

BUSINESS EDUCATION AS A CATALYST FOR TRANSFORMATIVE VOCATIONAL AND TECHNICAL EDUCATION: DEVELOPING SMART SKILLS FOR A SMART NATION

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Abstract

The rapid transformation of the economy through digitalization, artificial intelligence, automation, data analytics, electronic commerce and other emerging technologies has changed the competencies required for employment, entrepreneurship and national development. Consequently, vocational and technical education must move beyond conventional occupational training towards transformative approaches that equip learners with relevant, adaptable and technology-driven competencies. This conceptual paper examines the role of Business Education in promoting transformative vocational and technical education and developing smart skills for a smart nation. The paper is anchored on Human Capital Theory and supported by Experiential Learning Theory. Business Education is conceptualized as an applied component of vocational and technical education that connects business knowledge with practical skills, technology, entrepreneurship and workplace requirements. The paper identifies digital literacy, artificial intelligence literacy, data analytics, business intelligence, financial technology, digital marketing, electronic commerce, entrepreneurship, communication, collaboration, creativity, critical thinking and problem-solving as important dimensions of smart skills. The paper further examines challenges including obsolete curriculum content, inadequate digital infrastructure, limited teacher competence, inadequate funding, weak institution-industry collaboration and insufficient practical learning opportunities. Strategies proposed include continuous curriculum transformation, professional development, technology-enabled teaching, work-based learning, industry partnerships, entrepreneurship incubation, competency-based assessment and strengthened quality assurance. The paper concludes that repositioning Business Education around emerging technologies, entrepreneurship and employability competencies can strengthen human capital, enhance graduate competitiveness and contribute to economic productivity. It recommends strategic investment in Business Education as a pathway for developing innovative, adaptable and technologically competent citizens capable of contributing to Nigeria's transition towards a knowledge-based smart nation.

Keywords: Business Education, transformative vocational and technical education, smart skills, digital skills, entrepreneurship, artificial intelligence, smart nation

Introduction

The twenty-first century has brought profound changes to the nature of work, business operations and economic activities. Digitalization, artificial intelligence (AI), automation, cloud computing, big data, electronic commerce, financial technology and other emerging technologies are changing how organizations produce goods and services, communicate with customers, manage information and make decisions. These changes have also altered the knowledge and competencies required for employment and entrepreneurship. Consequently, education and training systems are increasingly expected to prepare learners who are not only knowledgeable but also technologically competent, innovative, adaptable, entrepreneurial and capable of continuous learning. The changing nature of work therefore places considerable pressure on vocational and technical education to remain relevant to emerging economic realities.

Technical and Vocational Education and Training (TVET) occupies an important position in responding to these developments because it connects education with the world of work and provides learners with knowledge, practical skills, attitudes and competencies required for employment and productive participation in society. UNESCO (2022) identifies TVET as an important instrument for supporting employment, entrepreneurship and transitions towards more digital, green and inclusive economies. The UNESCO Strategy for TVET 2022–2029 particularly emphasises skills development, entrepreneurship, innovation, work-based learning, private-sector engagement and digital and green transitions. Thus, contemporary TVET should not be restricted to the transmission of conventional occupational skills; rather, it should continuously anticipate emerging skill requirements and develop learners' capacity to function effectively in changing economic and technological environments.

The need for transformative TVET is particularly important in Nigeria because the country continues to face challenges associated with graduate employability, youth unemployment, entrepreneurship, productivity and the alignment of education with labour-market requirements. A responsive vocational and technical education system must therefore prepare graduates for both existing and emerging occupational opportunities. This requires greater attention to digital competence, entrepreneurship, problem-solving, innovation, communication, analytical skills and lifelong learning. The challenge is not simply to provide learners with access to technology but to develop the human capacity required to use technology productively, ethically and creatively.

Business Education occupies a strategic position within this transformation because it combines vocational preparation with knowledge of business, management, accounting, marketing, office technology, entrepreneurship and related economic activities. Traditionally, Business Education has prepared learners for office occupations, business operations and self-employment. However, the contemporary business environment requires competencies that extend beyond conventional clerical and administrative functions. Business Education graduates increasingly need digital literacy, data-analysis skills, artificial intelligence literacy, digital entrepreneurship, e-commerce, digital marketing, financial technology, communication, collaboration, critical thinking and problem-solving.

Nigerian studies provide evidence of these changing competency requirements. Amesi and Allison (2022), in a study of university Business Education students in Rivers State, found that students acquired audio-visual content creation and software skills relevant to employability. Oko and Wagbara (2022), in a study involving Business Education graduates from higher institutions in Ebonyi State, found that digital accounting and communication skills were needed for global competitiveness in entrepreneurship. Mordi (2023) identified digital accounting, e-commerce, e-payment, e-procurement, electronic marketing, e-advertising, social-media marketing and other digital competencies as skills required by Business Education graduates for employability. Enang (2023) similarly emphasised digital entrepreneurial skills and competencies as necessary for Business Education students to remain relevant in the digital era. David et al. (2024) further reported a significant relationship between digitalisation of skills acquisition, integration of digital learning tools, digital proficiency and employability among Business Education graduates in tertiary institutions in Lagos State. These findings demonstrate that the contemporary Business Education graduate requires an integrated combination of technological, entrepreneurial, analytical and human competencies.

The central argument of this paper is that Business Education should be deliberately repositioned as a dynamic and technology-enabled component of transformative vocational and technical education. Such repositioning requires a movement from predominantly traditional content and teaching approaches towards competency-oriented curriculum, experiential learning, digital technologies, emerging technologies, entrepreneurship and stronger connections with industry. Through this transformation, Business Education can contribute to the development of smart skills and, ultimately, to the development of a productive and innovative workforce capable of supporting national transformation.

Conceptual Clarifications

Transformative Vocational and Technical Education

Transformative vocational and technical education refers in this paper to an approach to vocational and technical learning that continuously adapts curriculum, pedagogy, technology, assessment and institutional practices to changing economic, technological and social conditions. It goes beyond the transmission of routine occupational skills to develop learners who can apply knowledge, solve unfamiliar problems, create value, adapt to technological change and participate productively in employment and entrepreneurship. This conception is consistent with the UNESCO Strategy for TVET 2022–2029, which places emphasis on productive employment, entrepreneurship, digital and green transitions, work-based learning, innovation and stronger engagement with the private sector (UNESCO, 2022).

Transformative TVET is therefore concerned not only with what learners know but also with what they can do with what they know. It requires practical learning environments, competent teachers, relevant equipment, authentic assessment and opportunities for learners to interact with real workplace situations. In this paper, transformative TVET is understood as a continuous process of aligning vocational and technical education with emerging occupational requirements while developing technical, digital, entrepreneurial, analytical and interpersonal competencies.

Business Education

Business Education is a vocationally oriented field of education that provides learners with knowledge, skills, attitudes and competencies for employment, entrepreneurship and productive participation in business and economic activities. It traditionally covers areas such as accounting, business management, marketing, office technology and management, economics and entrepreneurship. However, technological and economic transformation has expanded the competencies required of Business Education graduates.

Contemporary Business Education should therefore combine conventional business knowledge with digital technologies, artificial intelligence, data analytics, business intelligence, e-commerce, digital marketing, financial technology and entrepreneurial competencies. Nigerian evidence supports this repositioning. Oko and Wagbara (2022), Enang (2023), Mordi (2023) and David et al. (2024) collectively demonstrate the growing importance of digital and entrepreneurial competencies to Business Education students and graduates. Business Education should consequently be regarded not

merely as preparation for traditional office occupations but as a dynamic vocational field connecting business knowledge, technology, entrepreneurship and the world of work.

Smart Skills

Smart skills are competencies that enable individuals to apply knowledge, technology, creativity, analytical thinking and adaptive abilities to perform effectively and solve problems in changing environments. The concept is multidimensional because contemporary work requires the integration of technical, digital, entrepreneurial and human competencies.

For Business Education, smart skills may be organized into five broad dimensions: digital skills; analytical skills; entrepreneurial skills; emerging-technology skills; and human and employability skills. Digital skills include computer applications, cloud technologies, digital communication and cybersecurity awareness. Analytical skills involve data analysis, spreadsheet analytics, data visualization and business intelligence. Entrepreneurial skills include opportunity recognition, business planning, and innovation and risk management. Emerging-technology skills include AI literacy, automation awareness, FinTech and e-commerce, while human skills include communication, collaboration, leadership, creativity, critical thinking and problem-solving.

Evidence from Nigerian studies supports this multidimensional understanding. Oko and Wagbara (2022) identified digital accounting and communication skills as necessary for entrepreneurial competitiveness among Business Education graduates. Mordi (2023) identified a broad range of digital accounting, e-commerce, e-payment and digital marketing skills required for employability. Enang (2023) emphasized digital entrepreneurial competencies, while David et al. (2024) established a significant relationship between digitalized skills acquisition and employability. These studies indicate that smart skills should not be reduced to computer literacy alone; rather, they involve the integration of digital, entrepreneurial, analytical, emerging-technology and human competencies.

Smart Nation

The idea of a smart nation has emerged from national efforts to use digital technologies, innovation and human capabilities to improve social and economic outcomes. Singapore's Smart Nation framework, for example, links digital transformation with digital literacy, relevant skills, productivity, innovation and improved opportunities for citizens and enterprises (Smart Nation and Digital Government Office,

2020; Smart Nation Singapore, 2025). This suggests that technological infrastructure alone is insufficient to produce a smart society.

For the purpose of this paper, therefore, a smart nation is conceptualized as a society in which digital infrastructure is complemented by human capabilities, relevant competencies, innovation and productive use of technology to improve economic and social outcomes. The concept is particularly relevant to Business Education because a smart economy requires people who can manage information, analyze business data, use digital platforms, create enterprises, communicate effectively and make responsible technology-enabled decisions. Business Education can consequently serve as one of the educational pathways through which smart human capital is developed.

Theoretical Foundation

Human Capital Theory

This paper is primarily anchored on Human Capital Theory developed by Schultz (1961) and advanced by Becker (1964). The theory views education, training, knowledge and skills as investments that improve individual productivity and contribute to economic development. From this perspective, the relevance of an educational programme depends partly on its ability to provide competencies that individuals can apply productively in economic activities.

Human Capital Theory is relevant to Business Education because investment in digital, entrepreneurial, analytical and technological competencies can improve graduates' employability, productivity and capacity for self-employment. If educational programmes continue to provide obsolete skills while occupational requirements are changing, the economic returns on such educational investment may be reduced. Conversely, a Business Education programme that provides relevant smart skills can strengthen the human capital required for a knowledge-driven economy.

The theory therefore provides a justification for continuous curriculum transformation. As technological developments change the knowledge and skills required in workplaces, Business Education must also adjust its content, teaching approaches and assessment practices. Investment in emerging competencies such as AI literacy, data analytics, e-commerce and digital entrepreneurship can therefore be interpreted as investment in the productive capacity of individuals and, by extension, the nation.

Experiential Learning Theory

Kolb's (1984) Experiential Learning Theory provides a complementary theoretical foundation. The theory explains learning as a cyclical process involving concrete experience, reflective observation, abstract conceptualisation and active experimentation. The theory is particularly appropriate to Business Education because many of the competencies required in contemporary business environments are best developed through practical activities rather than through lectures alone.

Business simulations, enterprise projects, digital marketing exercises, data-analysis tasks, workplace experiences, internships and technology-based projects provide opportunities for learners to apply theoretical knowledge to authentic situations. Through such experiences, students can observe outcomes, reflect on their actions, develop conceptual understanding and experiment with alternative solutions.

The combination of Human Capital Theory and Experiential Learning Theory therefore provides a strong foundation for the transformation proposed in this paper. Human Capital Theory explains why relevant skills are economically valuable, while Experiential Learning Theory explains how such competencies can be developed through active engagement with realistic tasks.

The Role of Business Education in Transformative Vocational and Technical Education

Development of Digital and ICT Skills

Digital competence has become a foundational requirement for contemporary business activities because organizations increasingly depend on computers, cloud applications, electronic communication, digital records, online transactions and digital platforms. Business Education should therefore provide students with practical competence in word processing, spreadsheets, presentations, databases, cloud applications, electronic communication and digital record management, while more advanced learners should be exposed to data visualization, business intelligence and cybersecurity awareness. Amesi and Allison (2022) found that Business Education students in Rivers State acquired software and audio-visual content-creation skills relevant to employability, while Oko and Wagbara (2022) found that digital accounting and communication skills were required for entrepreneurial competitiveness. David et al. (2024) also reported a significant relationship between digitalized skills acquisition and employability. These findings suggest that digital competence should be treated as a core component of Business Education rather than an optional addition to the curriculum.

Artificial Intelligence Literacy

Artificial intelligence is increasingly relevant to business activities such as information processing, marketing, customer relations, accounting, and communication, forecasting and decision-making. UNESCO (2024) recommends that education systems integrate AI competencies into curricula to prepare learners to use AI safely, meaningfully and responsibly. Its AI Competency Framework for Students identifies competencies across human-centered approaches, ethics of AI, AI techniques and applications, and AI system design, with progression from understanding to applying and creating. This framework is relevant to Business Education because students need more than the ability to operate individual AI tools; they need to understand what AI can and cannot do, critically evaluate AI-generated information, recognize ethical concerns and use AI responsibly.

For Business Education students, AI literacy should therefore include basic understanding of AI applications in business, prompt formulation, critical evaluation of AI outputs, data privacy, ethical use and awareness of bias and misinformation. AI activities can be incorporated into accounting, marketing, office technology, and entrepreneurship and business management courses through case analysis, business research, content creation and decision-making exercises. The objective should not be to replace human judgment with AI but to develop graduates who can work effectively alongside emerging technologies while maintaining creativity, critical thinking and ethical responsibility (UNESCO, 2024).

Data Analytics and Business Intelligence

Contemporary organizations increasingly depend on data to understand customers, monitor performance, control costs and make decisions. Business Education should therefore develop learners' ability to collect, organize, analyze, interpret and communicate business information. Students should progressively acquire competence in spreadsheet analysis, descriptive statistics, data visualization, dashboards and introductory business intelligence.

Data competence also has entrepreneurial significance because entrepreneurs need to interpret sales records, customer preferences, costs, market trends and business performance. Consequently, data analytics can provide a bridge between conventional business knowledge and evidence-based decision-making. The increasing emphasis on digital skills in Nigerian Business Education studies, including the findings of Mordi (2023) and David et al. (2024), supports the need to broaden digital preparation towards more analytical competencies.

Entrepreneurship and Innovation

Business Education has traditionally contributed to entrepreneurship and self-employment by providing knowledge of business planning, management, accounting, marketing and enterprise operations. Transformative Business Education should, however, move from teaching entrepreneurship primarily as a theoretical subject towards providing learners with opportunities to identify problems, develop business ideas, test products and services, interact with customers and manage small-scale enterprises.

Enang (2023) emphasized digital entrepreneurial skills and competencies as important for Business Education students in the digital era and recommended their integration into the curriculum. Entrepreneurship education should therefore include opportunity identification, business-model development, financial planning, digital marketing, customer analysis, risk management, innovation and the use of digital platforms. Such an approach can strengthen students' capacity not only to seek employment but also to create employment and participate in emerging digital markets.

Digital Marketing and E-Commerce

The growth of digital platforms has transformed how organizations advertise, communicate with customers, sell products and deliver services. Business Education should therefore prepare learners to use social-media marketing, e-advertising, digital branding, e-commerce platforms, electronic customer relations and online business communication. Mordi (2023) identified e-commerce, e-payment, e-procurement, electronic marketing, e-advertising, social-media marketing, e-mail marketing and the use of digital marketing tools among the digital competencies required by Business Education graduates for employability.

The implication is that digital marketing and e-commerce should be integrated into practical Business Education activities rather than treated solely as theoretical concepts. Students can develop online business plans, create digital marketing campaigns, design product pages, analyse customer responses and manage simulated electronic transactions. Such activities can simultaneously develop digital, entrepreneurial, communication and analytical skills.

Financial Literacy and Financial Technology

Financial literacy and financial technology are increasingly important components of contemporary Business Education because digitalization has changed how individuals and businesses save, make payments, access financial services and manage financial resources. The Central Bank of Nigeria (2020) identifies financial literacy as a means of empowering Nigerians with knowledge, skills and confidence

to make informed financial decisions and manage their finances effectively. The growth of digital financial services consequently requires financial education to address not only traditional financial management but also electronic transactions and technology-enabled financial services.

Empirical evidence from Business Education further supports this position. Oyewole and Toriola (2024), in a study of 311 postgraduate Business Education students in Southwest Nigeria, found that digital technology and digital financial literacy significantly influenced savings behaviour, with digital financial literacy exerting a stronger effect. The researchers recommended incorporating digital financial literacy into Business Education through courses and workshops. Consequently, Business Education should equip students with conventional financial-management competencies alongside knowledge of electronic payments, digital banking, online financial security, privacy, digital savings and responsible use of FinTech services.

Communication, Collaboration and Leadership

Communication, collaboration and leadership are essential employability competencies because contemporary workplaces require individuals who can communicate ideas effectively, work with others, coordinate activities and contribute to organizational decision-making. Communication involves clear oral, written and digital expression, effective listening and appropriate interaction with colleagues and customers. Collaboration involves working productively with individuals and groups, sharing responsibilities and resolving differences, while leadership involves coordinating and motivating others towards shared goals. Nigerian evidence supports the importance of these competencies. Ikenga and Egbule (2023) found that leadership, communication, teamwork, strategic planning, decision-making and other competencies were required of Business Education graduates for business operations in Delta State. Okanazu et al. (2019) similarly identified communication, teamwork, leadership and critical thinking among important soft skills for Business Educators.

Business Education provides several opportunities for developing these competencies through presentations, group assignments, business simulations, role-play, enterprise projects and workplace learning. These skills should therefore be integrated with digital and technical competencies rather than treated as secondary attributes. In technology-enabled workplaces, graduates need to communicate and collaborate through digital platforms, lead teams, negotiate and solve problems collectively. Communication, collaboration and leadership should consequently form an important part of the smart-skills framework.

Creativity, Critical Thinking and Problem-Solving

A smart economy requires individuals who can identify problems, evaluate alternatives and develop innovative solutions. Business Education should therefore move beyond predominantly reproductive learning towards problem-based, project-based and case-based learning. Students can be exposed to authentic business problems involving customer complaints, declining sales, financial constraints, marketing challenges and digital transformation and required to analyze situations, generate alternatives and recommend solutions.

The emphasis on creativity and critical thinking is consistent with the broader competency orientation of transformative TVET and with UNESCO's emphasis on transversal skills and adaptability. Such competencies also complement digital skills because technology does not automatically produce sound decisions. Graduates must be able to question information, evaluate alternatives and exercise judgement. Business Education should therefore use case studies, business simulations, innovation challenges and enterprise projects to develop students' capacity for independent and collaborative problem-solving.

Work-Based Learning and Industry Linkages

Strong relationships between educational institutions and industry are necessary for ensuring that Business Education remains responsive to workplace requirements. UNESCO (2022) identifies work-based learning and private-sector engagement as important elements of responsive TVET. Nigerian research also provides evidence for the value of institution-industry collaboration. Ikpesu and Amachree (2024) found a significant positive association between industry-institution research collaboration and Business Education students' skills development in public universities in Rivers State. Similarly, Ezeabii, Ngene and Eko-Nweke (2025) found that SIWES and field trips influenced Business Education students' preparation for self-employment in Enugu State.

Business Education departments should therefore develop formal relationships with banks, accounting firms, technology companies, financial institutions, e-commerce organizations and entrepreneurs. Industry partners can participate in curriculum review, mentorship, practical training, internships, workplace assessment and provision of current industry information. Such collaboration can help reduce the gap between what students learn in classrooms and what employers require.

Smart-Skills Framework for Business Education

The evidence reviewed demonstrates that smart skills are multidimensional rather than limited to digital competence. Oko and Wagbara (2022) emphasised digital accounting and communication skills; Mordi (2023) identified digital accounting, e-commerce, e-payment and digital marketing competencies; Enang (2023) emphasised digital entrepreneurial competencies; and David et al. (2024) established the relationship between digitalised skills acquisition and employability. These findings provide a basis for organising smart skills into integrated competency clusters.

Table 1: Smart-Skills Framework for Business Education

Skill cluster	Major competencies	Expected graduate outcome
Digital skills	Computer applications, cloud tools, digital communication, digital records, cybersecurity awareness	Digital workplace competence
Analytical skills	Spreadsheet analysis, data interpretation, data visualisation, dashboards, business intelligence	Evidence-based decision-making
Entrepreneurial skills	Opportunity recognition, business planning, innovation, risk management	Enterprise creation and management
Emerging-technology skills	AI literacy, automation awareness, FinTech, e-commerce	Adaptability to technological change
Human and employability skills	Communication, teamwork, leadership, creativity, critical thinking, problem-solving	Workplace effectiveness

The framework demonstrates that smart skills should be developed as an integrated system. Digital skills provide the technological foundation; analytical skills enable evidence-based decisions; entrepreneurial skills support value creation; emerging-technology competencies strengthen adaptability; and human skills enable graduates to communicate, collaborate and lead. Business Education curriculum should therefore increasingly focus on competency clusters and authentic workplace outcomes rather than rigid separation of traditional subject areas.

Challenges to the Transformation of Business Education

Obsolete Curriculum Content

Rapid technological change can make curriculum content less relevant when programmes are not periodically reviewed against emerging occupational requirements. Nigerian literature provides evidence supporting the need for curriculum transformation. Uzoka and Okoli (2022) found that Business Education graduates in Abia State lacked important digital accounting, digital marketing and digital information and data skills and recommended curriculum reorganisation and diversification. Oluwadare, Omidiji and Awe (2022) similarly argued that Business Education curriculum requires updating and that assessment should be linked to behavioural outcomes and practical competence. More recently, Inikpi (2024) observed that existing Business Education curricula need updating to balance theoretical foundations with practical skills, vocational training, technology and digital literacy. These studies indicate that curriculum transformation should be continuous rather than occasional, with curriculum content regularly examined against labour-market requirements, technological developments and employer expectations.

Inadequate Digital Infrastructure

The effective development of smart skills depends on access to computers, reliable electricity, internet connectivity, relevant software, digital learning platforms and other technology resources. Where these resources are unavailable or unreliable, students may receive theoretical instruction without sufficient opportunity to practise the skills. David et al. (2024) specifically recommended improved ICT infrastructure in tertiary institutions to support digitalized skills acquisition and employability. Consequently, infrastructure provision should be accompanied by maintenance, technical support and pedagogical integration to ensure that available resources are used meaningfully.

Limited Teacher Competence

Curriculum transformation cannot be effective when lecturers lack the competencies required to implement emerging content and technologies. Okoli and Okolo (2024) investigated digital skills acquired by Business Education lecturers in Colleges of Education in Delta State and demonstrated the continuing need to strengthen lecturers' digital competence for effective curriculum implementation. Continuous professional development should therefore be regarded as an integral part of curriculum transformation rather than an optional activity.

Weak Institution-Industry Collaboration

Weak interaction between educational institutions and employers can contribute to a mismatch between the skills taught and those required in workplaces. Nigerian evidence demonstrates the relevance of stronger collaboration. Okon and Ewuru (2024) found that institution-industry collaboration contributed significantly to Business Education curriculum innovation and concluded that industry participation could support the development of twenty-first-century skills. Akinyele et al. (2024) also identified mentorship, training, excursions, collaborative research and regular curriculum review as strategies for strengthening institution-industry collaboration. Thus, industry should be treated as an active partner in curriculum development and skills formation.

Inadequate Funding

Technology-enabled Business Education requires sustained investment in hardware, software, internet connectivity, electricity, maintenance, staff development and practical learning resources. Funding challenges can therefore limit both curriculum implementation and students' exposure to emerging technologies. Investment should not be restricted to the initial purchase of equipment; institutions need sustainable mechanisms for maintenance, replacement, updating and staff training.

Weak Practical Orientation

Where Business Education teaching remains predominantly theoretical, students may graduate with knowledge but insufficient ability to perform authentic workplace tasks. Oluwadare et al. (2022) argued for stronger connections between curriculum implementation, practical work and behavioural outcomes. Similarly, the evidence on institution-industry collaboration indicates that practical exposure can strengthen skills development. Transformative Business Education should therefore increase the use of projects, simulations, enterprise activities, internships and workplace-based assessment.

Strategies for Repositioning Business Education

The strategies proposed in this paper are not presented as a single experimentally tested intervention. Rather, they are derived from established theoretical perspectives, the UNESCO TVET transformation framework and Nigerian research on Business Education, digital skills, curriculum development and industry collaboration. UNESCO (2022) identifies skills anticipation, digital and green transitions, entrepreneurship, work-based learning, innovation and private-sector engagement as important directions for TVET transformation. Nigerian Business Education literature similarly supports

curriculum updating, digital skills development, professional development, practical learning and stronger institution-industry relationships.

Continuous Curriculum Transformation

Business Education curricula should be systematically reviewed to incorporate competencies in AI literacy, data analytics, business intelligence, digital entrepreneurship, FinTech, e-commerce, digital marketing and cyber security awareness. The review should be informed by labour-market evidence, employer feedback, technological developments and graduate tracer information. Uzoka and Okoli (2022) found digital skills deficiencies among Business Education graduates and recommended curriculum reorganization and diversification, while Inikpi (2024) emphasized content validation, industry input, faculty development, technology and innovation in curriculum development. Curriculum transformation should therefore be treated as a continuous cycle of analysis, design, implementation, evaluation and revision.

Continuous Professional Development

Business educators should receive regular professional development in AI, digital technologies, data analytics, entrepreneurship and technology-supported pedagogy. Okoli and Okolo (2024) demonstrated the relevance of lecturers' digital competencies to Business Education curriculum implementation. Professional development should therefore combine workshops, short courses, peer learning, industry attachments, professional certifications and practical technology projects. The objective should be to ensure that lecturers possess the competence to teach emerging skills rather than merely discuss them theoretically.

Technology-Enabled Teaching and Learning

Institutions should provide functional computer laboratories, reliable internet connectivity, relevant business software and digital learning platforms. However, infrastructure provision should be accompanied by purposeful pedagogical use. Students should undertake practical tasks such as data analysis, digital marketing campaigns, online business projects, accounting software exercises, virtual collaboration and AI-supported research. Technology should therefore function as a learning environment rather than simply as an additional teaching aid.

Stronger Institution-Industry Partnerships

Business Education departments should establish formal partnerships with banks, accounting firms, technology companies, FinTech organizations, e-commerce businesses, entrepreneurs and other relevant employers. These partnerships should support internships, mentorship, curriculum review, practical training, workplace assessment and collaborative research. Ikpesu and Amachree (2024) found a significant association between industry-institution collaboration and Business Education students' skills development, while Akinyele et al. (2024) recommended mentorship, training, excursions and collaborative curriculum review. These findings support the institutionalization of industry engagement rather than relying on informal contacts.

Entrepreneurship and Innovation Hubs

Institutions should establish Business Education enterprise and innovation hubs where students can develop, test and refine business ideas. Such centers can provide mentoring, business-plan development, digital marketing support, financial guidance and links to enterprise opportunities. The purpose is to transform entrepreneurship from a predominantly classroom subject into an experiential process through which students practice opportunity identification, enterprise development, customer engagement and financial management.

Competency-Based Assessment

Assessment should increasingly focus on what learners can demonstrate in authentic situations. Practical projects, digital portfolios, business simulations, presentations, enterprise projects, case analyses and workplace-based assessment should complement conventional written examinations. This position is consistent with the emphasis on behavioural outcomes and practical competence in Nigerian Business Education curriculum literature (Oluwadare et al., 2022; Inikpi, 2024). Competency-based assessment can also provide better evidence of whether graduates have acquired the smart skills specified in the curriculum.

Integration of Digital and Green Skills

Business Education should contribute to both digital and sustainable economic transformation. Digital competencies can support paperless office practices, electronic transactions and efficient information management, while green entrepreneurship can expose students to sustainable business models, responsible resource use and environmentally conscious enterprise practices. This strategy aligns with

UNESCO's emphasis on simultaneous digital and green transitions within contemporary TVET (UNESCO, 2022).

Strengthening Quality Assurance

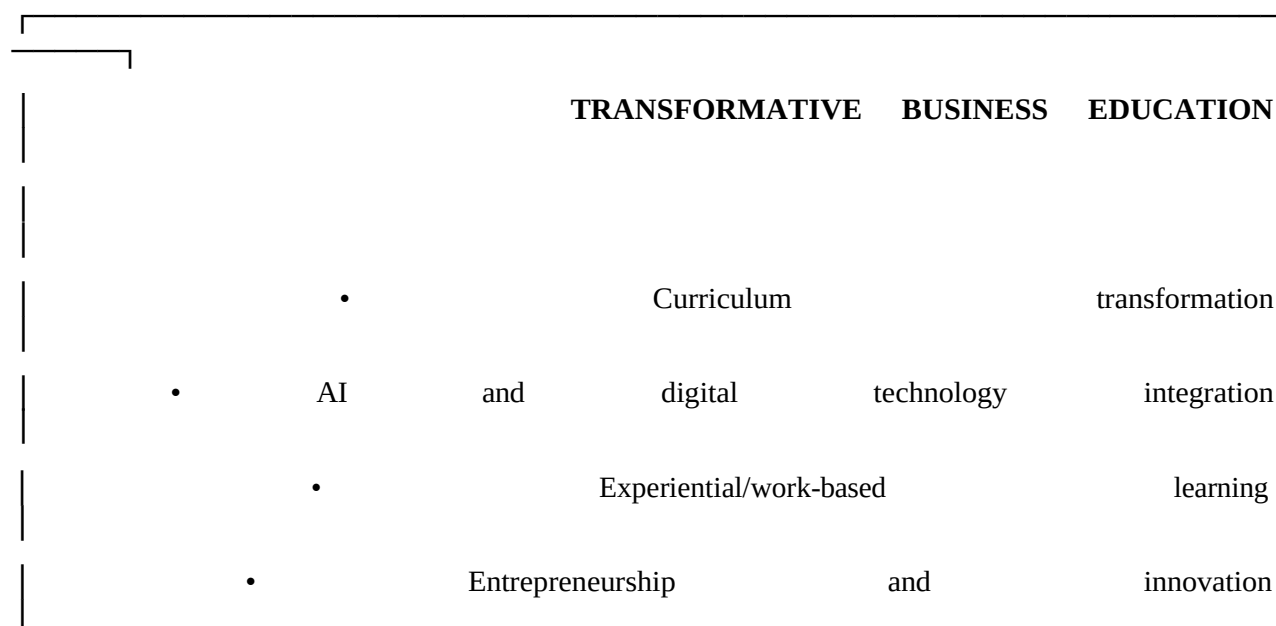
Quality assurance should focus not only on whether courses are offered but also on whether students actually acquire the competencies specified in the curriculum. Institutions should therefore use graduate tracer studies, employer feedback, skills audits, practical assessment results, curriculum reviews and industry consultations to evaluate programme effectiveness. Quality assurance should provide evidence for continuous improvement and ensure that curriculum transformation produces measurable competency outcomes.

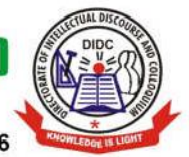
Conceptual Model

The conceptual model proposed in this paper represents Business Education as a catalyst for transformative TVET through the development of smart skills. Unlike a simple linear arrow model, the framework recognizes that curriculum transformation is influenced by technology, industry and changing labour-market requirements and therefore requires continuous feedback.

Figure 1

Conceptual Framework for Business Education as a Catalyst for Transformative Vocational and Technical Education





	•	Industry–institution	collaboration
	•	Competency-based	assessment
	•	Continuous	professional development



SMART-SKILLS DEVELOPMENT

Digital | Analytical | Entrepreneurial | AI/Emerging Tech
Human & Employability Skills

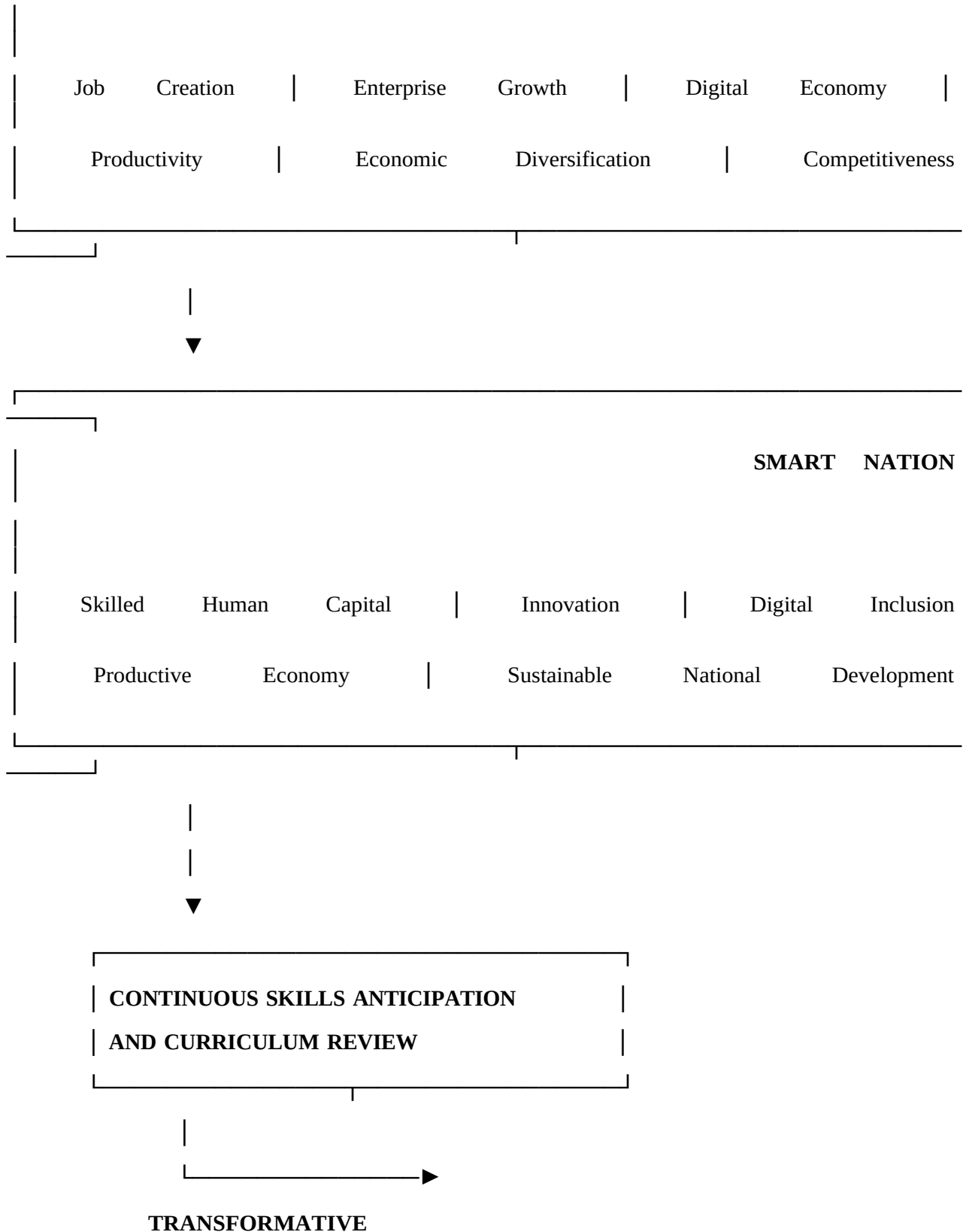


GRADUATE OUTCOMES

Employability | Entrepreneurship | Innovation | Adaptability
Productivity | Lifelong Learning



ECONOMIC TRANSFORMATION



BUSINESS EDUCATION

Source: Author's conceptual synthesis based on Human Capital Theory (Schultz, 1961; Becker, 1964), Experiential Learning Theory (Kolb, 1984), UNESCO TVET Strategy 2022–2029 (UNESCO, 2022), and Nigerian Business Education literature.

The model proposes that transformative Business Education provides the foundation for smart-skills development through curriculum transformation, technology integration, experiential learning, entrepreneurship, industry collaboration, professional development and competency-based assessment. These processes are expected to develop digital, analytical, entrepreneurial, emerging-technology and human competencies. The resulting competencies can enhance graduates' employability, entrepreneurship, innovation, adaptability and productivity, which collectively contribute to economic transformation. Economic transformation, in turn, supports the development of a smart nation characterised by skilled human capital, innovation and productive use of technology. The feedback component indicates that technological developments, labour-market changes and national development needs should continuously inform curriculum review and skills anticipation. The model is therefore a conceptual synthesis and not an empirically tested causal model.

Implications for Nigeria's Smart-Nation Development

The transformation of Business Education has implications beyond the employability of individual graduates. A workforce with relevant digital, analytical and entrepreneurial competencies can contribute to enterprise development, innovation and productivity. When graduates possess the ability to use digital platforms, analyse information, create enterprises and respond to emerging technologies, they become better positioned to participate in a knowledge-based economy.

The implication for educational institutions is that Business Education should be treated as a strategic human-capital programme rather than simply as a traditional vocational discipline. Institutions need to invest in curriculum renewal, teacher development, digital infrastructure, industry collaboration and practical learning environments. Policymakers also need to recognize that technological transformation requires corresponding investment in human competencies.

For industry, the transformation provides an opportunity to participate directly in the preparation of future employees and entrepreneurs. Employers can contribute to curriculum review, mentorship,

internships, practical assessment and identification of emerging skill requirements. Such collaboration can help reduce the mismatch between education and employment.

For students, transformative Business Education provides a pathway towards multiple forms of economic participation. Graduates may enter formal employment, establish enterprises, provide digital services, work as independent professionals or combine employment with entrepreneurship. The emphasis therefore shifts from producing graduates who primarily seek conventional white-collar jobs to producing graduates who can create and respond to economic opportunities.

Conclusion

The transformation of vocational and technical education has become increasingly important in response to digitalization, artificial intelligence, automation, changing labour-market requirements and the emergence of new forms of entrepreneurship. Contemporary Technical and Vocational Education and Training (TVET) must therefore move beyond conventional occupational training towards approaches that develop adaptable, technologically competent, entrepreneurial and innovative individuals. UNESCO (2022) emphasises digital and green transitions, entrepreneurship, work-based learning, innovation and private-sector engagement as important components of contemporary TVET transformation. Within this context, Business Education has considerable potential to contribute to transformative TVET because it operates at the intersection of business knowledge, vocational preparation, technology, entrepreneurship and workplace development. Nigerian studies by Oko and Wagbara (2022), Enang (2023), Mordi (2023), David et al. (2024) and other scholars provide evidence of the increasing importance of digital, entrepreneurial, communication and technology-related competencies to Business Education students and graduates.

The findings from the literature reviewed indicate that the Business Education graduate required in a rapidly changing economy should possess competencies that extend beyond conventional clerical and office skills. Such competencies include digital literacy, artificial intelligence literacy, data analytics, business intelligence, digital entrepreneurship, financial technology, e-commerce, digital marketing, financial literacy, communication, collaboration, leadership, creativity, critical thinking and problem-solving. These competencies need to be developed through relevant curriculum content, competent educators, adequate digital infrastructure, experiential and work-based learning, industry collaboration, entrepreneurship activities and competency-based assessment. The conceptual framework proposed in this paper demonstrates that when Business Education is transformed around these dimensions, it can facilitate the development of smart skills, which in turn can enhance graduate employability,

entrepreneurship, innovation, adaptability and productivity. These outcomes have the potential to contribute to enterprise development, economic productivity and broader national transformation.

Ultimately, a smart nation cannot be built through technological infrastructure alone; it requires human beings with the knowledge, skills, creativity, values and capacity to use technology productively, ethically and responsibly. Business Education can therefore serve as a strategic bridge between education, technology, enterprise and employment when deliberately repositioned to respond to emerging skills requirements. The transformation of Business Education should consequently be regarded as an investment in Nigeria's human capital and a significant component of the broader transformation of vocational and technical education. Sustained curriculum review, professional development, digital infrastructure, industry–institution partnerships, practical learning and evidence-based quality assurance are necessary to ensure that Business Education produces graduates capable not only of securing employment but also of creating enterprises, driving innovation and contributing meaningfully to Nigeria's transition towards a productive, knowledge-based and smart nation.

Recommendations

Based on the conceptual analysis and literature reviewed, the paper recommends that:

1. Business Education curricula should be continuously reviewed to incorporate AI literacy, data analytics, business intelligence, digital entrepreneurship, FinTech, e-commerce, digital marketing and other emerging competencies.
2. Business educators should undergo continuous professional development in emerging technologies, AI, data analytics, entrepreneurship and technology-supported pedagogies to enable effective curriculum implementation.
3. Government and educational institutions should strengthen digital infrastructure, including computers, reliable electricity, internet connectivity, relevant software and digital learning platforms.
4. Business Education departments should institutionalize industry partnerships with banks, technology companies, accounting firms, FinTech organizations, entrepreneurs and other employers to support curriculum review, mentorship, internships and practical training.
5. Entrepreneurship and innovation hubs should be established in institutions offering Business Education to provide students with opportunities to transform ideas into practical enterprises.

6. Assessment should become increasingly competency-based, incorporating practical projects, digital portfolios, business simulations, enterprise projects, case studies and workplace-based tasks.
7. Quality assurance systems should monitor competency outcomes through employer feedback, graduate tracer studies, skills audits, practical assessment and periodic curriculum review.
8. Business Education should integrate digital and green skills to prepare learners for technological and sustainable economic transitions.
9. Government and educational managers should recognize Business Education as a strategic component of transformative TVET and provide the financial, technological and institutional support required for its repositioning.

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