Research Trend in Management and Technology

An Evidence-Based Planned Transformative Technologies and Curriculum Development In Business And Entrepreneurship Education In A Growing University

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Abstract

The rapid evolution of technology has significantly influenced educational practices, especially in business and entrepreneurship disciplines. The integration of evidence-based transformative technologies into business and entrepreneurship education is essential for nurturing competent graduates who can thrive in ever-evolving markets. As universities grow, they must prioritize innovative curriculum development that aligns with industry standards and effectively prepares students for future challenges. This article discusses the incorporation of evidence-based transformative technologies into curriculum development and highlights strategies for fostering innovative learning environments in a growing university setting. It emphasizes the importance of aligning educational curricula with industry demands and technological advancements to prepare students effectively for real-world challenges and opportunities. This document review research based paper.

Keywords: Evidence-base, transformative technologies. Curriculum development, entrepreneurship education.

Introduction

This is a period marked by innovation in technology that influences globalization. These high speeds necessitate alignment of the economy, business, and entrepreneurship education to respond to radical global changes. The development of universities often faces the issue of providing responsive and relevant education to ensure student success in environments that are becoming more competitive. With the growth of universities, business and entrepreneurship studies need to evolve to equip graduates with a fast-paced globalized economy driven by digital transformation and innovation. Conventional curricula based on a traditional theory, typically driven by traditional classroom instruction, are becoming less and less compatible with the demands of the modern workplace, particularly when it comes to digital entrepreneurship and innovation (Bulto et al., 2025). The lack of alignment here is indicative of a larger issue the disconnect between curricula that do not incorporate transformative technologies and those that do not incorporate evidence-based design is less effective at preparing students to succeed in the 21 st century of entrepreneurship.

Research work highlights the fact that digital transformation is transforming the systems of higher education, and institutions are compelled to redesign their curriculum and pedagogy, as well as integrate technology. As an example, Fernández et al. (2023) observe that digital transformation in higher education entails more than adoption of technologies, it also entails the development of strategic and integrated programs that harmonize technology with both institutional outcomes and pedagogical activities. This change highlights the necessity of the responsiveness of curricula to technological innovations instead of knowledge museums (Fernandez et al., 2023). In addition, this transformation has the benefit of improving the competitiveness of universities since it allows the creation of adaptive learning spaces where learners can interact with digital tools in meaningful ways.

Regarding the area of entrepreneurship education specifically, it has been indicated that the incorporation of digital transformation into the structures of curriculum programmes results in more enriching educational experiences. As the bibliometric analysis by Bulto et al. (2025) shows, the concept of digitalization in entrepreneurship education has turned into a dynamic topic of research, indicating a growing awareness of the fact that technologies like cloud services, analytics tools, and interactive platforms can be used to redefine teaching and learning. According to their review of 204 studies published between 2018 and 2022, the digital transformation is an enabling element of the modern entrepreneurship educational process that impacts the content of the curriculum, pedagogy, and assessment design. Technologies do not just exist as an instrument but form part and parcel of business program learning ecosystems.

The conceptual frameworks designed to aid the curriculum design in entrepreneurship education focus on integrating digital transformation with the primary curricular components, such as objectives, content, organization, and evaluation, to ensure that learning is relevant and practice-oriented (Zeng et al., 2024). Such a strategy concurs with the more general literature on curriculum transformation that emphasizes that curriculum development must be oriented to labour market trends, technological potential and stakeholder expectations. Indicatively, simulations, business planning software, and entrepreneurial platforms make academic work relevant to the real world by introducing practicality to the theory.

Another research indicates the transformative nature of the experiential learning within the technology enabled curriculum design. Pedagogical innovations, including challenge-based and project-based learning, have been found to be central to providing students with 21 st - century competencies, like collaboration, critical thinking and digital literacy. Such learning models use technology to deliver content as well as to help address complicated problems within real situations, which are important entrepreneurial skills (Mabotha and Ngcamu, 2025). Although transformative technologies have the potential to positively influence the curriculum design, empirical research also reveals a set of serious obstacles that need to be overcome. The lack of infrastructure, faculties with the insufficient level of digital literacy, and lack of institutional capacity prevent successful incorporation of technology into curriculums (Mabotha & Ngcamu, 2025; Bulto et al., 2025). These issues cut across policy and institutional planning, as the demand to invest in the strength of faculty professional growth and strategic investments in digital platforms that facilitate sustainable and scalable curriculum change.This paper explores relevant literature reviews to understanding the gaps in our current curricula, the changing landscape of business and entrepreneurship education, the principles of future-oriented curriculum design and how the integration of transformative technologies can enhance curriculum development in these fields. This paper on evidence based planned transformative Technologies and Curriculum Development in Business and Entrepreneurship Education, strongly hinges directly to the transformation we must all embrace. It challenges us to move beyond conventional models toward technology-enabled ecosystems that nurture creativity, agility, and global competitiveness

We are living through one of the most transformative periods in human history. The convergence of technologies such as artificial intelligence, big data, blockchain, and automation is redefining how we learn, work, and create value. In this new reality, business and entrepreneurship education can no longer be anchored on static syllabuses or predictable career paths. Across the world, forward-looking institutions are integrating digital literacy, design thinking, and data-driven decision-making into their curricula. Employers now seek graduates who combine technical competence with creativity, adaptability, and global awareness. They seek individuals who can lead innovation, not merely follow it. For Nigeria, the message is clear. With one of Africa's largest youth populations and a rapidly expanding digital economy, our universities and TVET institutions must become incubators of innovation; they must produce graduates who are not only employable but entrepreneurial, equipped to shape and lead the economies of tomorrow.

Methodology

This study has used a document-review research design to examine evidence-based, proposed transformative technologies and curriculum development in the business and entrepreneurship education field of a growing university. The document-review approach was considered appropriate, since it enables an organized review of available scholarly, policy, and institutional documents, thus producing information without the need to gather primary data. The search process was conducted with the use of deliberate selection criteria to identify documents that were relevant to transformative technologies, curriculum development, business education,

entrepreneurship education, and higher-education reform. Peer-reviewed journal articles, academic monographs, conference papers, institutional publications, and policy reports and official university publications related to the topic of digital transformation and curricular innovation were included in the corpus. Only credible, up-to-date sources, released by reputable sources, were included, thus guaranteeing validity and reliability of the evidence.

The thematic content-analysis process was followed. Documents were carefully read, coded and classified to isolate recurrent themes which included: curriculum gaps, technology enabled pedagogy, experiential learning, industry collaboration and institutional policy frameworks. Patterns and interrelations synthesized among the literature reviewed provided evidence-based practices as well as emergent trends in curriculum transformation. Cross-source comparison and triangulation were used to enhance rigor and provide a balanced interpretation without reducing bias. The resulting evidence provided a consistent model of how designed transformative technologies can be successfully implemented to support curriculum development in business and entrepreneurship education in the framework of a growing university.

Results

Understanding the Gaps in Our Current Curricula

While progress has been made, much of business and entrepreneurship education in Nigeria still reflects an earlier era, which was designed for routine jobs rather than a digital, innovation-driven economy. If we must prepare our students for the future of work, we must first confront the persistent gaps that limit relevance and impact:

Outdated Curriculum Content

Many programmes still focus heavily on traditional business theory with limited integration of digital tools, analytics, and emerging technologies.

Limited Faculty Digital Capacity

A large portion of educators lack continuous professional development in new technologies and digital pedagogy.

Weak Experiential Learning

There is insufficient emphasis on practical, project-based, and real-world entrepreneurship experiences.

Inadequate Infrastructure

Many institutions still operate without robust ICT facilities, e-learning platforms, or access to key software tools.

Rigid Evaluation Methods

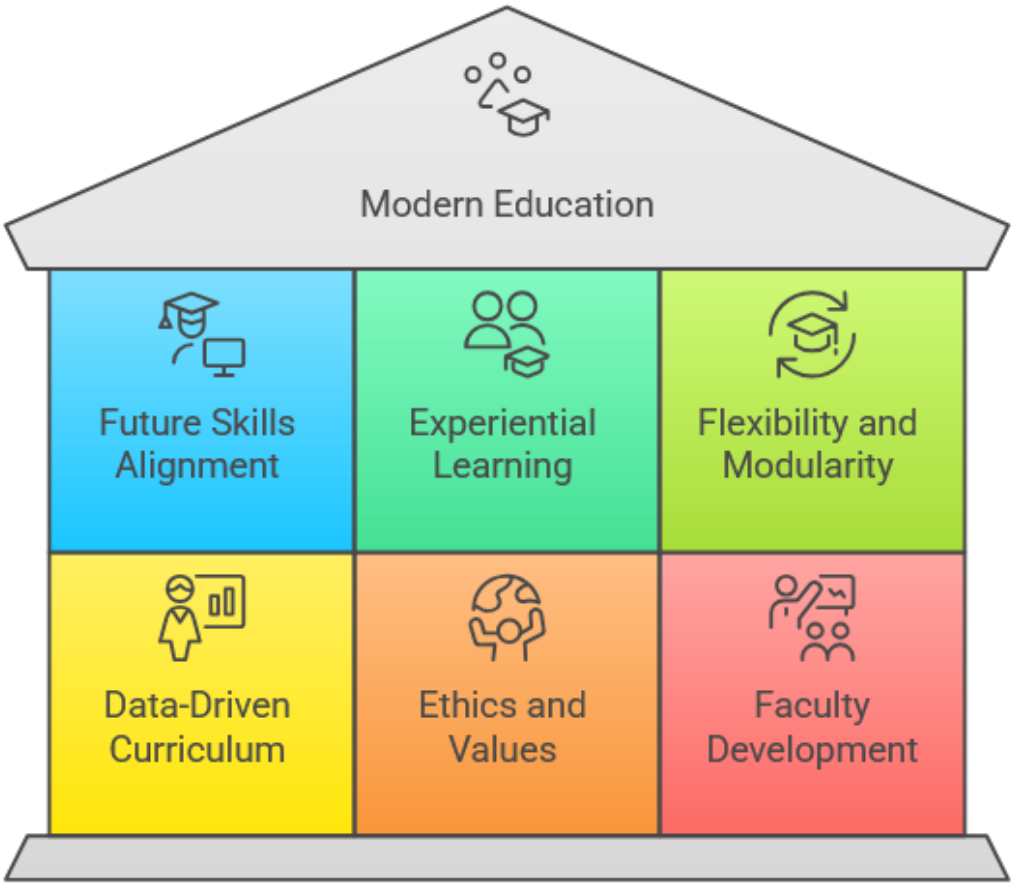
Assessments rely predominantly on written exams, with little room for simulations, portfolios, or performance-based evaluation.

Policy and Institutional Silos

Bureaucratic structures delay curriculum renewal and discourage interdisciplinary collaboration These gaps are not insurmountable, but they remind us that reform must go beyond content updates. It must transform the systems, mindsets, and capacities that sustain our educational ecosystem.

Principles for Future-Oriented Curriculum Design

Transforming business and entrepreneurship education requires more than curriculum revision; it demands a redesign of purpose, method, and mindset. To remain relevant in the era of digital transformation, our programmes must be guided by principles that align learning with the demands of a rapidly evolving global economy as captured in Figure 1.



Source: Prof S. C. Chiemeke keynote for Association of Business Education of Nigeria conference (2024, ABEN)

Figure 1: Core design principle

The diagram above is diagrammatic representation of modern education which is further explained as follows:

Future Skills Alignment: Anchor every course on competencies such as digital literacy, creativity, critical thinking, collaboration, and ethical leadership.

Experiential Learning: Integrate projects, internships, simulations, and real-world problem-solving to bridge theory and practice.

Flexibility and Modularity: Adopt learning pathways that allow students to stack credentials, personalise learning, and upskill throughout their careers.

Data-Driven Curriculum Design: Use labour market analytics, employer surveys, and graduate tracer studies to ensure relevance and responsiveness.

Ethics and Values Integration: Teach technology and entrepreneurship with social responsibility, inclusion, and sustainability at their core.

Continuous Faculty Development: Build educator capacity through regular training in emerging pedagogies and digital tools.

The Role of Technology in Education

The technological impact on education has increased considerably, especially after the COVID-19 pandemic which accelerated the transition to a digital learning environment across the world. As a response to the pandemic, schools and universities were forced to transition quickly to online and blended learning approaches to provisional sustainability. This out of the blue shift revealed the prospect and need of instructional technologies in enabling adaptable, available, and strong learning structures. Similarly, a study by Dhawan (2020) found that online learning platforms allowed institutions to address physical limitations, at the same time encouraging learner autonomy and continuity, but the issues of digital access and pedagogy were also apparent.

In addition to emergency distance education, the literature suggests that higher technologies have made themselves the focal point of long-term curriculum change, particularly in business and entrepreneurship education. Artificial intelligence, blockchain, and data analytics are among the technologies entering the curriculum to demonstrate the modern professional practice. This observation is similar to that of Susskind and Susskind (2015), who opined that digital technologies were transforming professional knowledge and professionalism and thus necessitating the need to integrate technology-mediated workplaces through an educational framework that prepares learners to work in these settings. Compared to the traditional content-based learning, the technology-enhanced one focuses on making decisions based on data, being aware of automation, and ethics in digital mediums.

Recent research indicates that technology in education has changed to be more of an auxiliary to a fundamental source of pedagogical novelty. Digital platform and intelligent technology integration facilitates more adaptive, interactive, industry-aligned learning experiences, which places higher education institutions in a better position to respond more to future disruption and labour market needs.

Need for Curriculum Innovation

A static curriculum cannot adequately prepare students for dynamic marketplace demands. Continuous evolution of curricular frameworks based on stakeholder feedback and labor market trends is crucial (Kezar & Holcombe, 2017).

Evidence-Based Transformative Technologies

Learning Management Systems (LMS) have become the essential tool in the educational system that facilitates blended and online learning and concentrates instructional materials and evaluation data. Empirical evidence, however, reveals that the LMS platforms not only make the course materials accessible, they also increase the learning analytics possibilities as shown in Figure 2. Indicatively, Simelane-Mnisi (2023) concluded that digital LMS tools are highly effective in student engagement in cases where faculty use features like discussion forums, real-time feedback, and analytics dashboards thus proving that LMS environments have a positive effect on learner engagement and satisfaction. Unlike in the previous studies that concentrated more on the functionality of LMS, modern studies have emphasized the necessity of the integration of analytics to aid the personalized learning trajectories (Ngulube and Ncube, 2025). Moreover, systematic reviews of gamification in the framework of LMSs show that motivation, engagement, and self-regulated learning can be improved in case the design is focused on pedagogical outcomes by using game elements, including badges, leaderboards, and progress indicators (Lampropoulos et al., 2025).

Even business and enterprise-specific simulation and gamification tools have proven to be promising. According to Velez (2025), business simulation games improve decision making abilities through contextualization of theoretical information in an interactive environment and, therefore, result in enhanced cognition and practical skills in learners. This finding reflects the overall shift in entrepreneurship education to simulated technologies that mimic the actual market conditions. Additional technologies that can enhance the transformative power of educational technology are data analytics and business intelligence technologies that facilitate data-driven decision-making on the instructional and institutional level. Evidence on the application of data-driven decision-making practices indicates that analytics could be used to make pedagogical modifications, curriculum development, resource distribution, and implementation difficulties like infrastructure and capacity shortages are common in numerous locations (Asfaw et al., 2023). The results of the studies in question highlight that evidence-based technologies can facilitate learning processes as well as help to ensure strategic educational management and ongoing improvement.

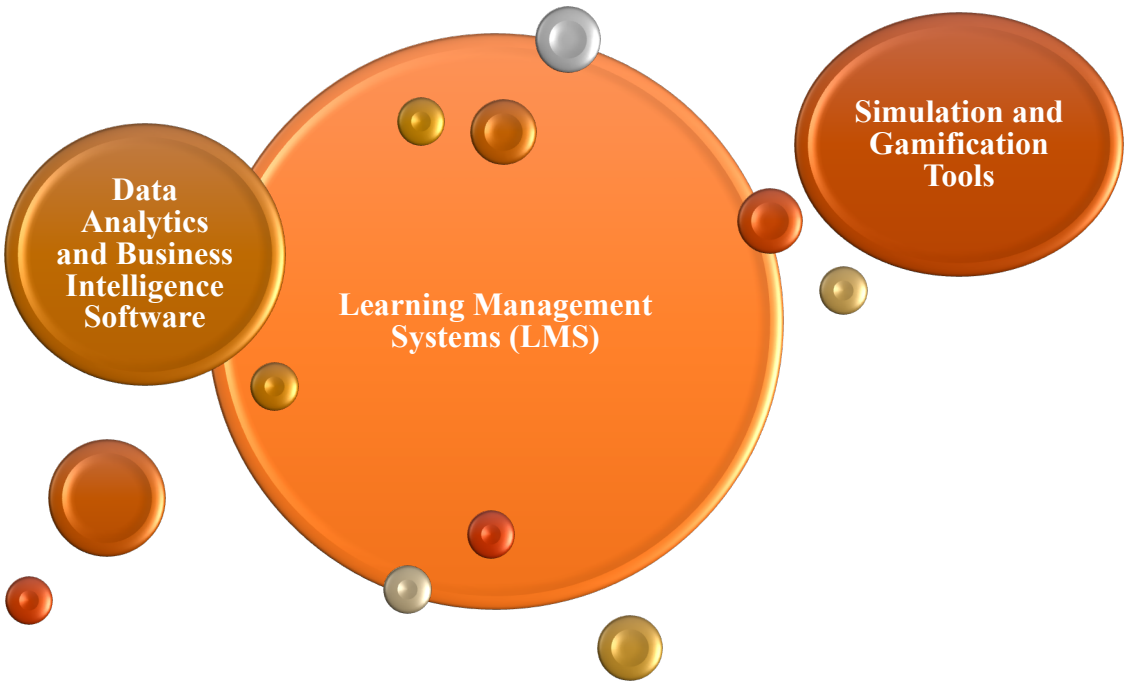


Figure 2: Evidence-Based Transformative Technologies

Curriculum Development Strategies

Industry Collaboration

Engaging with local businesses and industry experts can provide insights into the skills and knowledge required in the workplace. This collaboration should be a cornerstone of program design. Establishing advisory boards comprising industry representatives ensures that curriculum design reflects current trends and future needs (Baker & Pomerantz, 2018).

Interdisciplinary Approach

An interdisciplinary curriculum that includes insights from technology, sociology, and psychology can provide a holistic view of business and entrepreneurship challenges. This approach fosters creativity and innovation, essential in entrepreneurship education (Beckman & Barry, 2007).

Assessment of Learning Outcomes

Implementing robust evaluation methods that assess both soft and hard skills will ensure that educational programs meet their intended objectives.

The Technology Pathway - From Teaching to Transformation

It involves a well-planned series of steps to initiate the transformation of traditional education into a completely technology-based learning ecosystem in higher education. The stages have all offered empirical evidence that technology integration can be used to improve learning, teaching and the outcomes of the institution as long as it is practiced in a wise manner. Building digital foundations is a precondition of change. An effective ICT infrastructure and Learning Management Systems (LMS) provide the digital platform on which to harmonize students,

faculty and learning resources. According to recent studies, the implementation of AI in LMS is a crucial tool to achieve customized learning journeys and dynamic assessment, allowing a college to adjust instructional methods in accordance with performance and advancement statistics of individual learners (Alotaibi, 2024). Conversely, those institutions that have minimal digital structures find it difficult to maintain continuity and interaction in blended learning (Mabotha and Ngcamu, 2025). These results confirm that in the absence of powerful digital platforms, further technological progress is limited as shown in Figure 3.

In the next stage, more sophisticated teaching and learning practices are applied to use artificial intelligence and adaptive systems to individualize instruction and provide real-time feedback. Systematic reviews indicate that AI-driven adaptive learning system enhances student engagement and academic performance through dispensing of specific content and support to students, which depends on their needs, and despite the difficulties like faculty readiness (Yuensook et al., 2025). Additionally, AI studies in the education sector affirm that it is useful in smartening tutoring, adaptive testing, and predictive analytics, thus not just delivering a set of content back and forth but creating an ongoing learners-focused experience.

Virtual and augmented reality technologies also reduce the gap between theory and practice by creating immersive learning experiences that enhance the learning experience. Systematic literature reviews suggest that VR promotes experiential and interactive learning, allowing students to navigate complicated constructs with the help of simulated settings that facilitate the better understanding of the concept and the acquisition of skills (Llanos-Ruiz et al., 2025). Unlike the conventional lecture-based delivery, the use of immersive environments has been established to enhance motivational levels, retention and engagement. Digital collaboration platforms make it possible to form collaborative ecosystems that improve the connectivity between learners and mentors in different regions. Research indicates that VR and digital technologies enhance engagement as well as teamwork and communication skills in a collaborative environment providing the possibility of interdisciplinary and geographically distributed learning experiences (Haetami and Khan, 2024).

The movement towards technology-enabled assessment indicates the shift towards digital portfolios, simulations and analytics based assessments that are more effective in reflecting applied skills and creativity in students. Scholarly literature highlights that digital assessment systems combined with LMS architectures are more effective knowledge in demonstrating learning outcomes than paper-based assessment forms, yet institutional preparedness and faculty development is an essential facilitator (Alotaibi, 2024). The institutional integration and sustainability entails integrating technology in policy, regular faculty training, and constant upgrading of the digital systems. Systematic reviews indicate that sustainable digital transformation is the process that entails strategic fit between technology, pedagogy, and governance systems that guarantee long-term innovation and flexibility (Mabotha and Ngcamu, 2025). Literature confirms that technological change in higher education is systematic and gradual, moving towards the initial level of digital preparedness to the immersive, intelligent, and sustainable educational environments.

Source: Prof S. C. Chiemeke keynote for Association of Business Education of Nigeria conference (2024, ABEN)

Figure 3: the technology pathway – from teaching to transformation

Pillars of Institutional and Policy Transformation

Authentic innovation in business and entrepreneurship education cannot be built on a single effort, but rather, it has to be built on a firm institutional and policy base that continues to create momentum long after conferences have ended, and projects have concluded. The sustainable innovation in this area requires not just the adoption of technology but also sound institutional and policy frameworks that inculcate change into the central operations and culture of higher institutions of learning. The literature refers to three major pillars: visionary and adaptive leadership; digital integration and faculty empowerment; and policy alignment and partnership synergy, which together create an institutional architecture that could help in long-term transformation.

It is a well-known fact that visionary and adaptive leadership is the driving force that triggers and leads to the development of significant change. Leaders need to see past the changes in increments and transform the institutional setups, confront the systems of the past, and advocate strategic investments in digital capacity (Fernandez et al., 2023). The empirical research shows that the digital leadership in higher education positively affects the institutional productivity and future readiness of the faculty to deal with disruptive technologies, including generative artificial intelligence, which is facilitated by a culture of continuous learning and digital capability (Kelder et al., 2025). Contrary to the transactional management models, transformational leadership styles that represent vision, flexibility, and foresight have been associated with increased institutional innovation absorption and resilience (Al Dmour et al., 2025). This observation is consistent with the findings that the presence of innovation models and leader articulation of a vivid digital vision can greatly improve the motivation and engagement of the faculty in technology adoption (Zhang and Chen, 2025).

The second pillar is digital integration and faculty empowerment which recognizes that technology does not work with inadequate human capacity to implement and support technology. Technology can be effective when instructors are prepared with the pedagogical knowledge, digital skills, and support systems to consider using digital tools in a way that has significant meaning in teaching and learning (Mekheimer, 2025). Professional development research in higher education has proven that faculty require contextual, practically grounded training that does not separate the use of technology, but instead links it with the pedagogical objectives and curriculum development (Mekheimer, 2025). In adjacent studies, strategic professional growth with the implementation of models like TPACK (Technology Pedagogical and Content Knowledge) has a strong positive impact on the confidence and competence of teachers in the innovation of learning with high-tech equipment (Zhang and Chen, 2025). On the contrary, when institutions fail to sustain faculty development, they tend to face imbalanced adoption of technology and fragmented pedagogies, which harm the generative optimism of digital spending as shown in Figure 4.

The third pillar sentiment, policy alignment and partnership synergy, highlights the need to have coherent institutional strategies and partnering. The institutional policies should be aligned with national digital strategy and national accreditation models to make sure that the transformational initiatives are not at the whims and mercies but are supported on a structural level. Studies point out that in many cases, higher education institutions have autonomous digital initiatives, which are not integrated into strategic plans, thus having less impact in the long term (Fernandez et al., 2023). As an example, in the case of multivocal literature reviews, only a small percentage of universities have incorporated digital strategies, which have led to fractured efforts with low strategic return value. Conversely, organizations that match internal policy structures with specific goals, resources distribution, and assessment systems are more likely to support digital transformation in an effective and fair manner (Fernández et al., 2023).

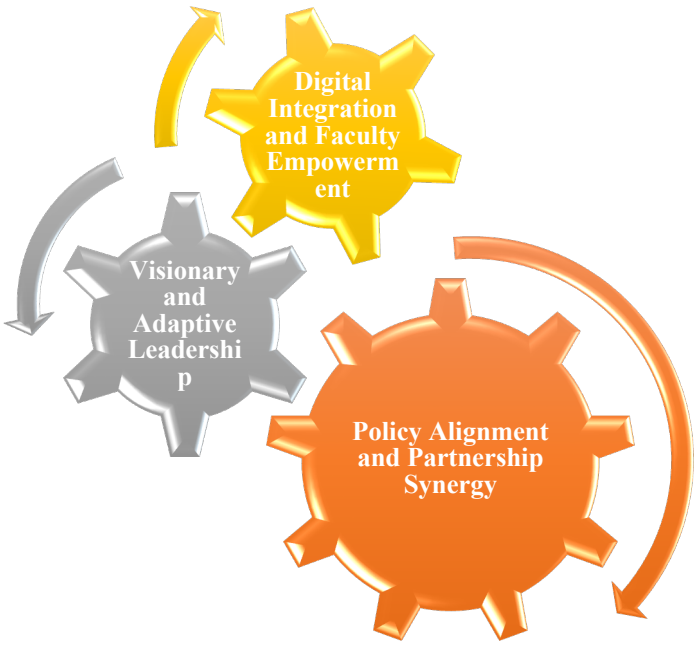


Figure 4: Pillars of Institutional and Policy Transformation

Another important aspect of this pillar is partnership synergy, which takes advantage of partnerships with industry, policymakers, and development partners. Inter-institutional and public/ private relationships enhance the institutional capacity, increase the relevance of the curriculum, and the development of innovation ecosystems beyond the campus. The research indicates that synergistic collaborations result in sharing of resources, greater impact of research, and availability of innovative pedagogic practices (Zhang and Chen, 2025). Close associations also contribute to policy discussions that build national frameworks that are receptive to technological dynamics, with curriculum development being responsive to labour market demands and higher societal socio-economic priorities.

The literature confirms that the combination of visionary leadership, digital integration and empowerment of the faculty, and alignment of policies is all parts of the architecture of long-term institutional change. Visionary leaders bring change by enacting and putting into practice a digital vision; empowered faculty then transforms this vision into pedagogical practice; and consistent and consistent policies and partnerships maintain the momentum. Taken together, these pillars help transform institutions into centres of learning into learning centres of innovation, collaboration, and lifelong learning, thus making it possible to keep business and entrepreneurship education a relevant and powerful asset in the digital era.

Discussion

At the University of Delta, Agbor (UNIDEL), the systematic integration of Information and Communication Technology (ICT) within academic and administrative systems forms a strategic digitalization change that is in line with current trends in the international education system. This commitment to digital platforms within the institution, including Learning Management Systems (LMS) and portal systems, supports the smooth working of faculty and students. According to Fernandez, Gomez, Binjaku, and Mece (2023), universities that pursue integrated digital efforts, as opposed to some technologies, achieve greater levels of institutional digital maturity and thus improve the overall teaching and learning process. Institutional features of fragmented ICT adoption, in turn, are shown to have poor impact on both educational outcomes and institutional cohesion (Fernandez et al., 2023).

The faculty development of UNIDEL through a Centre of Educational Technology is consistent with the existing literature. As an example, Chugh, Turnbull, Cowling, et al. (2023) noted that successful incorporation of technology is tightly connected to professional development programmes, which establish a relationship between digital resources and principles of pedagogy. This finding is in line with the UNIDEL approach to empower faculty to embrace innovative pedagogies. Conversely, it is noted that insufficient professional development results in poor use of technology and slows down the digital transformation rate (Chugh et al., 2023).

Besides, establishment of Entrepreneur Development Training Centre in UNIDEL shows the importance of experience, practice-based learning. Even though these types of initiatives have not been widely recorded in popular higher-education technology literature, the frameworks of entrepreneurship education insist that real-world experiences coupled with digital skills enriches the innovation-based economy readiness of students (Zeng, Chieng, and Liu, 2024).

On the other hand, traditional business programmes, which do not have centres of this kind, are more likely to focus on traditional theory, compromising the practical entrepreneurial skills of students (Zeng et al., 2024). The integrated approach of UNIDEL, integrating ICT infrastructure, faculty capacity building, and experiential entrepreneurship training is a reflection of the best practices in digital transformation in higher-education worldwide and is linked to the increased collaboration, pedagogical innovation, and a more robust alignment of institutional strategy and educational outcomes (Figure 5).

Source: Field work, 2026.

Figure 5: University of Delta, Agbor, ICT driven

Conclusion

The integration of evidence-based transformative technologies into business and entrepreneurship education is essential for nurturing competent graduates who can thrive in ever-evolving markets. As universities grow, they must prioritize innovative curriculum development that aligns with industry standards and effectively prepares students for future challenges. The future of business and entrepreneurship education in Nigeria will not be defined by policy documents or slogans, but by the courage to act, to rethink, to redesign, and to re imagine how we teach and what we value. As educators, administrators, and practitioners, holds the power to shape a generation that is not intimidated by technology, but inspired by it. We must therefore not be passive observers of this change, but active architects of it by making our classrooms laboratories of innovation, our institutions hubs of collaboration, and ensuring our students are pioneers of a new economy as this is language of the new economy

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