

Encouraging Student Engagement in Digital Business Through Digital Marketing Scenarios

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Abstract

Today, pedagogical approaches are discussing the development of practical skills relevant to the digital business landscape. This research incorporates the effectiveness of integrating digital marketing scenarios (Decisions, Web, SEA, Email, SMM and Community Management) and encourages student engagement through experiential learning, through simulated digital marketing campaigns and entrepreneurial initiatives, so as to prepare them for careers in an increasingly digital economy. By building these scenarios, an entrepreneurial mindset is promoted, through which students experiment with artificial intelligence-based marketing strategies in a controlled environment, in a context of entrepreneurship and education. This integration is pertinent because advances in technology and the continuous emergence of new media force the adaptation of study programs to equip students with contemporary digital capabilities, such as those in digital advertising, marketing and e-commerce.

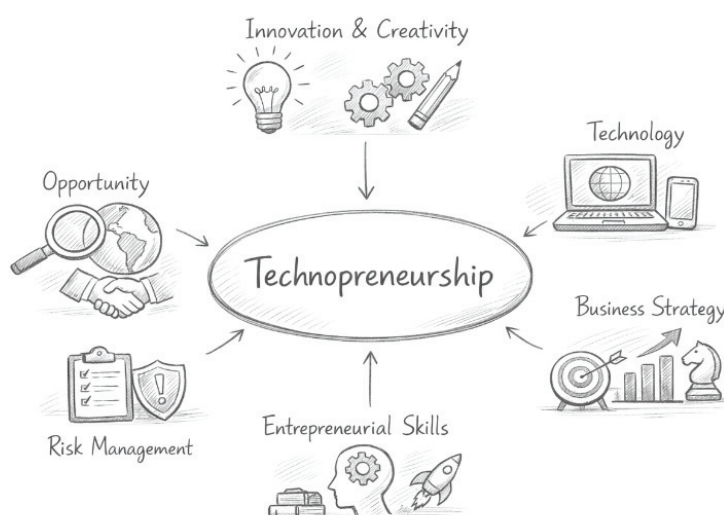
Keywords: Digital marketing, digital business, experiential learning, higher education.

INTRODUCTION

Teaching in higher education is being transformed by the evolution of information technologies, especially in business and technology. This evolution focuses on students developing skills through flexible and practical learning. (Peterková et al., 2022). Student-centered teaching was due to the

changes of the transition from the third to the fourth industrial revolution, which emphasized the need to introduce graduates with the digital skills needed in today's industries. ("Promoting Digital Skills and Competencies in Higher Education", 2023). Information technologies are fundamentally redefining the educational experience by modernizing classrooms for personalized and flexible learning. Modern teaching approaches through simulations and practical applicability provide students with a globally collaborative environment and adaptation to the job market. Traditional case studies in marketing management are limited; they do not include longer timelines or specific contexts. But introducing digital marketing case studies into business courses provides students with practical, real-world experiences that enhance understanding and engagement (Vickers et al., 2023). Connecting theory to industry needs demonstrates the complexity of real-world business-to-business marketing. Marketing practice requires new teaching methods that engage students through digital storytelling and practical marketing communications (Kirkpatrick & Eason, 2024). New marketing simulation approaches use design thinking and active learning to keep students engaged, especially online, and help meet the digital skills needs of a changing world (Bustard et al., 2022). Marketing simulations that emphasise personalised learning focus on hands-on experience, using artificial intelligence (AI) tools such as machine learning and predictive analytics in lesson design (Allil, 2024). Thus, students are trained for the complexities of modern business in a digital, hands-on, and community-based world (Harprayudi et al., 2024; Nayeem & Small, 2024). Adopting a hybrid, technology-driven educational model is essential, underlining a paradigm shift in universities from information providers to community-based learning ecosystems. The use of AI-based digital marketing in education contributes to improving communication and supports new businesses, where collaboration and practical application take priority over abstract theory. The collaboration of this technology-driven educational model provides a new paradigm, respectively "technopreneurship". The term "technopreneurship" refers to the entrepreneurial process applied in high-tech sectors. It involves stages such as idea generation, prototyping, marketing and commercialization. (Yeoh & Oh, 2025) (as seen in Picture 1)

Picture 1: Innovation - Technology- Entrepreneurship (Technopreneurship)



This triad of Innovation, Technology and Entrepreneurship (ITE) functions as an interdependent ecosystem, an essential growth engine for modern economic development, competitiveness and progress. Through innovation, new ideas are generated which, with the help of technology, are provided with tools through which an entrepreneurship model is created adapted to economic and social value. The ITE triad needs to be balanced with the curriculum, technological advancements and societal

priorities so that students develop both technical and non-technical skills that are essential for digital entrepreneurship and economic growth. Core marketing concepts need to be reimagined with current topics in the curriculum, such as sustainability, big data and artificial intelligence. These need to be more than just trendy topics; they need to be relevant to a technology-driven job market (Grewal et al., 2024). Marketing-ready engineering provides students with hands-on experiences that equip them with the skills they need to succeed in digital marketing. (Torkestani et al., 2025). (as seen in Table 1)

Table 1: Differences from traditional entrepreneurship

Criterion	Traditional Entrepreneurship	Technopreneurship
Focus principal	Profit through an existing business model (e.g. physical store).	Innovation through technology (AI, blockchain, biotech).
Motivation	Identifying a local market opportunity.	Solving a global problem through technology.
Resources	Capital, skilled labor and management.	Tech infrastructure, R&D and intellectual property.
Example	Restaurants, real estate agencies.	Google, SpaceX, revolut, platforme SaaS.

The framework created by ITE provides the ability to communicate effectively with large linguistic models (LLM) that have become a core competency, now included in the curricula of many universities in the field. This development blurs the gap between theory and practice, equipping students with essential technical skills and an ethical vision necessary in an era dominated by artificial intelligence. Although issues related to equity of access to resources and ethics in teaching AI are discussed, the approach offered by ITE provides students with concrete tools to refine their analytical capabilities, vital in today's marketing. Specifically, in a world increasingly dominated by artificial intelligence, this approach facilitates the collaboration between theoretical knowledge and practical applications, facilitating the formation of students' technical skills, but also taking into account rigorous ethics in solving requirements. Through access to operational tools, the program offers students direct approaches, fundamental challenges designed to strengthen the analytical capabilities specific to modern marketing. Students are attracted to a practical involvement in digital marketing courses, and the integration of AI-based applications is a lever that creates unique experiences for them. At the same time, this interdisciplinary collaboration created by the ITE framework also brings a critical component in the mastery of AI tools.

LITERATURE REVIEW

Current research in the literature suggests that marketing education needs to adapt to the growing role of artificial intelligence, especially generative artificial intelligence. Content generation and competitive assessment are automated functions that are reshaping marketing practices (Grewal et al., 2024; Karimova et al., 2024). Therefore, dynamic learning environments can be created by encouraging educators to carefully use artificial intelligence tools that can simulate real-world marketing scenarios (Karimova et al., 2024; Li et al., 2025). The requirements of the current marketing field integrated with artificial intelligence help students work with large linguistic models that allow them to practice in big data (Sood & Pattinson, 2023). The integration of artificial intelligence into marketing education generates the idea of a “universal marketing engine” that manages strategy, recommendations, analytics, and content development (Sood & Pattinson, 2023). Marketing materials taught to students must contribute to the development of skills through broad linguistic models for tasks such as refining marketing texts, adjusting marketing mix elements, and reading business dashboards (Sood & Pattinson, 2023). Changes in marketing communication, namely digital marketing, also include training in prompt

engineering to maximize the advantages offered by generative artificial intelligence (Ding et al., 2024). Trainers, teachers, specialists emphasize the numerous effects of generative artificial intelligence, such as cost savings, scalability, personalization, accessibility, creativity and innovation, as timely in these times, while being aware of the risks and challenges (Acar, 2024). The use of generative artificial intelligence can be viewed from two perspectives: a positive perspective, which stimulates creativity and personalization; and a negative perspective, which creates excessive dependence on it, reduces human input and raises ethical issues, such as data privacy and bias (Acar, 2024; Karimova et al., 2024).

The penetration of artificial intelligence into the marketing curriculum has transformed this intuition-based discipline into one based on precise data and predictability. (Bustard & Ghisoiu, 2025) A primary advantage of using AI in marketing is understanding the individual needs of consumers. The use of machine learning offers the possibility of analyzing algorithms in huge volumes of data (Big Data). In this way, behavioral patterns, hidden preferences and extremely specific audience segments (micro-segmentation) are identified. Another advantage given by AI is the strengthening of relationships that allows for real-time customizations, personalized product recommendations, chatbots that provide 24/7 guidance. In this way, brands interact relevantly and humanized with each customer. Also, with the help of AI, performance is stimulated by automating campaigns or predictive analyses are performed to optimize budgets. Thus, it is possible to anticipate when a customer is likely to end the collaboration with the company or to choose the optimal price to maximize sales. In digital platforms, AI helps brand management by monitoring public sentiment; thus, managers react quickly by adjusting communication to crises, while remaining aligned with public values. According to these advantages offered by AI, educational institutions need to update teaching methods to develop advanced analytical and generative skills (Grewal et al., 2024). For these reasons, it is proposed to create a more attractive curriculum design by including digital marketing simulations and big data analysis to encourage an entrepreneurial mindset among students (Sood & Pattinson, 2023). This approach to generative artificial intelligence in marketing education helps students develop both analytical and strategic skills. (Aghaei et al., 2025; Ding et al., 2024) Creativity is an asset that AI does not sharpen, but rather offers multiple possibilities to address real marketing problems, while learning about the strengths and limitations of generative artificial intelligence (Ding et al., 2024; Karimova et al., 2024).

In an era where anything can generate AI content, educators need to provide hands-on learning experiences by generating images, videos, and videos ethically so that students understand how the online business environment works. (Chong, 2024) Students need to have a practical understanding of how to use AI tools without compromising critical thinking to evaluate, correct, and responsibly use AI-generated content in campaigns (Li et al., 2025; Ma et al., 2025). In other words, student assessment needs to focus less on memorization and more on real-world application and analysis (Oc et al., 2024).

As a relatively new field, the integration of AI into marketing education is quickly connecting with the job market, offering multiple opportunities to practice a profession in this field. That is why this paradigm shift meets the growing demand for professionals skilled in using advanced AI for creative and strategic work (Roese et al., 2024). Future marketers will have all the necessary tools to manage the challenges and risks of new technologies. (Grewal et al., 2024)

Students should be encouraged to engage in digital business, so incorporating entrepreneurship courses is also relevant, as it helps students develop technical skills and prepare for future business opportunities. The advantages of a simulation are the transition from passive observers to active participants through real-world digital marketing scenarios.

Machine learning will not help students think critically and reflectively when using artificial intelligence; that is why the task of educators is to teach them how to manage the inputs brought into the system and how to build a strategic mindset necessary for digital business success. (Bell & Bell, 2023).

Given the advantages offered by ITE triad, this paper provides a practical way for students to test skills through an educational platform that simulates the challenges and opportunities of a real-world business. This educational platform is closely related to the idea of technopreneurship on several levels:

The platform provides security for testing: Within the platform, students target different audiences and run campaigns without losing real money or jeopardizing a real business, test marketing strategies and experiment with product prices.

The platform helps to understand the concept of digital acquisition from the customer perspective: From the technopreneurship perspective, the platform has an online-only testing base, from which students learn skills such as SEO, PPC, email marketing and analytics. All of these tools have their importance in launching technological products.

The platform provides information through statistical data: Students can check through analysis indicators what traffic, conversions and ROI are. They can also adjust their strategies when necessary. The platform enables decision-making: From a strategic perspective, like real-life startup founders, students practice budgeting, competing in digital markets, and reacting to competition - The platform provides insights into product-market fit: The platform is a powerful teaching tool that, through simulation, helps students understand key business principles. Students experience real-world business situations, having the opportunity to see how their decisions play out in a business environment. Thus, through all the elements described above offered by the platform, students can experience how real technopreneurs improve their products and grow their businesses.

METHODOLOGY

This research employs a pedagogical action research methodology to evaluate the effectiveness of a simulation in marketing education using generative artificial intelligence. This evaluation provides evidence on the effects on student learning outcomes and ethical understanding. The simulation provides iterative cycles of planning, implementation, observation, and reflection, and allows instructors to refine their tactics in real time. These iterative cycles provide curricular relevance in the context of rapid advances in artificial intelligence and show their implications for digital business.

Educators observe students' use of artificial intelligence in ideation. They have the opportunity to observe decision-making and communication within the business in a timetable, providing valuable data on the mastery and use of these tools.

To exemplify the marketing simulation, master's students from the Faculty of Automation and Computing participated in the Digital Marketing and Analytics Course. This course enabled students to collect, analyse, and interpret digital data to inform business decisions. Students were provided with informative materials for each round of the simulation, so that, through data analysis, they acquired skills in transforming raw data into actionable insights to help students decode customer behaviours and enhance their company's performance. The Digital Marketing and Analytics Course develops skills such as digital marketing strategies, proficiency with analytical tools, and an entrepreneurial mindset that leverages data for creative problem-solving. The course integrates theoretical concepts with practical applications, providing theoretical training in the fundamentals of data analysis, interpreting digital

indicators, and solving business problems, and practical training in market analysis and campaign optimisation.

Simbound application scenarios

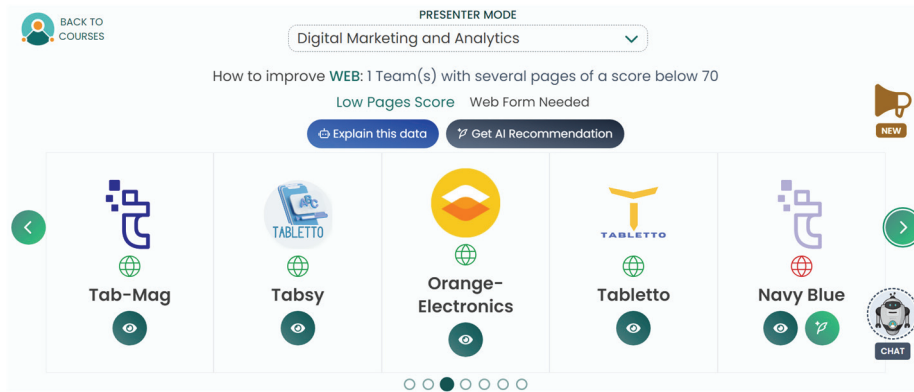
This section presents information from the Simbound platform, which offers an experience in the digital marketing course that integrates generative artificial intelligence to simulate real business challenges and opportunities. Simbound is a digital education platform designed by a team from Romania, specialised in marketing and business simulations. Simbound is used in universities (both in Romania and internationally) and has a practical component in digital marketing, e-commerce, or technology management courses. The platform is available as several online simulation experiences, each with its own game mechanics.

The Simbound platform aims to develop an entrepreneurial mindset, enabling the design of an AI-based marketing strategy in a safe environment. The scenario created on the Simbound platform centres on using technology as a key tool for developing entrepreneurial skills, especially through experiential learning.

Simulation offers students the opportunity to create and manage digital strategies (SEO, SEM, social media) in a virtual environment, simulating the risks and decisions of a real technology-based business. Within the platform, business theory is transformed into digital practice, where financial risks are eliminated, and students develop critical skills for a "technopreneur". Students with varying levels of digital preparedness co-create new digital content and use the competitive environment as an innovation platform to develop the online presence of various virtual companies. Students become familiar with interfaces similar to professional ones (Google Ads, email marketing platforms), integrating technical skills with business vision. Students study consumer behaviour and improve campaign results, gaining practical experience similar to that found in the industry today. Simbound serves as a digital laboratory for the technopreneurial process, providing future entrepreneurs with the necessary tools to experiment with marketing technologies without initial capital costs.

As part of the Digital Marketing and Analytics course, 20 students were enrolled to participate in an interactive simulation. They were divided into five teams and assigned to work on a scenario called "Tabletto" (see Picture 2). In this scenario, the students launched a new tablet PC store in a rapidly changing market. The two markets were the UK and the USA. At the beginning, they were able to use modules such as Web, SEA/Advertising, Email, Affiliate, Community and Social Media Marketing (SMM). All of these modules were available from the first practice round, so that the students could try out different strategies and improve them without the stress of real competition. The simulation involved participating in four rounds. For each round, the students met the requirements given in category A; in practice, the score obtained had to reach the level of 100 points (see Picture 2).

Picture 2: Digital Marketing and Analytics course for WEB simulation



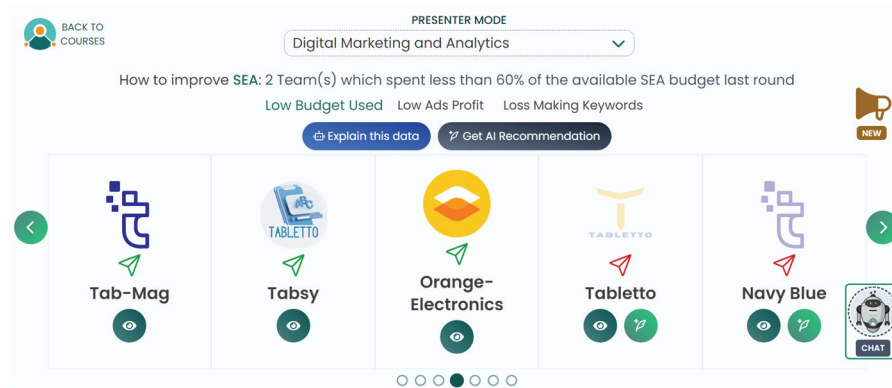
The teams in the digital marketing simulation course showed a commendable level of involvement and effectiveness in their WEB strategies. The **Tab-Mag** , **Tabsy** , **Orange-Electronics** , **Tabletto** , **Navy Blue** teams demonstrated seriousness and involvement, being always connected in the online environment. Communication with the participating teams was carried out both physically and virtually. In the first round, for the website development, the teams obtained an average page score of 91.84%, indicating a strong focus on collecting customer data. Each team managed 13 products, meaning 63% adjusted prices for a proactive pricing strategy. (as seen in Table 2)

Table 2: Average performance across all teams for WEB

Criterion	Tab-Mag	Tabsy	Orange-Electronics	Tabletto	Navy Blue
Average Page Score	100	94	90	100	72
Web Form Availability	92%	100%	59%	100%	81%
Products	6 (US market), 0 (UK market)	12 (US market), 5 (UK market)	6 (US market), 4 (UK market)	12 (US market), 0 (UK market)	12 (US market), 11 (UK market)
Pricing Changes	6 out of 6 products modified	4 out of 17 products modified	9 out of 10 products modified	12 out of 12 products modified	12 out of 23 products modified
Mistakes	None	None	Lacked a web form on some pages	None	Low page score

In the second round, the teams showed an average performance in the digital marketing simulation course for the SEA simulation, indicating that the teams are facing difficulties in terms of profitability and efficient budget allocation. The teams ran 2 active campaigns with a total of 24 keywords, but faced a significant loss, with an average profit of -726 RON and an average allocated budget of 113 RON. Simbound provides students with a safe and adaptable environment to explore artificial intelligence tools. This platform allows them to experiment and learn without the risk of real-world repercussions, encouraging innovation. (see Picture 3).

Picture 3: Digital Marketing and Analytics course for SEA simulation



The experiential learning methodology, similar to a build-measure-learn feedback loop, provides students with hands-on experience that strengthens their entrepreneurial skills and allows them to identify and explore opportunities in emerging technologies.

The transition of generative artificial intelligence from theoretical constructs to practical applications in education is an obligation that entrepreneurship and marketing programs must ensure to prepare students for the dynamic business environment.

Incorporating artificial intelligence into classroom activities cultivates an entrepreneurial mindset by facilitating its application within key entrepreneurial processes, including idea generation, strategic decision-making, and effective communication. This increases students' confidence and competence in leveraging technology. In the digital marketing simulation course, most teams struggle to achieve business profitability and manage budgets.

Table 3: Average performance across all teams for SEA

Criterion	**Tab-Mag**	**Tabsy**	**Orange-Electronics**	**Tabletto**	**Navy Blue**
Mistakes	Low ads profit, loss making keywords	Low ads profit, loss making keywords	Low ads profit	Low budget used	Low budget used, low ads profit
Data	3 active campaigns, 73 keywords, -1821 RON profit, 569.80 RON budget used last round (2000 RON available)	2 active campaigns, 17 keywords, -960 RON profit, 0 RON budget used last round (2000 RON available)	2 active campaigns, 9 keywords, -935 RON profit, 0 RON budget used last round (2000 RON available)	3 active campaigns, 16 keywords, 337 RON profit, 0 RON budget used last round (2000 RON available)	2 active campaigns, 7 keywords, -255 RON profit, 0 RON budget used last round (2000 RON available)

For the third and fourth rounds, for the Community scenario in the Simbound educational platform, participating teams created, on average, one community each and hired an external manager. However, some teams failed to fully leverage their external community managers, jeopardizing their performance in the other rounds. The teams that faced the most significant problems were ****Tab-Mag**** and ****Tabsy****, both of whom were unwilling to involve any external community managers. This negligence had repercussions and affected their ability to effectively manage and develop their communities, diminishing their overall performance in the simulation. In contrast, ****Orange-Electronics**** and

****Tabletto**** demonstrated strong performances by successfully integrating external managers into their community strategies, while ****Navy Blue**** maintained a minimal presence, with only one community manager and one external manager. Overall, teams focused on improving their community management strategies by engaging external managers.

Through experiential learning with simulations and AI tools, students are put in the position of behaving like future entrepreneurs. Navigating the complexity of the digital business landscape empowers students with entrepreneurial self-efficacy and creative problem-solving skills (Somià & Vecchiarini, 2024).

The Simbound platform provides an immersive environment where students use artificial intelligence to develop marketing campaigns and where the effectiveness of the decisions made is tested, presenting a new path to cultivating essential digital business skills (Bell & Bell, 2023; Elbourn, 2024). The pedagogical strategy used within the platform goes beyond the traditional learning approach and offers direct interaction with emerging technologies. Such an educational strategy prepares students for ubiquitous professional contexts in artificial intelligence and emphasizes key and technological skills required by Industry 5.0, including idea evaluation, market analysis, and improving competitive advantage (Somià & Vecchiarini, 2024; Bell & Bell, 2023). The distinct pedagogical approach that the Simbound platform uses is special because it integrates experiential, practical learning with the basic principles of digital marketing. The scenarios in the simulation are holistic and interactive, immersing students in a risk-free environment, forcing them to design and manage comprehensive marketing campaigns across multiple digital channels. They also build websites, advertise on search engines, create email marketing, maintain social media, and coordinate communities through affiliate marketing and community management (Darnell & Gopalkrishnan, 2024). The ultimate advantage of the Simbound educational platform is that the methodology focuses on “learning by doing,” allowing for the practical application of theoretical knowledge. The platform cultivates critical thinking and strategic foresight, requiring students to analyze market dynamics, consumer behaviors, and competitive forces to iteratively refine their tactics. Simbound promotes teamwork as students work in groups to develop and execute strategies; thus, it reflects the interdependent realities of professional marketing environments. Gamification elements support engagement and encourage competition among peers, thus enriching the learning experience. Real-time feedback and analysis allow students to assess the consequences of their decisions on campaign performance and overall business results.

Following the arguments presented, Simbound aligns with contemporary educational trends that prioritize active learning and the development of practical skills over passive knowledge acquisition, thus preparing students for the demands of digital entrepreneurship (Sofiullah et al., 2023).

RESULTS

The results of our action research reveal that integrating generative AI tools into marketing courses significantly enhances students' ability to craft advanced digital campaigns, paving the way for smarter tech integration in entrepreneurship education and real-world practice (Sekli & Castro, 2025). This not only ramps up their idea generation and content creation but also equips them to harness AI across their business ventures, tapping into its game-changing potential for business (Bell & Bell, 2023; Sekli & Castro, 2025). Students in these blended experiences sharpen their critical thinking and problem-solving, especially when tackling ethics and tech hurdles in AI-powered marketing (Somià & Vecchiarini, 2024). Iteratively refining these AI-enhanced assignments honed the teaching approach to build top-notch tech

skills alongside strong ethical insight. It readies them for a vibrant entrepreneurial world where AI fuels strategy and smooth operations (Bell & Bell, 2023; Elbourn, 2024). AI tools like ChatGPT simplify workflows and boost efficiency—from sparking ideas to shaping business models and chatting with customers (Vecchiarini & Somià, 2023). That said, a sharp eye on AI's accuracy and limitations is key, urging students to use it wisely (Vecchiarini & Somià, 2023). Grasping AI's strengths and pitfalls is vital for nurturing tough, adaptable, ethical entrepreneurs ready for the digital economy's twists (Bell & Bell, 2023).

CONCLUSION

This study explores the influence of AI integration in digital business education on student engagement, critical thinking, and practical entrepreneurial abilities, offering practical recommendations for curriculum enhancement. It emphasizes equipping learners with ethical principles and technical expertise to address AI adoption hurdles in entrepreneurship, advocating for curricula that harmonize innovation with accountable technology deployment. Through this, students master advanced digital instruments while cultivating the discernment and moral insight essential for navigating intricate business contexts. Educators are urged to embed AI strategically into entrepreneurship programs, priming students for emerging commercial landscapes. This fusion instills adaptive and inventive proficiencies suited to a swiftly evolving digital realm, empowering a rising cadre of entrepreneurs to drive AI-enabled sustainable progress (Sekli & Castro, 2025). The framework propels entrepreneurship education past rote theory toward hands-on, AI-augmented skill cultivation critical for modern digital economies. Merging AI-oriented instruction with competency-driven approaches nurtures both creative problem-solving and principled judgment for the digital era (Bell & Bell, 2023). Incorporating cutting-edge technologies sparks profound pedagogical shifts and spurs entrepreneurial mindsets (Elbourn, 2024). A flexible curriculum prioritizing learner agency and authentic applications is vital for forging entrepreneurial talents responsive to digital business flux. It further endorses lean startup techniques in digital ventures curricula, yielding nimbler, more applicable training. Learners emerge equipped to surmount digital marketing obstacles and pioneer business innovations, fit for niche roles and AI permeation across ventures and ideation. Ultimately, this model produces a workforce primed for AI-fueled technical breakthroughs and enterprise triumphs in a dynamic global marketplace (Vecchiarini & Somià, 2023). Thus, conventional education must evolve into paradigms championing lifelong learning and technological agility.

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