International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume 6 Issue 22 (September 2024) PP. 758-773
DOI: 10.35631/IJMOE.622050

INTERNATIONAL JOURNAL OF MODERN EDUCATION (IJMOE)
www.ijmoe.com

GLOBAL ACADEMIC EXCELLENCE

BUSINESS MODEL APPLICATION IN HIGHER EDUCATION INSTITUTIONS: A STRUCTURED REVIEW

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Article Info:

Article history:
Received date: 21.07.2024
Revised date: 18.08.2022
Accepted date: 23.09.2024
Published date: 30.09.2024

To cite this document:

Rafi, S. M., & Abdullah, E. M. E. (2024). Business Model Application In Higher Education Institutions: A Structured Review. *International Journal of Modern Education, 6* (22), 758-773.

DOI: 10.35631/IJMOE.622050

Abstract:

The application of business models within higher education institutions (HEIs) has gained considerable attention to enhance strategic management and sustainability. This structured review examines the current landscape of business model integration in HEIs, focusing on its impact on sustainability, innovation, and institutional performance. The study addresses the growing concern that while the strategic importance of sustainability is widely acknowledged, the practical implementation of business models within universities remains underexplored. A systematic review methodology was employed, analyzing recent literature from academic databases to identify key themes and trends in applying business models in higher education. The findings were divided into three themes: (1) Sustainable Management and Innovation in Higher Education, (2) Digital Transformation and Quality in Higher Education, and (3) Entrepreneurship and Social Impact in Education. The findings reveal various approaches and varying degrees of success influenced by institutional size, geographical location, and existing strategic orientations. Notably, the review highlights the importance of aligning business models with sustainability goals, emphasizing the need for frameworks that integrate sustainability into the core operations of HEIs. Additionally, the study underscores the role of innovation ecosystems in fostering entrepreneurial activities and adapting to external challenges. The review concludes that while business models are increasingly being recognized as vital tools for enhancing institutional sustainability and innovation, there is a significant need for further research to develop practical frameworks that can be effectively implemented across diverse educational contexts.

Keywords:

Business Model Canvas, Business Model, Canvas, Higher Education

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
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Introduction

In today's rapidly evolving educational landscape, higher education institutions (HEIs) face many challenges, ranging from financial pressures to the demand for innovative teaching methods and the need to stay competitive in a globalized world (Marchenko & Sydorenko, 2019) (Leišytė et al., 2021). To navigate these complexities, HEIs must adopt strategic tools that can effectively guide decision-making processes and ensure sustainable growth (Esteve-Mon et al., 2023). One such tool that has gained significant traction in the business world and is increasingly being applied in the education sector is the Business Model Canvas (BMC) (Ariffianto & Santoso, 2024; Cabrita et al., 2021; Hidayat & Aprilani, 2018; Umar et al., 2020). Originally conceptualized by Alexander Osterwalder and Yves Pigneur in 2010, the BMC is a strategic management tool that provides a visual framework for developing, describing, and innovating business models. Its adaptability makes it a powerful tool for institutions of higher learning seeking to redefine their educational offerings and operational strategies. Applying the BMC in higher education is not merely a theoretical exercise but a practical approach that can bring tangible benefits. By employing the BMC, HEIs can systematically analyze and design their value propositions, identify critical resources and activities, and align their institutional goals with the needs of students and other stakeholders. This approach is particularly relevant in an era where traditional models of higher education are being questioned and there is an increasing emphasis on student-centered learning (Kukreti & Broering, 2019; Teffo et al., 2022; Willness & Bruni-Bossio, 2017), digital transformation, and partnerships with industry.

The nine fundamental components of the BMC; customer segments, value propositions, channels, customer connections, revenue streams, key resources, key activities, key partnerships, and cost structure - offer a holistic perspective on an organization's operations. HEIs can modify these components to align with different elements of their educational model. For example, client segmentation might be understood as varied student groups, whereas value propositions may pertain to the school's distinctive educational offers or research prospects. Channels may span both conventional and digital course delivery methods, while significant partnerships may involve collaborations with industry, government, and other educational institutions. Furthermore, the BMC enables a comprehensive comprehension of how various elements of an organization's business model interact and exert mutual effect. This interdependence is essential for HEIs seeking to innovate and stay relevant in a competitive context. For instance, when an institution chooses to implement a new digital learning platform, particularly a crucial resource, it can impact its value offerings, distribution routes, and sources of income. Visualizing these links enables HEIs to make well-informed decisions that align with their strategic goals. (Nurhakim, Suparno, & Nurrochmat, 2018; Nurhakim, Suparno, Dodik, et al., 2018). Ultimately, using the BMC in higher education signifies a redirection towards a greater emphasis on strategic and entrepreneurial thinking within the field. Given the challenges and possibilities that HEIs encounter in the 21st century, the BMC provides a flexible and pragmatic framework for rethinking their business models. This, in turn, will result in improved educational outcomes and the institution's long-term viability. This paper examines the implementation of the BMC in higher education, emphasizing its capacity to revolutionize the functioning and provision of value to institutions and their stakeholders.

Research Question

Research questions are crucial in a systematic literature review (SLR) because they provide the foundation and direction for the entire review process. They guide the scope and focus of the

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SLR, helping to determine which studies to include or exclude, ensuring that the review remains relevant and specific to the topic of interest. A well-defined research question ensures that the literature search is exhaustive and systematic, covering all relevant studies that address critical aspects of the topic. This minimizes the risk of bias and ensures a complete overview of the existing evidence. Additionally, research questions facilitate the categorization and organization of data from included studies, providing a framework for analysing findings and synthesizing results to draw meaningful conclusions. They also enhance clarity and focus, avoiding ambiguity and keeping the review concentrated on specific issues, making the findings more actionable and relevant. Furthermore, well-formulated research questions contribute to the transparency and reproducibility of the review, allowing other researchers to follow the same process to verify findings or extend the review to related areas. Ultimately, research questions ensure that the review aligns with the overall objectives of the study, whether it is to identify gaps in the literature, evaluate the effectiveness of interventions, or explore trends in a specific field, making them the backbone of a rigorous, focused, and relevant systematic literature review.

Specifying the Research Questions (RQs) is the most important activity at the planning stage but also the most essential part of any SLR because it drives the entire review methodology (Kitchenham, 2007). Besides, the PICo framework is a mnemonic style used to formulate research questions, particularly in qualitative research. PICo stands for Population, Interest, and Context. Here's what each component means:

i. . **Population (P):** This refers to the group or participants of interest in the study. It specifies who the research is focused on, such as a specific demographic, patient group, or community.
ii. **Interest (I):** This represents the main focus or phenomenon of interest in the study. It could be a particular experience, behavior, intervention, or issue that the research aims to explore or understand.
iii. **Context (Co):** This defines the setting, environment, or specific context in which the population and interest are situated. It might refer to geographical location, cultural or social settings, or any other relevant backdrop for the research.

Using the PICo framework helps structure research questions clearly and systematically by breaking down the key elements of the study into these three components. This approach ensures that the research is focused and the questions are well-defined, making searching for relevant literature or designing a study easier.

i. How do higher education institutions address the challenges of implementing sustainable management practices and innovations, and how do they impact institutional sustainability?
ii. What challenges do higher education institutions face in implementing entrepreneurship education programs that aim to create social impact,
iii. How do these programs influence the broader community?

Material And Methods

The present study was guided by the PRISMA review methodology, a structured approach for performing a systematic literature review. To give writers the pertinent and necessary information they need to evaluate and carefully examine the quality and thoroughness of a review, publication criteria are usually required. Furthermore, reviews that evaluated

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randomized trials are highly valued by PRISMA and might be used as a foundation for publishing systematic reviews of other types of research. A particular study's inclusion and exclusion criteria can be established using PRISMA, commonly used in medical research. It is also feasible to accurately search for terms linked to BMC applications in higher education because PRISMA scans the extensive library of scientific papers at a predefined period. In addition, PRISMA enables implicit knowledge in upcoming assessments of lean technology deployment. (Shaffril, Samah, Samsuddin, & Ali, Mohamed, 2019). In this analysis, two key databases, Scopus and Web of Science, were utilized due to their robust nature and extensive coverage. Scopus offers a comprehensive index of peer-reviewed literature across various disciplines, while Web of Science focuses on science, social sciences, arts, and humanities research. However, it is acknowledged that no database is perfect; each has limitations, such as coverage gaps or varying levels of detail, which must be considered during the review process. According to the review procedure, SLR would be created based on the research topic for the review. In this study, the systematic search approach, together with the five main sub-processes of identification, inclusion and exclusion criteria screening, eligibility, data abstraction and analysis, and quality appraisal, will be explained. A public quality assessment will be conducted to establish the standard of the goods to be assessed. The method of data abstraction, together with its analysis and validation, will be explained in the last section.

Identification

Identification refers to the systematic search for synonyms, related concepts, and variations of the primary keywords in a specific study, particularly about adapting BMC in higher education. The objective is to expand the range of choices within the chosen database to conduct a more comprehensive search for relevant articles to evaluate. The keywords are formulated according to the research topic, as recommended by Okoli (2015), and the identification procedure is based on an online thesaurus, keywords proposed in previous studies and by experts, and keywords given by Scopus and Web of Science (WoS). This study employed the essential stages of the systematic review approach to collect a significant volume of pertinent literature. The method commenced with choosing keywords, thereafter conducting searches for associated terms utilizing dictionaries, thesauri, encyclopedias, and earlier research. Relevant phrases were discovered, and search strings were generated for the Eric, Web of Science, and Scopus databases. Please refer to Table 1 for further details. In the first stage of the systematic review, 395 relevant papers were identified from the three databases. The authors successfully enhanced the current keywords and created a comprehensive search string using three main manual procedures that have been used to improve the search effort: handpicking, snowballing, and backward tracking. Boolean operators, phrase searching, truncation, wildcard, and field code functions. They searched three significant databases: Scopus, and Web of Science (Table 1). In this identification process, some potential articles have been selected for further processing, namely screening.

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Table 1: The Search String

SCOPUS	TITLE-ABS-KEY (("business model canvas*" OR "business model*" OR "BMC") AND ("revenue stream" OR "value proposition" OR "customer segmentation" OR "customer relationship" OR "value") AND (higher AND educat*)) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2022) OR LIMIT-TO (PUBYEAR , 2023) OR LIMIT-TO (PUBYEAR , 2024)) AND (LIMIT-TO (SUBJAREA , "SOCI") OR LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (PUBSTAGE , "final")) Date of Access : August 2024
WoS	(("business model canvas*" OR "business model*" OR "BMC") AND ("revenue stream" OR "value proposition" OR "customer segmentation" OR "customer relationship" OR "value") AND (higher AND educat*) (Topic) and 2024 or 2023 or 2022 or 2021 or 2020 (Publication Years) and Article (Document Types) and English (Languages) and Business Economics or Education Educational Research (Research Areas) Date of Access : August 2024

Screening

Screening is a methodical process that involves evaluating data to determine its relevance or irrelevance based on particular criteria set by the writers. Well-selected databases support this evaluation. The systematic review procedure will select the right publications based on screening, eligibility, inclusion, and exclusion criteria. This stage frequently entails the selection of research topics based on the modification of the BMC. This study will exclusively analyze the pertinent literature acquired throughout a defined period, especially from 2020 to 2024. In addition, only journal articles that included empirical data were selected. On the other hand, document types like article reviews, books, book chapters, and conference proceedings were excluded because they did not have primary sources. In addition, only journal articles written in English were chosen for the systematic literature review (see to Table 2). The objective of this was to avoid unnecessary translation and ambiguity in language. After the identification process, 134 items were removed from the initial 74 analyzed documents (see Figure 1). In total, 15 articles were rejected because they were duplicates.

Table 2: The Selection Criterion Is Searching

Criterion	**Inclusion**	**Exclusion**
Language	English	Non-English
Timeline	2020-2024	2020-2024
Literature type	Journal (Article)	Conference, Book, Review
Publication Stage	Final	In Press
Subject	Social Science, Business Management and Accounting	Business Economics, Education, Educational Research

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Eligibility

Eligibility is the procedure by which publications are manually included or excluded based on the criteria established by the current study's authors. The retrieved papers underwent a comprehensive review, discarding any articles that did not satisfy the criteria. Before conducting the eligibility process, duplicate documents were initially eliminated. Of the 59 articles identified, 35 were excluded from both databases for the next phase as they did not qualify due to the out-of-field, title not significantly, abstract not related to the study's objective, and no full-text access founded on empirical evidence. The remaining 24 documents underwent a manual screening process to determine their eligibility for inclusion in the literature review. This screening focused on identifying articles that discussed business models or methods and met the criteria established in the earlier screening processes (inclusion and exclusion criteria).

Data Abstraction and Analysis

An integrative analysis was used as one of the assessment strategies in this study to examine and synthesize a variety of research designs (quantitative methods). The goal of the competent study was to identify relevant topics and subtopics. The data collection stage was the first step in developing the theme. Figure 1 shows how the authors meticulously analyzed a compilation of 24 publications for assertions or material relevant to the topics of the current study. The authors then evaluated the current significant studies related to BMC. The methodology used in all studies, as well as the research results, are being investigated. Next, the author collaborated with other co-authors to develop themes based on the evidence in this study's context. A log was kept throughout the data analysis process to record any analyses, viewpoints, riddles, or other thoughts relevant to the data interpretation. Finally, the authors compared the results to see if there were any inconsistencies in the theme design process. It is worth noting that if there are any disagreements between the concepts, the authors discuss them amongst themselves.

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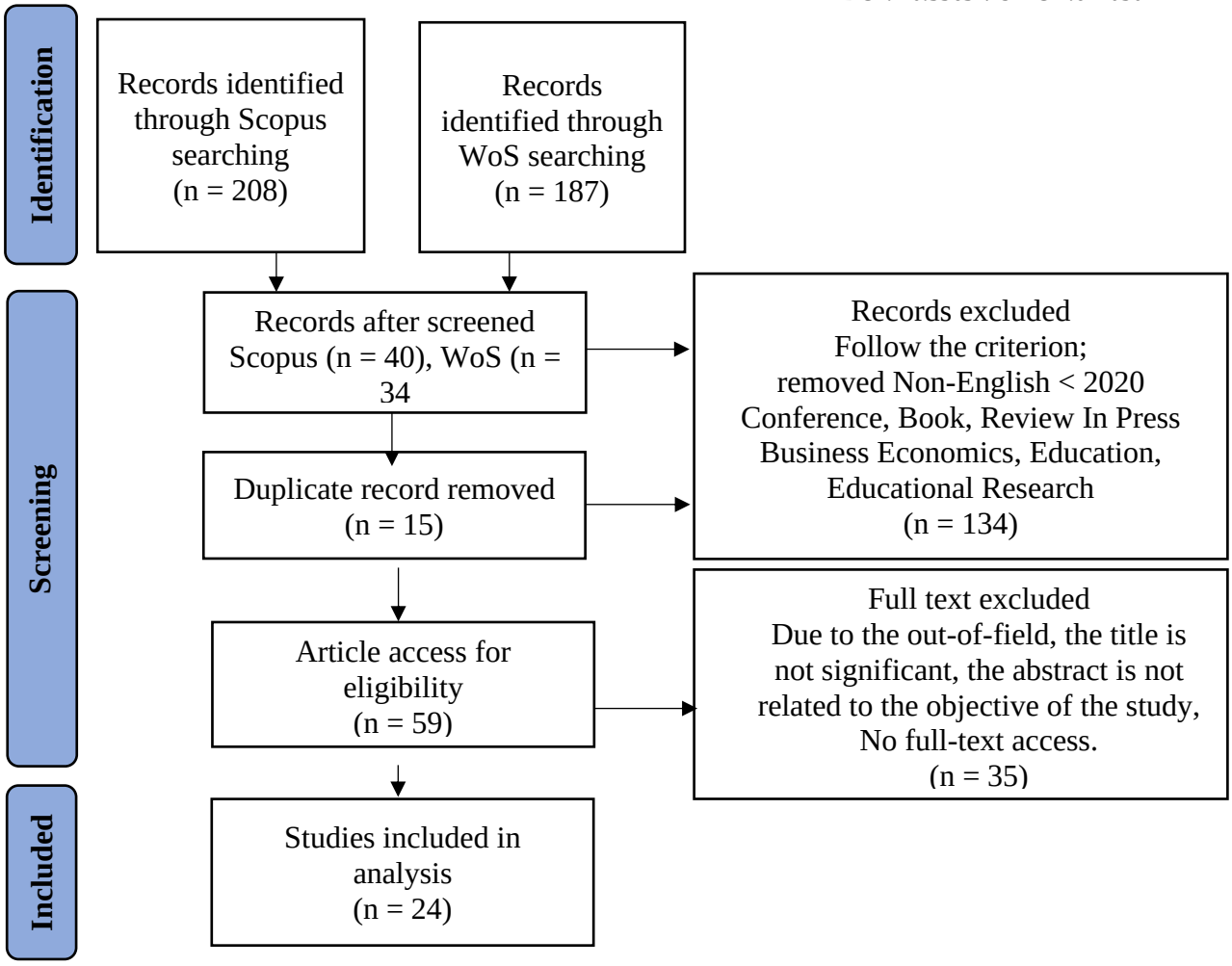

Figure 1. Flow Diagram Of The Proposed Searching Study [1]

Result And Finding

The produced themes were eventually tweaked to ensure consistency. Two experts in higher education institutions carried out the analysis selection to determine the validity of the problems. The expert review phase ensures the clarity, importance, and suitability of each subtheme by establishing the domain validity. The authors also compared the findings to resolve any discrepancies in the theme-creation process. Note that if any inconsistencies in the themes arose, the authors addressed them with one another. Finally, the developed themes were tweaked to ensure their consistency. To ensure the validity of the problems, the examinations were performed by two experts in higher education. The expert review phase helped ensure each sub-theme's clarity, importance, and adequacy by establishing domain validity. The finding was divided into three themes which are (1) Sustainable Management and Innovation in Higher Education, (2) Digital Transformation and Quality in Higher Education, and (3) Entrepreneurship and Social Impact in Education. Table 4 shows the background of the selected study.

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Table 4: Background Of Selected Study

No	Authors	Title	Year	Journal	SCOPUS	WoS
1	Nsereko I.; Bignotti A.; Farhoud M.(Nsereko et al., 2021)	Creating change through social entrepreneurship: the case of girls' school dropouts in Uganda	2021	Emerald Emerging Markets Case Studies	/	
2	Sułkowski Ł.; Gregor B.; Kaczorowska–Spychalska D. (Sułkowski et al., 2020)	Decision-making– implications for university management	2020	Journal of International Studies	/	
3	Chakraborty S.(Chakraborty, 2024)	Digital quality's role in US online higher education	2024	Quality Assurance in Education	/	
4	Dehtjare J.; Uzule K.(Dehtjare & Uzule, 2023)	Sustainable Higher Education Management: Career Drivers of Academic Staff	2023	Journal of Teacher Education for Sustainability	/	/
5	Bennett L.; Abusalem A.(Bennett & Abusalem, 2024)	Building Academic Integrity and Capacity in Digital Assessment in Higher Education	2024	Athens Journal of Education	/	/
6	Sanches F.E.F.; Campos M.L.; Gaio L.E.; Belli M.M.(Sanches et al., 2022)	Proposal for sustainability action archetypes for higher education institutions	2022	International Journal of Sustainability in Higher Education	/	/
7	Matthews A.; Kotzee B.(Matthews & Kotzee, 2022)	Bundled or unbundled? A multi-text corpus-assisted discourse analysis of the relationship between teaching and research in UK universities	2022	British Educational Research Journal	/	/
8	Ostuzzi F.; Hoveskog M.(Ostuzzi & Hoveskog, 2020)	Education for flourishing: an illustration of boundary object use, peer feedback and distance learning	2020	International Journal of Sustainability in Higher Education	/	/
9	Giovanelli L.; Rotondo F.; Ezza A.(Giovanelli et al., 2021)	Business models for integration of sustainability in universities: An explorative analysis of Italian state universities	2021	Journal of Cleaner Production	/	
10	Figueiredo N.; Patrício L.D.; Reis M.(Figueiredo et al., 2024)	Innovation for environmental sustainability: business models for SMEs	2024	Journal of Small Business and Enterprise Development	/	
11	Cualheta L.P.; Abbad G.S.(Cualheta & Abbad, 2021)	What does entrepreneurship education look like in Brazil? An analysis of undergraduate teaching plans	2021	Education and Training	/	/
12	Mergaliyeva L.(Mergaliyeva, 2020)	The nature of innovation eco-system of the western kazakh state university	2020	International Journal of Higher Education	/	/
13	Spicka J.(Spicka, 2023)	Cooperation in a minimum-waste innovation ecosystem: a case study of the Czech Hemp Cluster	2023	International Journal of Emerging Markets	/	/
14	Marín V.I.; Carpenter J.P.; Tur G.; Williamson-Leadley S.(Marín et al., 2023)	Social media and data privacy in education: an international comparative study of perceptions among pre-service teachers	2023	Journal of Computers in Education	/	

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IJMOE
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15	Valdés K.N.; Alpera S.Q.Y.; Suárez L.M.C.(Valdés et al., 2021)	An institutional perspective for evaluating digital transformation in higher education: Insights from the chilean case	2021	Sustainability (Switzerland)	/	
16	Rotondo F.; Giovanelli L.; Ezza A.	Implementing sustainable innovation in state universities: Process and tools	2023	Journal of Cleaner Production	/	
17	Del Vecchio P.; Secundo G.; Mele G.; Passiante G.	Sustainable entrepreneurship education for circular economy: emerging perspectives in Europe	2021	International Journal of Entrepreneurial Behaviour and Research	/	/
18	Guizzo D.	Ceremonial Economics: A Social-Institutional Analysis of Universities, Disciplines, and Academic Positioning	2024	Journal of Economic Issues	/	
19	Jalali A.; Nyman J.A.; Hamelin-Mitchell E.	Fundraising in Education: Road Map to Involving Medical Educators in Fundraising	2022	JMIR Medical Education	/	/
20	Packmohr S.; Paul F.-H.; Brink H.	Considering Company Size, Level of Responsibility, and Employee Age for Analysing Countermeasures against Barriers to Digital Transformation	2024	Journal of Telecommunications and the Digital Economy	/	/
21	Muhibbullah; Mamun A.A.; Afroz R.	Quality of Higher Education: Improving the Well-being through Humanizing Digital Entrepreneurship Program	2021	Journal of Asian Finance, Economics and Business	/	/
22	Franco D.; Macke J.; Cotton D.; Paço A.; Segers J.-P.; Franco L.	Student energy-saving in higher education tackling the challenge of decarbonisation	2022	International Journal of Sustainability in Higher Education	/	/
23	Sharmelly R.; Ray P.K.	Managing resource-constrained innovation in emerging markets: Perspectives from a business model	2021	Technology in Society	/	/
24	Ngafeeson M.N.	Northern Michigan University online campus: A case of digital transformation in higher education	2022	Journal of Information Technology Teaching Cases	/	/

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Theme 1: Sustainable Management and Innovation in Higher Education

The intersection of sustainable management and innovation within higher education has garnered significant attention in recent research. Various studies emphasize the role of human resource management in aligning academic staff's career drivers with institutional strategic goals. For instance, in analyzing the career drivers of academic staff across different universities, researchers observed a divergence between the values of academic staff and higher education (HE) managers. This disparity highlights the necessity for personalized human resource management policies that foster a sustainable work environment conducive to high productivity and quality education (Sustainable Higher Education Management: Career Drivers of Academic Staff, 2023). This approach underscores the need for HEIs to consider technical competence, professional development, and creative autonomy as key factors in driving academic staff engagement, ultimately contributing to the achievement of Sustainable Development Goals (SDGs) like "Quality Education" (Sustainable Higher Education Management: Career Drivers of Academic Staff, 2023). Additionally, HEIs are increasingly seen as pivotal players in pursuing a sustainable future. The development of sustainability action archetypes has been proposed as a holistic strategy to incorporate sustainability across institutional activities (Proposal for Sustainability Action Archetypes for Higher Education Institutions, 2022). Adapting sustainable business model archetypes, initially designed for corporate use, provides a structured framework for HEIs to systematically integrate sustainability objectives into their operational and strategic planning. The implementation of such archetypes not only promotes a cohesive approach to sustainability and empowers HE administrators and policymakers to embed sustainable practices into their institutions' core activities (Proposal for Sustainability Action Archetypes for Higher Education Institutions, 2022).

Further research has explored the integration of sustainability into university business models, particularly within the context of Italian state universities. These studies reveal that while the strategic orientation towards sustainability is widely recognized, there is a lack of empirical research on the operationalization of sustainability strategies within universities (Business Models for Integration of Sustainability in Universities: An Explorative Analysis of Italian State Universities, 2021). By employing a cluster analysis, researchers identified distinct business models that reflect varying degrees of commitment to sustainability, suggesting that the effectiveness of these models is influenced by factors such as university size, geographical location, and performance. This analysis points to the need for a strategic framework that addresses sustainability at a conceptual level and provides practical tools for its implementation in diverse university settings (Business Models for Integration of Sustainability in Universities: An Explorative Analysis of Italian State Universities, 2021). In examining innovation ecosystems within universities, the case of Western Kazakhstan State University (WKSU) during the COVID-19 pandemic is a notable example. Despite logistical challenges, the university's shift to online education demonstrated the potential for disruptive innovations in higher education (The Nature of Innovation Eco-system of the Western Kazakh State University, 2020). This study highlights the importance of fostering an innovative culture that supports the development of new entrepreneurial landscapes, particularly in resource-constrained environments. The emphasis on frugal innovation, which leverages limited resources to create significant value, is critical for universities in low-income countries seeking to advance their educational offerings and contribute to broader economic growth (The Nature of Innovation Eco-system of the Western Kazakh State University, 2020).

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Finally, the implementation of sustainable innovation within state universities requires a deep understanding of the processes, tools, and challenges involved. A recent study on Italian state universities provided insights into the dynamics of sustainable innovation, emphasizing the importance of a theoretical framework that guides the integration of sustainability into university business models (Implementing Sustainable Innovation in State Universities: Process and Tools, 2023). The research identified five key propositions that outline the relationship between sustainability strategies and institutional performance. These findings contribute to the ongoing discourse on how universities can effectively lead the transition towards a more sustainable future, aligning their operational goals with broader societal and environmental objectives (Implementing Sustainable Innovation in State Universities: Process and Tools, 2023).

Theme 2: Digital Transformation and Quality in Higher Education

The role of digital quality in online HEIs is increasingly critical for their survival and competitiveness. As explored by Chakraborty(Chakraborty, 2024), digital quality is pivotal in enhancing the strategic positioning and long-term sustainability of OHEIs, particularly in the highly competitive U.S. market. The research highlights the necessity of investing in digital quality to counterbalance the inherent challenges posed by established traditional institutions. The study underscores that OHEIs can effectively navigate the lifecycle challenges and secure their place in the education sector by focusing on quality. This finding aligns with the broader discourse on the importance of digital transformation in maintaining educational standards and improving institutional outcomes. In the context of the rapid shift to digital learning prompted by the COVID-19 pandemic, Bennett and Abusalem (Bennett & Abusalem, 2024) emphasize the importance of academic integrity in digital assessment. Their research introduces the Digital Assessment Framework (DASH C21), designed to guide educational institutions in developing authentic and integrity-driven digital assessments. The framework, grounded in extensive research and consultation, highlights four key dimensions—practices and pedagogies, strategies, emerging technologies, and stretching horizons—that collectively foster a robust digital assessment environment. This framework addresses the immediate needs brought on by the pandemic and provides a sustainable model for future digital education practices, reinforcing the essential role of integrity in maintaining quality in higher education.
Valdés et al. (Valdés et al., 2021) provide a managerial perspective on digital transformation, particularly within Chilean HEIs. The study reveals that the rapid adoption of digital technologies has significantly impacted various institutional categories, particularly values and operations. The research offers valuable insights into how these institutions navigate the complexities of digitalization, emphasizing the need for tailored strategies that consider the specificities of each institution. This work contributes to understanding digital transformation as a multifaceted process that requires careful management and strategic intervention to align technological changes with institutional goals. Packmohr et al. (Packmohr et al., 2024) explore the barriers to digital transformation across different industries, including higher education. Their study identifies common challenges such as resistance to change and the need for demand-oriented training. The research categorizes countermeasures based on company size, level of responsibility, and employee age, highlighting the importance of human and organizational dimensions in overcoming these barriers. The findings suggest that targeted education and training are crucial in facilitating digital transformation, ensuring institutions can effectively implement and benefit from technological advancements.

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The case of Northern Michigan University (NMU), as discussed by Ngafeeson (Ngafeeson, 2022), provides a practical example of how digital transformation can be successfully implemented in higher education. The evolution of NMU's online campus, particularly during the COVID-19 pandemic, demonstrates the challenges and opportunities presented by digitalization. The study illustrates how a well-crafted digital strategy, supported by both intrinsic and extrinsic factors, can lead to a successful transition from traditional to online learning. NMU's experience underscores the importance of a strategic approach to digital transformation, one that is responsive to external pressures while also being grounded in institutional strengths and values.

Theme 3: Entrepreneurship and Social Impact in Education

Entrepreneurship education has increasingly become a pivotal element in fostering social change, particularly in contexts that require innovative solutions to persistent social problems. Nsereko et al. (Nsereko et al., 2021) highlight the role of social entrepreneurship in addressing educational disparities, using the case of Ugandan girls' school dropouts as a significant example. The study showcases how social entrepreneurs like Dr. Moses Musaazi utilized the Social Business Model Canvas to develop sustainable solutions. The findings emphasize the importance of innovation, self-starting behaviours, and proactiveness in creating social value in underdeveloped economies. This aligns with the theories proposed by Dees (2001) and Santos (2012) on social entrepreneurial behaviors, demonstrating how these traits can drive the establishment of social ventures, especially in resource-constrained settings(Sharmelly & Ray, 2021). Moreover, the role of cooperation in fostering environmental sustainability through business models is explored by Figueiredo et al. (Figueiredo et al., 2024), who investigates the impact of various types of collaboration on SMEs' innovation(Figueiredo et al., 2024). The study reveals that both national and European-level cooperations significantly enhance the innovation capabilities of SMEs in developing sustainable practices. However, it also underscores that not all forms of cooperation yield the same results, specifically emphasizing the role of suppliers, customers, and research institutions. This finding is critical for policymakers and educators designing entrepreneurship curricula, as it suggests integrating lessons on effective collaboration into educational programs to prepare future entrepreneurs better.

Further contributing to the discussion on entrepreneurship education, Cualheta and Abbad (Cualheta & Abbad, 2021) analyze the teaching methodologies and content of entrepreneurship courses in Brazilian universities. Their research uncovers a predominant focus on declarative knowledge, with active methodologies being widely used. However, the study points out the limited inclusion of modern business modeling tools like the BMC, which is only mentioned in a minority of the courses. This gap highlights the necessity for a more comprehensive integration of practical tools in entrepreneurship education, ensuring that students are equipped with theoretical knowledge and digital skills(Mamun & Afroz, 2021) required to apply these concepts in real-world scenarios. Finally, Del Vecchio et al discuss the concept of sustainable entrepreneurship within the circular economy.(Del Vecchio et al., 2021). The authors identify emerging trends in entrepreneurship education that align with the principles of circular economy, such as green supply chain management and technology entrepreneurship. The study's cross-case analysis of European higher education programs reveals a growing emphasis on developing competencies that support circular and sustainable business practices. This research is pivotal for educators and institutions aiming to update their curricula to address the global shift towards sustainability, suggesting that the integration of circular economy

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Volume 6 Issue 22 (September 2024) PP. 758-773
DOI: 10.35631/IJMOE.622050
principles into entrepreneurship education is not only timely but necessary for the future of business education.

Discussion

Integrating sustainable management and innovation within HEIs has become increasingly significant, reflecting the evolving priorities of academic environments. A growing body of research highlights the critical role of human resource management in aligning the career aspirations of academic staff with institutional objectives. This alignment is essential for fostering a sustainable work environment that enhances productivity and educational quality. Technical competence, professional development, and creative autonomy are critical drivers of academic engagement, crucial for fulfilling broader goals like Sustainable Development. HEIs are also recognized as essential contributors to the global pursuit of sustainability. Adopting sustainability action archetypes offers a comprehensive strategy for embedding sustainability across various institutional functions. Adapting business models traditionally used in corporate environments provides a structured framework for integrating sustainability into the strategic and operational planning of HEIs. This approach not only promotes a unified strategy toward sustainability but also empowers institutional leaders to embed sustainable practices deeply within the core activities of their organizations. Exploring business models that incorporate sustainability within universities, particularly within Italian state institutions, reveals that while sustainability is widely acknowledged as a strategic priority, there is a noticeable gap in the practical application of these strategies. The effectiveness of sustainability-driven business models varies and is influenced by university size, geographical location, and overall performance. This indicates the need for a more practical and operational framework for implementing sustainability in diverse university contexts.

Innovation ecosystems within universities, exemplified by the case of Western Kazakhstan State University during the COVID-19 pandemic, illustrate the potential of disruptive innovations in higher education. Despite challenges, the shift to online education demonstrated the capacity for significant innovation even in resource-limited settings. This highlights the importance of cultivating an innovative culture that supports new entrepreneurial activities, particularly in environments with limited resources. Furthermore, successfully implementing sustainable innovation within universities requires a clear understanding of the processes, tools, and challenges involved. Recent studies emphasize the necessity of a theoretical framework to guide the integration of sustainability into university business models, highlighting key propositions that link sustainability strategies with institutional performance. In digital transformation, the role of digital quality in online HEIs is critical for maintaining competitiveness and ensuring long-term sustainability. Digital quality is a pivotal factor in enhancing strategic positioning within the highly competitive education sector. Additionally, the importance of academic integrity in digital assessment is addressed by developing frameworks designed to maintain quality in digital education. The rapid adoption of digital technologies in response to the COVID-19 pandemic has profoundly impacted institutional values and operations, necessitating tailored strategies that align technological changes with institutional goals.

Barriers to digital transformation, such as resistance to change, highlight the importance of targeted education and training in overcoming these challenges. The experiences of institutions like Northern Michigan University demonstrate that a well-crafted digital strategy, responsive to external pressures and grounded in institutional strengths, is key to successfully transitioning

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 6 Issue 22 (September 2024) PP. 758-773
DOI: 10.35631/IJMOE.622050

to online learning environments. Entrepreneurship education within HEIs is increasingly viewed as a crucial element in addressing social challenges, particularly in contexts requiring innovative solutions. Social entrepreneurship has proven effective in tackling educational disparities and fostering social change. Cooperation and collaboration are also identified as vital components in enhancing the innovation capabilities of small and medium-sized enterprises (SMEs), particularly in developing sustainable practices. However, the effectiveness of such cooperation varies depending on the nature and level of collaboration. The integration of practical tools like the BMC into entrepreneurship education remains limited, highlighting the need for a more comprehensive approach that combines theoretical knowledge with practical application. Finally, the incorporation of circular economy principles into entrepreneurship education is emerging as an essential trend, aligning with global shifts towards sustainability and underscoring the importance of updating educational curricula to reflect these new priorities.

Conclusion

In conclusion, incorporating sustainable management and innovation into HEIs is crucial for connecting institutional aims with broader global agendas like sustainable development. Human resource management is critical in promoting a productive and inventive academic atmosphere, but sustainability-driven commercial models are necessary but require a more realistic and adaptive framework for effective execution. The COVID-19 epidemic has highlighted the potential for disruptive innovation in HEIs, notably in digital transformation, which is still critical for retaining competitiveness. Future research should concentrate on building operational frameworks that integrate sustainability across many HEIs contexts, improving digital quality in online education, and implementing circular economy ideas into entrepreneurship education to coincide with global sustainability trends.

Acknowledegment

We express our gratitude to all contributors of this work, as well as to the journal reviewers and managing editors. I also express gratitude to Global Academic Excellence (M) Sdn Bhd for the opportunity to publish this paper.

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