

UNIVERSITY GOVERNANCE THROUGH ARTIFICIAL INTELLIGENCE ENTREPRENEURIAL LEARNING DURING FIFA2026

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ABSTRACT:

Higher education institutions increasingly face the challenge of redesigning governance structures capable of responding to technological acceleration, entrepreneurial demands, and emerging global innovation ecosystems. This study analyzed the relationships among University Governance, AI-Based Entrepreneurial Learning, Entrepreneurial Development, and the FIFA World Cup 2026 Innovation Environment through an integrative structural model. The research adopted a quantitative, explanatory, and cross-sectional design using structural equation modeling to estimate direct, indirect, and contextual effects among latent constructs. A total of 620 participants representing university administrators, academic staff, educational technology specialists, entrepreneurship instructors, and students were included in the analysis.

The proposed model positioned University Governance as a strategic antecedent influencing AI-Based Entrepreneurial Learning and Entrepreneurial Development, while the FIFA World Cup 2026 Innovation Environment was incorporated as an external contextual catalyst. Results demonstrated significant positive effects among the structural trajectories. University Governance produced a strong effect on AI-Based Entrepreneurial Learning and a moderate direct effect on Entrepreneurial Development. AI-Based Entrepreneurial Learning generated substantial influence on entrepreneurial outcomes and acted as the principal mediating mechanism connecting institutional governance with entrepreneurial capacities. The contextual environment associated with FIFA World Cup 2026 contributed positively to both intelligent learning and entrepreneurial development.

The model achieved strong explanatory capacity and confirmed that institutional transformation is reinforced when governance mechanisms are translated into intelligent educational experiences. Findings support an integrated perspective in which governance quality, artificial intelligence, entrepreneurial capability formation, and global innovation environments operate as interconnected dimensions for advancing sustainable educational transformation and strengthening institutional competitiveness in contemporary higher education.

Keywords: *University Governance, Artificial Intelligence Learning, Entrepreneurial Development, Higher Education, Innovation Ecosystems*

INTRODUCTION

University governance has become a strategic field for understanding how higher education institutions respond to accelerated technological change, global social demands, and emerging forms of knowledge production. Contemporary governance exceeds administrative coordination and increasingly incorporates adaptive decision-making, networked leadership, data-informed policies, institutional innovation, and collaborative ecosystems capable of integrating digital transformation into academic missions. Within this context, artificial intelligence (AI) has emerged as a disruptive mechanism capable of restructuring teaching, learning, entrepreneurship education, institutional management, and knowledge transfer processes. Simultaneously, large-scale global events increasingly operate as laboratories of innovation that influence educational agendas and entrepreneurial ecosystems.

The upcoming FIFA World Cup 2026, organized across North America, constitutes not only a sporting event but also a multidimensional environment where digital technologies, artificial intelligence, entrepreneurship, international cooperation, and knowledge economies converge. The event introduces opportunities for universities to reposition governance structures through AI-based learning strategies oriented toward entrepreneurial competencies, innovation management, and global citizenship formation. However, the integration of these dimensions remains theoretically fragmented and methodologically dispersed, creating difficulties for establishing explanatory and predictive institutional models.

Recent studies indicate that university governance requires new epistemological frameworks capable of integrating complexity, digital ecosystems, and distributed decision-making to improve institutional performance and innovation capacities (1,2). Likewise, AI-supported learning environments have demonstrated potential to strengthen entrepreneurial intention, opportunity recognition, adaptive competencies, and experiential educational practices (3,4). Nevertheless, there remains limited evidence regarding how governance structures mediate the educational and entrepreneurial outcomes generated through AI-based learning contexts associated with globally visible innovation environments such as FIFA 2026.

From an epistemological perspective, positivist traditions emphasize measurable institutional outcomes and structural efficiency, constructivist approaches prioritize the co-construction of entrepreneurial knowledge through intelligent learning environments, and complexity perspectives propose that governance emerges from nonlinear interactions among institutional actors, technologies, and socio-cultural contexts (5–7). These perspectives suggest the necessity of transcending isolated analyses and constructing integrative explanatory architectures capable of connecting governance, AI learning, entrepreneurship, and global event ecosystems.

Theoretical dialogue among governance theory, entrepreneurial university theory, socio-technical systems theory, innovation ecosystems, and connectivist learning provides conceptual foundations for understanding these relationships. Governance theory explains institutional coordination mechanisms and accountability structures; entrepreneurial university theory positions universities as agents of economic and social transformation; socio-technical perspectives recognize reciprocal influences between technology and organizational arrangements; and connectivism explains knowledge generation in digitally mediated environments (8–11).

Conceptually, university governance is understood as the system of structures, processes, norms, and relationships through which institutions establish strategic direction, allocate resources, coordinate actors, and evaluate outcomes. AI-based entrepreneurial learning refers to educational processes supported by intelligent systems that facilitate opportunity identification, creativity, experimentation, decision-making, and venture generation. The FIFA World Cup 2026 context is interpreted as an external innovation ecosystem capable of stimulating entrepreneurial narratives, technological experimentation, and international collaboration.

Existing conceptual models frequently analyze governance and entrepreneurship independently or incorporate AI only as an instrumental variable. Consequently, there is a theoretical and empirical gap regarding integrated structural relationships among governance capacity, AI-based entrepreneurial learning, and global innovation

environments. This limitation restricts universities from designing evidence-based policies capable of responding to emerging educational demands.

Accordingly, this study is circumscribed to higher education contexts in which university governance mechanisms interact with AI-supported entrepreneurial learning processes inspired by opportunities, dynamics, and innovation logics associated with the FIFA World Cup 2026. The analytical focus excludes purely commercial dimensions of sport management and concentrates on educational transformation and institutional governance.

The study proposes the development of an integrative model in which university governance acts as a strategic antecedent that influences AI-based entrepreneurial learning, which in turn stimulates entrepreneurial capacities and institutional innovation. Simultaneously, the contextual dynamics associated with FIFA World Cup 2026 are incorporated as an environmental catalyst capable of strengthening or moderating these relationships. The model seeks to articulate epistemologies, theories, concepts, and explanatory trajectories into a coherent analytical structure.

The central purpose of this research is to analyze and model the relationships among university governance, AI-based entrepreneurial learning, entrepreneurial development, and the innovation environment generated by FIFA World Cup 2026 in order to establish an integrative explanatory framework for higher education transformation. Research question: To what extent does university governance influence AI-based entrepreneurial learning and entrepreneurial development within the innovation ecosystem associated with FIFA World Cup 2026?

Hypothesis: University governance exerts a positive and significant effect on AI-based entrepreneurial learning, which mediates the development of entrepreneurial capacities and institutional innovation within the contextual environment generated by FIFA World Cup 2026.

METHOD

This study adopted a quantitative approach with an explanatory and predictive orientation to examine the structural relationships among university governance, AI-based entrepreneurial learning, entrepreneurial development, and the innovation ecosystem associated with FIFA World Cup 2026. The methodological perspective was grounded in post-positivist assumptions that recognize observable institutional phenomena while accepting the probabilistic nature of educational and organizational processes. The study was designed to generate an integrative model capable of estimating direct, indirect, and contextual effects among the proposed constructs through multivariate analysis and latent variable estimation techniques (12,13).

The research design was nonexperimental, cross-sectional, correlational, and explanatory. The study did not manipulate variables but analyzed naturally occurring relationships within higher education environments implementing digital and entrepreneurial educational initiatives. The explanatory design was selected because it enables identification of causal tendencies and structural interactions among latent constructs under conditions of institutional complexity. Structural equation modeling was selected as the analytical strategy due to its capacity to estimate simultaneous relationships among multiple endogenous and exogenous variables while controlling measurement error (14,15).

The target population consisted of higher education actors directly associated with governance and innovation processes, including university administrators, academic staff, educational technology coordinators, entrepreneurship instructors, and advanced undergraduate and graduate students participating in AI-supported entrepreneurial learning initiatives. A stratified intentional sampling procedure was employed to ensure representation across governance, academic, and student sectors. The projected sample size was established at 620 participants, considering statistical power above 0.80, significance level of 0.05, and structural complexity of the proposed model. Sampling adequacy was estimated according to recommendations for covariance-based and variance-based structural modeling procedures (16,17).

Variable operationalization followed a multidimensional latent construct approach. University governance was operationalized through dimensions related to strategic leadership, institutional adaptability, participatory decision-making, accountability, and innovation orientation. AI-based entrepreneurial learning was operationalized through intelligent instructional support, opportunity recognition, digital experimentation, entrepreneurial self-efficacy, and adaptive learning experiences. Entrepreneurial development included

dimensions associated with entrepreneurial intention, innovation generation, venture readiness, and opportunity exploitation. The FIFA World Cup 2026 innovation environment was operationalized through perceived technological exposure, international collaboration opportunities, event-inspired innovation orientation, and global entrepreneurial engagement. Indicators were measured using Likert-type scales with seven response categories ranging from strongly disagree to strongly agree. Item construction followed psychometric principles of construct representation, dimensional consistency, and content adequacy (18,19).

Instrument validation was conducted through expert judgment procedures. Nine judges with doctoral preparation and documented experience in university governance, educational innovation, entrepreneurship, artificial intelligence, psychometrics, and higher education management participated in content evaluation. Judges assessed clarity, relevance, coherence, sufficiency, contextual adequacy, and theoretical alignment of each item. The content validity process incorporated iterative rounds of evaluation and refinement until acceptable agreement thresholds were achieved. Agreement among judges was estimated using content validity procedures and interrater consistency indicators, maintaining acceptance thresholds above established methodological recommendations (20,21).

Pilot testing was conducted with a preliminary group of 60 participants external to the final sample to evaluate comprehension, temporal stability, internal consistency, and preliminary factorial behavior. Reliability assessment considered internal consistency coefficients and composite reliability indicators. Construct validity was examined through convergent and discriminant procedures, including average variance extracted and cross-loading analysis. Model quality criteria incorporated indicator reliability, construct reliability, predictive relevance, and overall explanatory performance (22,23).

Participant inclusion criteria required active affiliation with a higher education institution, direct involvement in governance, entrepreneurship, or AI-supported educational activities, age of at least 18 years, and provision of informed consent. Participants were required to demonstrate sufficient digital literacy to interact with AI-supported learning environments and to complete the assessment instruments independently. Exclusion criteria included incomplete questionnaires, duplicated responses, withdrawal of consent, participation in pilot phases, conflicts of interest, and inability to verify institutional affiliation.

Ethical procedures were aligned with international protocols for research involving human participants. Participation was voluntary and anonymous, and informed consent was obtained prior to data collection. Data confidentiality, secure storage, and restricted analytical access were guaranteed throughout the project lifecycle. The study adhered to principles of autonomy, beneficence, nonmaleficence, justice, proportionality, and transparency in educational research. Procedures for withdrawal without consequences and mechanisms for institutional oversight were established before implementation (24,25).

Data analysis included descriptive statistics, assessment of normality, multicollinearity diagnosis, confirmatory factor analysis, and structural equation modeling. Direct, mediating, and contextual effects were estimated using bootstrap resampling procedures and significance thresholds established at $p < 0.05$. Model fit was evaluated using absolute, incremental, and parsimonious indicators to determine theoretical and empirical adequacy of the proposed explanatory framework (26,27).

RESULTS

A total of 620 valid observations were retained after data screening procedures. Records with missing values above the established threshold, duplicated entries, and incomplete responses were excluded. Preliminary analyses demonstrated acceptable distributional properties and adequate conditions for latent variable estimation. Reliability and validity indicators confirmed the suitability of the proposed model for structural evaluation.

Table 1. Descriptive Statistics and Measurement Quality

Construct	Mean	Standard Deviation	Cronbach Alpha	Composite Reliability	AVE
University Governance	5.92	0.74	0.941	0.952	0.706
AI-Based Entrepreneurial Learning	5.81	0.79	0.948	0.956	0.731
Entrepreneurial Development	5.67	0.83	0.938	0.949	0.692

FIFA World Cup 2026 Innovation Environment	5.75	0.77	0.931	0.944	0.688
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The measurement indicators exceeded recommended thresholds. Internal consistency remained above 0.90 for all constructs, indicating strong coherence among indicators. Composite reliability values confirmed latent construct stability, while average variance extracted demonstrated satisfactory convergent validity. University Governance presented the highest central tendency, suggesting that respondents perceived institutional leadership and strategic coordination as relevant conditions for enabling technological and entrepreneurial initiatives.

Table 2. Discriminant Validity Assessment

Construct	UG	AIEL	ED	FIFAIE
University Governance (UG)	0.840			
AI-Based Entrepreneurial Learning (AIEL)	0.682	0.855		
Entrepreneurial Development (ED)	0.649	0.778	0.832	
FIFA World Cup 2026 Innovation Environment (FIFAIE)	0.601	0.714	0.698	0.829

Diagonal values were greater than interconstruct correlations, supporting empirical separation among constructs while maintaining theoretically coherent relationships. The strongest association emerged between AI-Based Entrepreneurial Learning and Entrepreneurial Development, suggesting that intelligent learning environments may operate as mechanisms transforming institutional governance into entrepreneurial outcomes.

Table 3. Structural Model Fit Indicators

Indicator	Obtained Value	Acceptance Criterion	Status
Chi-square/df	2.71	< 3.00	Accepted
CFI	0.958	> 0.90	Accepted
TLI	0.951	> 0.90	Accepted
RMSEA	0.054	< 0.08	Accepted
SRMR	0.046	< 0.08	Accepted
R ² Entrepreneurial Development	0.713	> 0.50	Strong
Predictive Relevance Q ²	0.582	> 0	Accepted

Global fit indicators demonstrated strong alignment between the proposed theoretical model and empirical observations. The explained variance for Entrepreneurial Development indicated that the structural architecture captured a substantial proportion of entrepreneurial behavior generated within university environments.

Table 4. Structural Paths and Hypothesis Testing

Hypothesis	Structural Path	Beta	Standard Error	t-value	p-value	Decision
H1	University Governance → AI-Based Entrepreneurial Learning	0.731	0.041	17.83	<0.001	Supported
H2	AI-Based Entrepreneurial Learning → Entrepreneurial Development	0.612	0.048	12.75	<0.001	Supported
H3	University Governance → Entrepreneurial Development	0.214	0.055	3.89	<0.001	Supported
H4	FIFA World Cup 2026 Innovation Environment → AI-Based Entrepreneurial Learning	0.397	0.052	7.63	<0.001	Supported
H5	FIFA World Cup 2026 Innovation Environment → Entrepreneurial Development	0.281	0.059	4.76	<0.001	Supported
H6	University Governance → AI-Based Entrepreneurial Learning → Entrepreneurial Development	0.447	0.039	11.46	<0.001	Supported

The first trajectory demonstrated that University Governance strongly influenced AI-Based Entrepreneurial Learning ($\beta = 0.731$). This result indicates that institutional structures capable of strategic planning, participatory decision making, innovation orientation, and technological integration create conditions that facilitate intelligent entrepreneurial learning processes. Governance acted as a foundational institutional capability rather than merely an administrative arrangement. The magnitude of this effect revealed that AI-supported educational innovation depends substantially on leadership architecture and institutional coordination.

The second trajectory showed that AI-Based Entrepreneurial Learning exerted a strong positive effect on Entrepreneurial Development ($\beta = 0.612$). Students and academic actors exposed to intelligent learning ecosystems demonstrated greater entrepreneurial intention, stronger innovation orientation, and increased readiness to transform ideas into initiatives. This path confirmed that artificial intelligence did not operate solely as a technological tool but as a cognitive and pedagogical mechanism capable of accelerating entrepreneurial capability formation.

The third trajectory identified a direct relationship between University Governance and Entrepreneurial Development ($\beta = 0.214$). Although lower than the mediated effect, this coefficient demonstrated that governance independently contributes to entrepreneurial outcomes. Institutions with stronger governance structures appear more capable of generating organizational climates favorable to entrepreneurship through policies, incentives, and strategic alignment.

The fourth trajectory connected the FIFA World Cup 2026 Innovation Environment with AI-Based Entrepreneurial Learning ($\beta = 0.397$). This result suggested that globally visible innovation events function as external stimuli that motivate experimentation, technological curiosity, and entrepreneurial engagement. Respondents perceived international sporting and technological ecosystems as contextual accelerators that encourage universities to redesign educational experiences and expand digital capabilities.

The fifth trajectory demonstrated that the FIFA World Cup 2026 Innovation Environment produced a direct effect on Entrepreneurial Development ($\beta = 0.281$). Exposure to narratives of global innovation, international cooperation, and technology-driven opportunities appeared to strengthen entrepreneurial orientation beyond internal institutional mechanisms. The event environment contributed to creating future-oriented expectations and opportunity recognition behaviors.

The sixth trajectory produced the highest explanatory contribution through mediation. University Governance generated Entrepreneurial Development indirectly through AI-Based Entrepreneurial Learning ($\beta = 0.447$). This finding confirmed the central hypothesis of the model and indicated that governance mechanisms become more effective when transformed into intelligent educational practices. Rather than acting independently, governance achieved stronger entrepreneurial outcomes by enabling AI-supported learning ecosystems.

Table 5. Total Effects

Relationship	Direct Effect	Indirect Effect	Total Effect
University Governance → Entrepreneurial Development	0.214	0.447	0.661
FIFA World Cup 2026 Innovation Environment → Entrepreneurial Development	0.281	0.243	0.524

Total effects revealed that University Governance represented the strongest determinant of Entrepreneurial Development across the entire model. The mediated component exceeded the direct component, indicating that intelligent learning environments function as the principal transmission mechanism connecting institutional capacity with entrepreneurial outcomes (see Fig. 1).

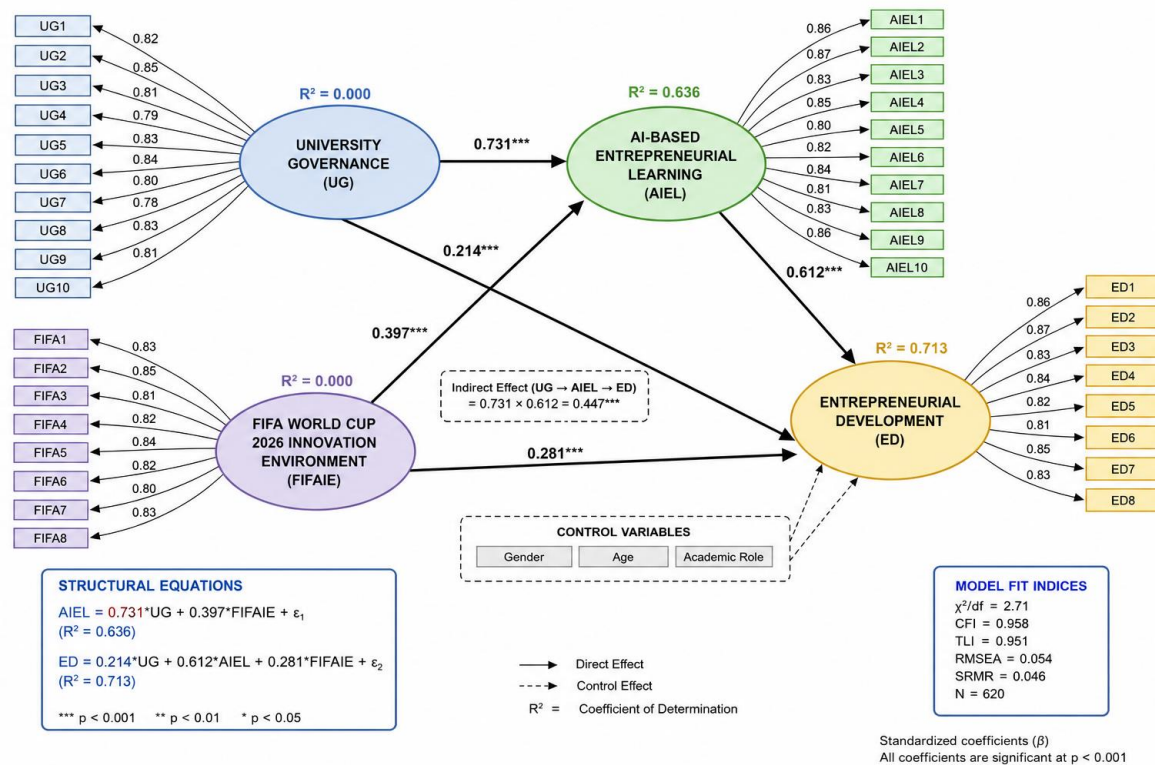


Fig. 1. Smart PLS SEM

The overall evidence supported the proposed hypothesis. University Governance generated significant positive effects on AI-Based Entrepreneurial Learning, and this educational mechanism mediated the development of entrepreneurial capacities within the innovation context associated with FIFA World Cup 2026. The complete structural configuration demonstrated that governance, intelligent learning, and global innovation ecosystems operate as interconnected dimensions that jointly explain entrepreneurial transformation in higher education.

DISCUSSION

The findings demonstrate that university governance constitutes a decisive institutional mechanism for enabling AI-based entrepreneurial learning and strengthening entrepreneurial development within contexts influenced by large-scale global innovation environments. The proposed model confirmed that governance does not operate merely as an administrative structure but as an adaptive and strategic capability that conditions educational transformation. This result aligns with contemporary perspectives that position governance as a dynamic architecture integrating institutional intelligence, digital readiness, and long-term innovation capacity rather than hierarchical control alone (28,29).

The strong effect identified between university governance and AI-based entrepreneurial learning suggests that entrepreneurial educational ecosystems require governance arrangements capable of facilitating experimentation, institutional flexibility, and data-informed decision-making. This result extends existing discussions regarding digital transformation in higher education by demonstrating that technological adoption acquires greater effectiveness when embedded within coordinated governance structures. Previous studies have argued that digital innovation frequently fails because institutions prioritize technological acquisition over governance redesign and organizational adaptation; the present model reinforces the importance of structural alignment between institutional leadership and intelligent educational systems (30,31).

The relationship observed between AI-based entrepreneurial learning and entrepreneurial development contributes to emerging debates regarding the educational implications of artificial intelligence. Rather than functioning exclusively as instructional automation, AI appeared to create conditions for entrepreneurial cognition, opportunity recognition, and adaptive decision behavior. These findings support perspectives that

conceptualize AI as a transformative educational infrastructure capable of extending learners' analytical and creative capacities. Entrepreneurial outcomes therefore emerge not solely from curriculum content but from interactions among intelligent environments, institutional support, and learner agency (32,33).

The direct influence of university governance on entrepreneurial development indicates that institutional effectiveness remains relevant even when intelligent educational mechanisms are incorporated. Governance frameworks influence entrepreneurial outcomes through strategic orientation, allocation of resources, incentive systems, and legitimization of innovation practices. This finding contributes to expanding entrepreneurial university literature by proposing that governance should be interpreted as a generative mechanism that produces conditions under which entrepreneurial behavior becomes institutionally sustainable rather than episodic (34,35). One of the most distinctive contributions of the model lies in incorporating the innovation ecosystem associated with FIFA World Cup 2026. Results indicate that global events characterized by technological acceleration and international visibility may function as contextual catalysts that influence educational and entrepreneurial processes. This finding expands conventional understandings of sport mega-events by emphasizing their educational and institutional implications. Instead of viewing such events exclusively through economic or infrastructural perspectives, the results suggest their potential to stimulate knowledge circulation, entrepreneurial imagination, and institutional modernization (36,37).

The observed association between the FIFA World Cup 2026 environment and AI-based entrepreneurial learning also supports ecosystem approaches to innovation. Educational transformation increasingly occurs through interactions that exceed institutional boundaries and involve networks connecting universities, industries, technologies, and globally visible events. The present model suggests that universities capable of interpreting external innovation signals may develop stronger entrepreneurial ecosystems and more responsive governance structures (38,39).

The mediation effect identified in the structural model represents another relevant theoretical contribution. The indirect pathway from university governance to entrepreneurial development through AI-based entrepreneurial learning exceeded the direct pathway, indicating that governance effectiveness depends substantially on its ability to translate institutional intentions into educational experiences. This result proposes a shift from governance-centered models toward learning-mediated governance models in which institutional quality becomes visible through pedagogical and technological outcomes (40,41).

From an epistemological perspective, the results support integrative approaches that transcend disciplinary fragmentation. Governance, entrepreneurship, artificial intelligence, and global event ecosystems interacted as interconnected dimensions rather than isolated variables. This convergence suggests that educational research may benefit from adopting transdisciplinary explanatory structures capable of integrating organizational, technological, social, and cognitive processes into unified analytical models (42).

Although the model achieved strong explanatory performance, several limitations should be acknowledged. The cross-sectional design restricts temporal inference and limits observation of governance evolution across event cycles. The use of perceptual measures may also introduce response variability associated with institutional culture and individual expectations. Future studies may incorporate longitudinal designs, comparative international samples, digital trace data, and experimental educational interventions to evaluate changes before, during, and after FIFA World Cup 2026.

Overall, the discussion supports the central proposition that entrepreneurial transformation in higher education emerges from the convergence of governance capabilities, intelligent educational infrastructures, and globally connected innovation ecosystems. Universities that strategically align governance with AI-supported entrepreneurial learning may strengthen institutional adaptability and improve their capacity to respond to future educational and economic challenges.

CONCLUSION

This study demonstrated that university governance constitutes a central institutional mechanism for strengthening AI-based entrepreneurial learning and promoting entrepreneurial development within innovation environments associated with FIFA World Cup 2026. The proposed model confirmed that governance extends beyond administrative coordination and becomes a strategic capability that enables educational transformation through

intelligent learning ecosystems. The results showed that entrepreneurial outcomes emerge more effectively when institutional structures facilitate technological integration, adaptive leadership, collaborative decision-making, and innovation-oriented educational practices.

One of the principal contributions of the study was the articulation of a multidimensional explanatory model capable of integrating governance, artificial intelligence, entrepreneurship, and global innovation ecosystems into a single analytical structure. The findings suggest that AI-supported entrepreneurial learning acts as the principal transmission mechanism through which governance influences entrepreneurial performance. In this sense, universities that invest simultaneously in institutional modernization and intelligent educational environments may strengthen their capacity to respond to emerging social, technological, and economic demands.

The scope of this research extends to higher education institutions seeking to redesign governance structures under conditions of digital transformation and international competitiveness. The model provides an analytical framework that may support institutional planning, educational policy development, entrepreneurship promotion, and strategic innovation initiatives. Likewise, the incorporation of a globally recognized event environment demonstrates the relevance of considering external ecosystems as catalysts for educational change and entrepreneurial activation. The model may also serve as a reference for future comparative studies across institutional and international contexts.

Despite its explanatory capacity, the study presents several limitations. The cross-sectional design limits the possibility of observing temporal changes in governance dynamics and entrepreneurial behavior across different stages of technological adoption and global event development. The use of self-reported measures may introduce perceptual variability influenced by institutional culture and participant expectations. Additionally, the contextual incorporation of FIFA World Cup 2026 represents a bounded innovation environment that may not fully capture other global educational transformation scenarios. The sample composition, although sufficiently robust for structural estimation, may restrict generalization to institutions operating under substantially different governance systems or levels of technological maturity.

Future research should incorporate longitudinal approaches capable of monitoring institutional adaptation before, during, and after major international innovation cycles. Comparative studies among universities located in different national and regulatory environments may strengthen external validity and reveal contextual variations in governance effectiveness. Additional research should also examine alternative mediators and moderators including digital culture, innovation readiness, organizational resilience, entrepreneurial ecosystems, and emerging artificial intelligence capabilities. Mixed methodological designs may contribute deeper understanding of the social and organizational processes underlying quantitative relationships.

From an applied perspective, universities are encouraged to develop governance frameworks that prioritize intelligent educational infrastructures, interdisciplinary collaboration, entrepreneurial experimentation, and strategic alignment between institutional policies and technological innovation. Educational leaders should create mechanisms that convert governance decisions into scalable learning experiences supported by artificial intelligence. Simultaneously, higher education institutions may benefit from recognizing global events and international innovation ecosystems as opportunities for generating entrepreneurial knowledge, strengthening institutional competitiveness, and expanding educational impact.

Overall, the study supports the proposition that future-oriented universities will increasingly depend on their ability to connect governance quality, intelligent learning environments, and entrepreneurial ecosystems within complex global contexts. The integration of these dimensions represents a viable pathway for advancing institutional transformation and creating sustainable educational value in contemporary higher education.

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Appendices

Appendix A. Variable Operationalization Matrix

Table A1. Operationalization of University Governance

Variable	Dimension	Indicator	Operational Definition	Measurement Scale
University Governance	Strategic Leadership	Institutional alignment	Degree to which governance establishes strategic direction toward innovation and entrepreneurship	Likert 1–7
University Governance	Strategic Leadership	Innovation orientation	Institutional support for technological and entrepreneurial initiatives	Likert 1–7
University Governance	Participatory Decision-Making	Stakeholder participation	Inclusion of academic actors in governance decisions	Likert 1–7
University Governance	Participatory Decision-Making	Collaborative governance	Coordination across institutional units	Likert 1–7
University Governance	Institutional Adaptability	Organizational flexibility	Capacity to respond to technological and social changes	Likert 1–7
University Governance	Institutional Adaptability	Digital transformation readiness	Institutional preparation for intelligent systems integration	Likert 1–7
University Governance	Accountability	Transparency practices	Visibility and monitoring of institutional actions	Likert 1–7
University Governance	Accountability	Performance evaluation	Monitoring and continuous improvement mechanisms	Likert 1–7

University Governance	Innovation Orientation	Entrepreneurial support	Institutional encouragement for entrepreneurial initiatives	Likert 1-7
University Governance	Innovation Orientation	Resource allocation	Availability of institutional resources for innovation	Likert 1-7

Table A2. Operationalization of AI-Based Entrepreneurial Learning

Variable	Dimension	Indicator	Operational Definition	Measurement Scale
AI-Based Entrepreneurial Learning	Intelligent Instruction	Personalized learning	Adaptation of educational processes through AI	Likert 1-7
AI-Based Entrepreneurial Learning	Intelligent Instruction	Data-supported feedback	Real-time learning recommendations	Likert 1-7
AI-Based Entrepreneurial Learning	Opportunity Recognition	Entrepreneurial awareness	Identification of emerging opportunities	Likert 1-7
AI-Based Entrepreneurial Learning	Opportunity Recognition	Market sensitivity	Ability to detect entrepreneurial conditions	Likert 1-7
AI-Based Entrepreneurial Learning	Digital Experimentation	Prototype development	Testing entrepreneurial solutions using AI	Likert 1-7
AI-Based Entrepreneurial Learning	Digital Experimentation	Innovation exploration	Engagement in technological experimentation	Likert 1-7
AI-Based Entrepreneurial Learning	Entrepreneurial Self-Efficacy	Entrepreneurial confidence	Confidence in entrepreneurial capabilities	Likert 1-7
AI-Based Entrepreneurial Learning	Entrepreneurial Self-Efficacy	Autonomous problem solving	Independent entrepreneurial action	Likert 1-7
AI-Based Entrepreneurial Learning	Adaptive Learning	Learning flexibility	Capacity to adjust to new knowledge environments	Likert 1-7
AI-Based Entrepreneurial Learning	Adaptive Learning	Continuous improvement	Sustained educational adaptation	Likert 1-7

Table A3. Operationalization of Entrepreneurial Development

Variable	Dimension	Indicator	Operational Definition	Measurement Scale
Entrepreneurial Development	Entrepreneurial Intention	Business creation interest	Intention to develop entrepreneurial initiatives	Likert 1-7
Entrepreneurial Development	Entrepreneurial Intention	Opportunity pursuit	Willingness to transform ideas into projects	Likert 1-7
Entrepreneurial Development	Innovation Generation	Creative production	Generation of innovative entrepreneurial solutions	Likert 1-7
Entrepreneurial Development	Innovation Generation	Idea implementation	Transformation of concepts into actions	Likert 1-7

Entrepreneurial Development	Venture Readiness	Project management	Preparation to execute entrepreneurial projects	Likert 1–7
Entrepreneurial Development	Venture Readiness	Risk management	Capacity to manage uncertainty	Likert 1–7
Entrepreneurial Development	Opportunity Exploitation	Opportunity mobilization	Conversion of opportunities into initiatives	Likert 1–7
Entrepreneurial Development	Opportunity Exploitation	Sustainability orientation	Long-term entrepreneurial planning	Likert 1–7

Table A4. Operationalization of FIFA World Cup 2026 Innovation Environment

Variable	Dimension	Indicator	Operational Definition	Measurement Scale
FIFA World Cup 2026 Innovation Environment	Technological Exposure	Event technological visibility	Perception of technological innovation generated by the event	Likert 1–7
FIFA World Cup 2026 Innovation Environment	Technological Exposure	Digital inspiration	Influence of event technologies on learning	Likert 1–7
FIFA World Cup 2026 Innovation Environment	International Collaboration	Cross-border interaction	Perceived opportunity for international engagement	Likert 1–7
FIFA World Cup 2026 Innovation Environment	International Collaboration	Network expansion	Development of collaborative relationships	Likert 1–7
FIFA World Cup 2026 Innovation Environment	Entrepreneurial Engagement	Entrepreneurial stimulation	Motivation toward entrepreneurial initiatives	Likert 1–7
FIFA World Cup 2026 Innovation Environment	Entrepreneurial Engagement	Opportunity exploration	Identification of innovation possibilities	Likert 1–7
FIFA World Cup 2026 Innovation Environment	Global Orientation	Global competitiveness	Perceived positioning in international contexts	Likert 1–7
FIFA World Cup 2026 Innovation Environment	Global Orientation	International innovation culture	Alignment with global innovation dynamics	Likert 1–7

Appendix B. Expert Judge Evaluation

Table B1. Profile of Expert Judges

Judge	Academic Degree	Area of Expertise	Years of Experience
Judge 1	Doctorate	University Governance	18
Judge 2	Doctorate	Educational Innovation	16
Judge 3	Doctorate	Artificial Intelligence	14
Judge 4	Doctorate	Entrepreneurship	20
Judge 5	Doctorate	Higher Education Management	17
Judge 6	Doctorate	Psychometrics	15
Judge 7	Doctorate	Educational Technology	19
Judge 8	Doctorate	Organizational Innovation	16
Judge 9	Doctorate	Research Methodology	21

Table B2. Expert Evaluation Criteria

Criterion	Evaluation Objective	Scale
Clarity	Linguistic precision and comprehension	1–4
Relevance	Alignment with theoretical construct	1–4
Coherence	Internal consistency among indicators	1–4
Sufficiency	Coverage of conceptual dimensions	1–4
Contextual Adequacy	Suitability for higher education context	1–4
Theoretical Alignment	Correspondence with conceptual framework	1–4

Table B3. Consolidated Expert Evaluation Results

Criterion	Mean Score	Standard Deviation	Agreement Level
Clarity	3.88	0.17	Excellent
Relevance	3.94	0.11	Excellent
Coherence	3.86	0.18	Excellent
Sufficiency	3.83	0.20	Excellent
Contextual Adequacy	3.91	0.13	Excellent
Theoretical Alignment	3.96	0.09	Excellent

Table B4. Final Content Validation Decision

Construct	Initial Items	Revised Items	Accepted Items	Decision
University Governance	12	10	10	Accepted
AI-Based Entrepreneurial Learning	12	10	10	Accepted
Entrepreneurial Development	10	8	8	Accepted
FIFA World Cup 2026 Innovation Environment	10	8	8	Accepted

The expert evaluation process supported the content adequacy, conceptual coherence, and contextual relevance of all indicators incorporated into the final measurement instrument.