Mean Importance and Performance of Innovation Types

Dimension	Indicator	Importance (Mean)	Performance (Mean)
Business Management Innovation	Use of flexible management structures	3.42	1.02
	Designing innovative crisis management methods	3.47	0.97
	Facilitating fast and creative	3.53	1.05

managerial or structural transformation, providing a strategic perspective for identifying priority areas that require improvement and those representing existing strengths.

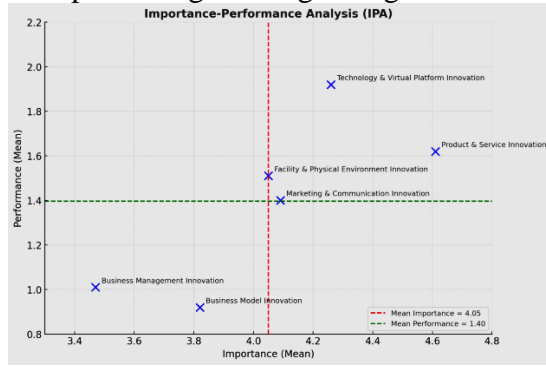


Figure 2. IPA Chart of Innovation Types

## Discussion

### Paraphrased Discussion Section

The innovation indicator framework established in this research offers a theoretically sound foundation for comprehending the complex nature of innovative capability within sports and recreational facilities in Iraq's Kurdistan Region. The identified dimensions, derived from domestic and international scholarship, demonstrate innovation's complexity as an organizational competency encompassing culture, personnel, technological systems, resource distribution, strategic planning, and external partnerships. Regional studies by Al-Qaysi & Hussein (2019), Al Kalabi & Mohammed (2021), and Affes & Abed (2023) emphasized technology management, innovative leadership, and knowledge systems as crucial for organizational adaptability and performance. Global research from Ringuet-Riot et al. (2013), Meier et al. (2019), and Hammerschmidt et al. (2024) confirmed that innovation demands systematic integration of human, technological, and managerial elements, with organizations successfully combining these dimensions achieving greater resilience during crises. Delphi validation verified that multi-dimensional approaches suit

	Updating equipment based on crisis needs	4.06	1.51
	Optimizing resource use under constraints	4.09	1.55
	Dimension Mean	4.05	1.51
Technology & Virtual Platform Innovation	Digitalization of leisure & sports services	4.22	1.82
	Developing virtual platforms for interaction & training	4.26	1.94
	Applying advanced technologies in customer relationship	4.29	2.01
	Dimension Mean	4.26	1.92

This table presents the importance–performance analysis (IPA) across six types of innovation in organizations operating under crisis and instability. The results show that different innovation types are prioritized and executed unevenly. The highest importance is associated with product and service innovation (mean = 4.61), reflecting its critical role in maintaining adaptability and competitiveness during crises, while managerial innovation (mean = 3.47) ranks lowest, suggesting that internal structural changes are perceived as less urgent. In terms of performance, technological innovation achieved the highest mean (1.92), indicating organizations' growing success in applying digital tools and virtual platforms to ensure continuity, whereas business model innovation (mean = 0.92) shows the weakest implementation, highlighting challenges in redefining revenue systems and value networks. Overall, the IPA findings reveal that organizations tend to focus more on external and technology-driven innovation types than on



International evidence from Fonti et al. (2023) and Young Jan et al. (2021) confirms that without deliberate process integration, well-resourced centers may fail to achieve sustainable innovation impact. These insights emphasize viewing innovation capacity as dynamic interaction among resources, processes, and strategic intent rather than mere asset accumulation. Managers and policymakers must prioritize addressing gaps through structured innovation strategies, formalized knowledge management, and continuous evaluation mechanisms. Strengthening weak areas can transform existing strengths into actionable outcomes, reinforcing resilience and enabling effective response to evolving demands.

IPA findings on innovation types reveal how sports and recreational centers prioritize different domains under crisis and instability. Product and service innovations emerge as primary focus, reflecting strategic orientation toward maintaining core offerings affecting customer experience and satisfaction. This emphasis aligns with literature highlighting tangible innovations' centrality in sustaining competitiveness during high-risk periods (Trequattrini et al., 2016; Meier et al., 2019; Al-Qaysi & Hussein, 2019). Conversely, managerial and business model innovations remain underdeveloped, suggesting structural changes receive limited attention despite potential for enhancing agility and resilience. This resonates with Iraqi context studies where managerial adaptation often delays due to resource constraints or guidance deficiencies (Al Kalabi & Mohammed, 2021; Ghanam et al., 2025). Technology and virtual platform innovations, while not top importance priorities, show higher performance levels, indicating successful digital tool implementation for continuity and engagement, consistent with international research on digital transformation (Lv, Wang et al., 2022;

local contexts, encompassing both concrete resources—financial backing, technical systems, specialized personnel—and intangible elements like organizational culture and external knowledge receptiveness. The framework conceptualizes innovation not as isolated activities but as continuous systemic capability influencing all organizational processes. By connecting theoretical models with practical realities of Iraqi sports facilities, this research provides a validated, context-appropriate assessment tool. This approach enables comprehensive capability understanding while supporting strategic decision-making, resource prioritization, and development of adaptable organizational ecosystems. Furthermore, aligning these dimensions with existing research ensures consistency with global standards while addressing regional specificities, enabling managers and policymakers to convert findings into actionable strategies strengthening immediate responsiveness and long-term sustainability.

IPA analysis of innovative capacity reveals specific areas where sports and recreational facilities demonstrate strengths and require targeted enhancement. Findings show centers possess solid foundations in resource allocation, technical systems, and skilled personnel, consistent with studies emphasizing infrastructure and talent's critical role in organizational innovation (Watabe et al., 2021; Bousdekis et al., 2021). However, weaker dimensions may limit capability translation into innovation outcomes, including strategic alignment, structured knowledge sharing, and systematic evaluation mechanisms. This pattern—strong foundational resources but strategic and procedural gaps—matches observations in Iraqi sports organizations where resource availability exceeds strategic innovation application (Al-Qaysi & Hussein, 2019; Al Kalabi & Mohammed, 2021).



organizational capacity and innovation performance interplay (Wattenberg et al., 2021; Donn et al., 2022; Rabe et al., 2023).

## Conclusion

The study highlights the critical role of innovation capacity in enhancing not only the resilience, flexibility, and overall performance of sports and recreational centers operating under crisis conditions and environmental instability, but also their ability to anticipate, adapt to, and capitalize on emerging opportunities in rapidly changing contexts. By systematically identifying, refining, and validating a comprehensive set of innovation indicators and dimensions through qualitative research and expert consensus methods, the research provides a robust and multidimensional framework that captures both the theoretical underpinnings and practical applications of organizational innovation. The findings reveal that while innovations in products, services, and technology are actively implemented and widely recognized as central to operational success, internal managerial practices, structural modifications, and organizational culture readiness remain relatively underdeveloped, representing untapped potential for strategic improvement. This disparity suggests that organizations are more inclined to focus on visible, short-term outputs that have immediate operational impact, often at the expense of long-term structural and managerial enhancements, which if addressed, could substantially strengthen their capacity to respond effectively to crises, sustain competitive advantage, and maintain continuity in service quality. Overall, the study establishes a nuanced understanding of the multifaceted nature of innovation capacities, highlighting how interrelated dimensions such as human capability development, resource optimization, process redesign, and technological integration contribute collectively to organizational

Hammerschmidt et al., 2024). The pattern suggests centers prioritize externally visible innovations impacting service delivery while internal innovations lag. Addressing this imbalance requires deliberate policies integrating technological, managerial, and product innovations to create comprehensive resilient ecosystems responding to immediate crises and long-term challenges. Findings reinforce balanced innovation portfolio importance, aligning operational, technological, and managerial domains to maximize flexibility and sustainability.

Integrating IPA findings across dimensions, capacities, and innovation types provides comprehensive perspective on innovation landscape in Iraqi sports facilities. Results indicate structured yet imbalanced innovation profile: product and service innovations dominate due to immediate user impact, while managerial innovations lag despite resilience-strengthening potential. This pattern reflects contextual challenges like resource constraints and broader trends where sports organizations prioritize tangible outputs over internal processes (Fonti et al., 2023; Fuji, 2021; Aloni et al., 2018). Emphasis on technological innovations, though perceived as secondary, demonstrates growing recognition of digital tools as continuity and efficiency enablers. Findings suggest developing balanced innovation ecosystems—strategically aligning human, technological, managerial, and product capacities—is critical for enhancing performance and resilience. Effective innovation management in volatile environments requires attention to immediate service outcomes plus deliberate investment in managerial practices, structural flexibility, and learning mechanisms. This integrated approach ensures centers respond to short-term crises while sustaining long-term growth, competitiveness, and stakeholder satisfaction, resonating with global research on



simultaneously preparing them for future transformations in the sports and recreational sector.

### Limitations

This study, while providing significant insights into the innovation capacity and application in sports and recreational centers under crisis and environmental instability, has certain limitations that should be acknowledged. The research is geographically confined to the Kurdistan Region of Iraq, which may limit the generalizability of the findings to other regions or countries with different economic, social, and organizational contexts. Additionally, the sample size, although carefully selected for expert knowledge and experience, is relatively small, and the reliance on purposive sampling may introduce selection bias, potentially affecting the representativeness of the results. The study primarily uses self-reported data from managers and specialists, which could be influenced by subjective perceptions, personal experiences, or organizational culture, limiting the objectivity of the performance assessments. Furthermore, while the research integrates qualitative and quantitative approaches, the cross-sectional nature of the IPA analysis does not capture temporal changes in innovation capacity or performance, particularly during ongoing crises or evolving environmental conditions. Lastly, the study focuses on identifying and evaluating existing innovation capacities but does not experimentally test the effectiveness of specific interventions or strategies, leaving a gap in understanding the practical impact of implementing recommended improvements. Despite these limitations, the research provides a structured and evidence-based foundation for future studies, policy-making, and managerial practice in enhancing innovation capacity and organizational resilience.

resilience, adaptability, and performance under high-pressure and uncertain conditions. The framework developed in this research can thus serve as a practical tool for managers and policymakers seeking to systematically assess, monitor, and develop innovation within complex, high-risk organizational environments.

Ultimately, the research underscores the importance of adopting a balanced, integrated, and evidence-driven innovation strategy that aligns product, technological, managerial, and organizational dimensions while simultaneously fostering a culture that values experimentation, learning, and continuous improvement. Strengthening human and team capabilities, promoting leadership support, encouraging cross-functional collaboration, and enhancing resource allocation and strategic planning are critical to bridging the gaps identified in current practice and ensuring the full potential of innovation is realized. By prioritizing both immediate operational innovations and long-term structural and managerial improvements, sports and recreational centers can not only enhance their adaptability, competitiveness, and sustainability, but also build organizational systems capable of proactive problem-solving, knowledge retention, and strategic foresight. The findings further suggest that a systematic, evidence-based approach to innovation management increases organizational efficiency and effectiveness, mitigates risks associated with environmental volatility, and establishes a strong foundation for long-term growth, continuous learning, and stakeholder satisfaction. These insights provide actionable guidance for managers, leaders, and policymakers, supporting informed decision-making, resource prioritization, and the development of resilient, innovation-driven organizations capable of thriving under highly unstable and challenging conditions, while



based on evolving internal and external conditions. Policy-makers and sports governing bodies can support these efforts by providing regulatory frameworks, financial incentives, and technical guidance to foster innovation and sustainability. Finally, future research should focus on longitudinal studies to evaluate the effectiveness of implemented innovation strategies over time, experimental interventions to test practical solutions, and comparative studies across regions and types of sports organizations to strengthen generalizability and provide a broader understanding of best practices in crisis-driven innovation management. These recommendations collectively offer a roadmap for enhancing the strategic, cultural, and operational capacities of organizations, ensuring that they remain resilient, adaptive, and competitive in rapidly changing and unstable environments.

### Acknowledgements

We would like to express our sincere gratitude to all experts, practitioners, and organizations who contributed their time, knowledge, and insights to this study. Their guidance and feedback were invaluable in shaping the research design, analysis, and interpretation of results.

### References

1. Abdulrazzaq, A. S. (2025). A Proposed Plan To Activate Sponsorships And Sports Investment To Support The Sustainability And Financing Of Some Olympic Federations In Iraq. *Musamus Journal of Physical Education and Sport (MJPEs)*, 7(1), 417-425.
2. Affes, H. S., & Abed, F. A. (2023). Knowledge management and its role in the innovative performance of the iraqi ministry of youth and sports. *Asian Journal of Economics, Business and Accounting*, 23(21), 129-151.
3. Aghamohammadi, S., Khosravizadeh, E., & Mondalizadeh, Z. (2022). Designing a strategic innovation model in sports business based on

### Suggestions and Recommendation

Based on the findings and analysis of this study, several suggestions and recommendations can be offered to enhance innovation capacity and organizational resilience in sports and recreational centers operating under crisis and environmental instability. First, organizations should focus on developing a structured and systematic approach to managing innovation, integrating human, technological, and managerial resources to create a coordinated innovation ecosystem that can respond effectively to dynamic and unpredictable challenges. Building an organizational culture that values creativity, encourages experimentation, and supports the adoption of new ideas is essential to sustain long-term innovation and flexibility. Managers should prioritize training and capacity-building programs to strengthen team problem-solving skills, creative thinking, and adaptability during crisis situations, ensuring that employees are empowered to contribute to innovative solutions. Strategic resource allocation should be reinforced, ensuring that financial, technological, and human resources are effectively deployed to support high-priority innovation initiatives. Furthermore, organizations are encouraged to establish stronger external networks, partnerships, and feedback mechanisms to benefit from open innovation and knowledge exchange with other organizations, communities, and stakeholders. Embracing digital transformation and technology-driven platforms can improve service delivery, audience engagement, and operational efficiency, while also enabling more agile responses to sudden environmental changes. Additionally, organizations should conduct regular assessments of innovation performance and strategic alignment to identify gaps, monitor progress, and adjust priorities



- Coronavirus). *Sport Management Studies*, 13(66), 297-326.
13. Broshi-Chen, O., & Mansfeld, Y. (2021). A wasted invitation to innovate? Creativity and innovation in tourism crisis management: A QC&IM approach. *Journal of Hospitality and Tourism Management*, 46, 272-283.
  14. Gerke, A. (2016). Towards a network model of innovation in sport—the case of product innovation in nautical sport clusters. *Innovation*, 18(3), 270-288.
  15. Ghanam, R. K., Farh, W. A. R., & Ali, O. A. (2025). The reality of innovative leadership among technical supervisors in the departments of sports and scouting activity in Iraq. *Retos: nuevas tendencias en educación física, deporte y recreación*, (68), 1664-1677.
  16. González-Serrano, M. H., Añó Sanz, V., & González-García, R. J. (2020). Sustainable sport entrepreneurship and innovation: A bibliometric analysis of this emerging field of research. *Sustainability*, 12(12), 5209.
  17. Hadrawi, H. K. (2018). The Impact of Web Knowledge Networks on E-service Innovation in Iraqi Tourism Companies. *Webology*, 15(2).
  18. Hammerschmidt, J., González-Serrano, M. H., Puumalainen, K., & Calabuig, F. (2024). Sport entrepreneurship: the role of innovation and creativity in sport management. *Review of Managerial Science*, 18(11), 3173-3202.
  19. Islam, A. (2020). Factors affecting sustainable business growth of SMEs during Covid-19 crisis: The mediating role of strategic entrepreneurship practices. *Emerald Open Res*, 2.
  20. King, N. (2013). "Sport for All" in a financial crisis: survival and adaptation in competing organisational models of local authority sport services. *World leisure journal*, 55(3), 215-228.
  21. Li, C., Li, D., & Huang, C. (2024). Innovations in Sports Industry: Trends and Transformations. *Psychology of Sport & Exercise*, 75, 112416.
  22. Li, X. (2024). Innovative Management and Economic Analysis of Business Models in Sports Enterprises: Enhancing Competitiveness Through Strategic Practices. *Revista de Psicología del Deporte (Journal of Sport Psychology)*, 33(3), 93-104.
  - grounded theory. *Sport Management Studies*, 14(71), 85-116.
  4. AkBAY, C., Hussein, R. S., Salim, B. T., & Latif, S. (2016). The Impact of Economic Crisis on Small Business (Case Study in Erbil-Iraq). *International Journal of Business and Social Science*, 7(10).
  5. Akbay, C., Khalil, D. M., & Odel, N. M. (2021). The impact of Covid-19 on small businesses in the North of Iraq. *World Journal of Biology and Biotechnology*, 6(1), 21-23.
  6. Al Kalabi, F. A. H., & Mohammed, D. J. (2021). Identify the reality of innovative leadership of the heads for first-class football clubs in Iraq. *Annals of the Romanian Society for Cell Biology*, 25(4), 10471-10478.
  7. Al-Ameedee, I. M. R., & Abd Alzahrh, H. O. (2021). The role of creativity and business performance on crisis management: Evidence from Iraqi listed companies. *International Journal of Economics and Finance Studies*, 13(2), 45-64.
  8. ALmasoodi, M. F., Rahman, S., Basendwah, M., & ALfarra, A. N. (2023). Leveraging Digital Transformation to Enhance Quality Tourism Services in Babylon City, Iraq. *International Journal of Sustainable Development & Planning*, 18(10).
  9. Al-Qaysi, B. J., & Hussein, H. A. (2019). Technology Management for Supply Chain in Sports Clubs Iraqi and Its Reflection on the Excellence Performance. *Int. J Sup. Chain. Mgt Vol*, 8(1), 804.
  10. Al-Qaysi, B. J., & Hussein, H. A. (2019). Technology Management for Supply Chain in Sports Clubs Iraqi and Its Reflection on the Excellence Performance. *Int. J Sup. Chain. Mgt Vol*, 8(1), 804.
  11. Barna, M., & Biletska, I. (2021). Strategic Management of Innovation Development of Tourism Businesses: Multi-Systematic Approach. *Quality-Access to Success*, 22(180).
  12. Brakhas, H., Boroumand, M. R., Dastoom, S., & Bozorgpour, B. (2021). Business Management in Crisis Period: Factors, Challenges and Strategies (Study of the sports industry in record conditions caused by



32. Trequattrini, R., Lardo, A., Cuozzo, B., & Manzari, A. (2024). Crisis management in sports enterprises: An analysis on the role of female top managers. In *Gender issues in the sustainable development era: Emerging evidence and future agenda* (pp. 313-329). Cham: Springer Nature Switzerland.
33. Turcu, I., Burcea, G. B., Diaconescu, D. L., Shaao, M., Barbu, M. C. R., Popescu, M. C., & Tohăneanu, A. A. (2021). The use of technological innovations in sport. *Bulletin of the Transilvania University of Braşov. Series IX: Sciences of Human Kinetics*, 107-116.
34. Winand, M., Scheerder, J., Vos, S., & Zintz, T. (2016). Do non-profit sport organisations innovate? Types and preferences of service innovation within regional sport federations. *Innovation*, 18(3), 289-308.
35. Zardo, H. T., Biçer, M., & Abakay, U. (2018). Investigation of quality of service mentality in Turkey and Iraq sport centers. *European Journal of Physical Education and Sport Science*.
23. Lv, C., Wang, Y., & Jin, C. (2022). The possibility of sports industry business model innovation based on blockchain technology: Evaluation of the innovation efficiency of listed sports companies. *Plos one*, 17(1), e0262035.
24. Lv, C., Wang, Y., & Ma, Y. (2022). Construction of business innovation model for sports industry using a deep learning algorithm. *Soft Computing-A Fusion of Foundations, Methodologies & Applications*, 26(20).
25. Meier, M., Tan, K. H., Lim, M. K., & Chung, L. (2019). Unlocking innovation in the sport industry through additive manufacturing. *Business Process Management Journal*, 25(3), 456-475.
26. Papaioannou, A., Dimitropoulos, P., Koronios, K., & Marinakos, K. (2024, February). Perceived financial performance in sport services firms: the role of HRM practices and innovation. In *Evidence-Based HRM: a Global Forum for Empirical Scholarship* (Vol. 12, No. 1, pp. 1-22). Emerald Publishing Limited.
27. Ratten, V. (2014, November). Sport innovation: the role of social entrepreneurship and creativity in fostering sport related business activities. In *Research Colloquium on Societal Entrepreneurship and Innovation at RMIT*.
28. Ringuet-Riot, C. J., Hahn, A., & James, D. A. (2013). A structured approach for technology innovation in sport. *Sports Technology*, 6(3), 137-149.
29. Saber, M. A., Rajab, F. Q., & Mersal, S. A. (2023). Technology Business Incubators as a Mechanism to Support Sports Management Research Applications: A Comparative Study between Egypt and Iraq. *Revista iberoamericana de psicología del ejercicio y el deporte*, 18(1), 48-53.
30. Tjønnndal, A. (2016). Sport, innovation and strategic management: A systematic literature review. *Brazilian Business Review*, 13(Special Ed), 38-56.
31. Trequattrini, R., Del Giudice, M., Cuozzo, B., & Palmaccio, M. (2016). Does sport innovation create value? The case of professional football clubs. *Technology, Innovation and Education*, 2(1), 11.