Proceedings of ICEMGD 2025 Symposium: Resilient Business Strategies in Global Markets
DOI: 10.54254/2754-1169/2025.CAU26690

Opportunities and Challenges of University Students' Entrepreneurship in the Context of Digital Transformation: An Exploration of Emerging Technology Integration

Zerong Pang

Faculty of Arts, Law and Social Sciences, University of Bristol, Bristol, UK
sj23222@bristol.ac.uk

Abstract. The ongoing digital transformation is accelerating the thorough incorporation of digital technologies into the economy, society, and education. As a result, entrepreneurial activities among university students are profoundly impacted by emerging technologies and business models, thus presenting both new opportunities and challenges. In this context, the paper explores university students' digital entrepreneurship to analyze the opportunities and challenges posed by digitalization and to investigate methods for improving entrepreneurial capabilities and management approaches. By reviewing and analyzing relevant literature and examining typical cases, the study summarizes replicable management experiences and strategies. The results demonstrate that university students can utilize digital technologies to boost team management and resource allocation in their entrepreneurial ventures, yet they also encounter challenges such as limited experience, deficiencies in technical and business knowledge, and compliance risks. Accordingly, this paper proposes strategies to enhance entrepreneurial capabilities, strengthen external support, and foster technological integration, offering guidance for university entrepreneurship education and practice.

Keywords: Digital Transformation, University Students' Digital Entrepreneurship, Entrepreneurial Opportunities, Entrepreneurial Challenges, Support Strategies

1. Introduction

The extensive incorporation of digital technologies into economic and social sectors, referred to as digital transformation, is significantly transforming production methods, commercial models, and governance frameworks. With the rapid development of digital technologies in today's world, the digital economy has become a new engine of economic growth. In 2020, China's digital economy reached 39.2 trillion yuan, exceeding one-third of GDP, with digital entrepreneurship contributing significantly to this expansion [1]. The digitalization wave has given rise to the phenomenon of "digital entrepreneurship," characterized by the deep integration of entrepreneurial activities with digital technologies, fundamentally altering patterns of economic growth and industrial organization [2]. Existing studies have extensively explored the features and trends of digital entrepreneurship, but management strategies and practical guidance for university students remain limited [2-4]. For contemporary university students, who have grown up in the Internet era, digital transformation

DOI: 10.54254/2754-1169/2025.CAU26690

offers opportunities such as policy incentives, technological tools, and emerging markets, while posing challenges including limited experience and constrained resources. On this basis, the study explores digital entrepreneurship among university students, so as to analyze the opportunities and challenges they face in the context of digitalization and to further explore management strategies for enhancing entrepreneurial success. Specifically, it examines how university students can leverage digital tools to manage teams and resources efficiently, while also handling challenges in digital entrepreneurship. By analyzing typical cases of university students' digital ventures and reviewing relevant literature, this study extracts practical management experiences and strategies. The findings provide valuable references for students in entrepreneurial practice and offer practical insights for entrepreneurship education in higher education institutions.

2. Opportunities for university students' entrepreneurship brought by digital transformation

2.1. The facilitation of digital technologies on startup cost reduction

By profoundly reshaping resource allocation, digital transformation most directly reduces overall expenditures, thereby permitting university students to bypass the financial and experiential barriers of traditional ventures. Compared with the past, when reliance on physical stores and conventional advertising was necessary, students can now connect directly with consumers through e-commerce platforms, reducing intermediary expenses, while also leveraging new media for low-cost, targeted communication, thereby markedly lowering startup costs [4]. Besides, the advent of technological tools has diminished the need for professional expertise and human resources in entrepreneurship. For instance, even entrepreneurs without coding expertise can promptly produce product prototypes using cloud computing and low-code platforms. By consolidating functions like customer service, payment, and marketing into ready-to-use modules, Software as a Service (SaaS) services enable student entrepreneurs to implement their ideas swiftly with limited personnel and time. This "plug-and-play" toolkit not only lowers objective costs but also enhances the flexibility and controllability of the entrepreneurial process. Moreover, contemporary university students generally possess a high level of digital literacy and technological awareness, enabling them to quickly adapt to tool updates and technological iterations, conducting market experiments and product optimisation at relatively low cost [5]. Consequently, digital transformation reduces financial and human resource inputs and optimises the cost structure for entrepreneurs, providing university students with unprecedentedly low barriers to entry and enhanced flexibility in entrepreneurship.

2.2. The promotion of emerging models on entrepreneurial transformation

The reduction of costs provides university students with initial market entry opportunities, while new models further shape the operational logic of entrepreneurship, enabling the digital economy to lower entry barriers and transform entrepreneurial practices through innovative business formats and models. In recent years, emerging models such as platform economy, sharing economy, online education, and digital finance have gradually matured and rapidly developed by leveraging network and scale effects, allowing startups to accumulate users and establish closed business loops within a relatively short period [6]. For student entrepreneurs, the replicability and scalability of such models reduce the difficulty of experimentation and give clear routes for entrepreneurship. For example, students can use knowledge-sharing platforms to deliver online courses, leveraging platform traffic and tool advantages to achieve initial profitability in the education market at low cost. Besides, the mix of emerging technologies across sectors supports business model innovation. By combining

DOI: 10.54254/2754-1169/2025.CAU26690

with each other in decision-making and data reliability, artificial intelligence (AI) and blockchain enhance operational efficiency in sectors like finance, healthcare, and supply chains [7,8]. Moreover, the combination of the Internet of Things and big data allows firms to collect and analyze consumer and environmental data in real time, shifting retail, logistics, and manufacturing from experience-driven to data-driven operations [9]. This technological support allows university students to test novel business models, improve operational efficiency, and attain entrepreneurial goals via model innovation. Hence, digital transformation reshapes resources and, through model innovation and tech integration, rebuilds entrepreneurial logic, giving students low-cost, diverse venture paths.

2.3. The guidance of consumer demand on market expansion

The combination of cost reduction, business model innovation, and market space expansion shapes university entrepreneurship, with consumer demand driving the evolution of market opportunities. As digital transformation accelerates, the spread of the Internet and mobile communications has moved consumers from passive acceptance to active choice, boosting their demand for personalized, interactive, and instant experiences [5]. The rise of short videos, social media, and the fan economy has changed information flow and created a new business ecosystem focused on content creation and community management [6]. With sensitivity to digital culture, student entrepreneurs quickly spot consumer trends and turn emerging demands into viable business opportunities. In addition to demand factors, the institutional environment shapes market space. Macro-level policies that sustain focus on innovation, entrepreneurship, and the digital economy provide broad support for finance and taxation, technology transfer, and the building of entrepreneurial platforms [3]. These policies create a stable and predictable environment for student entrepreneurs, thus allowing them to pursue entrepreneurial activities based on confirmed market demand. In practice, policy and consumer demand interact positively, with policy offering institutional support that helps university students explore new markets, while demand feedback improves policy relevance and effectiveness [10]. Consequently, rising consumer demand and aligned policies shape the market space for student entrepreneurship and steer long-term digital growth, forming a complete logical chain across market entry, model innovation, and market expansion.

3. Key challenges of university students' entrepreneurship in a digital environment

3.1. Increased management pressure from greater team collaboration challenges

With the development of the digital entrepreneurial environment, university student entrepreneurs face increasing pressure in team collaboration and management. This pressure primarily stems from limited social experience and organizational coordination skills among team members, leading to issues like unclear division of labor and low communication efficiency in practice [1]. First, delayed role awareness renders student entrepreneurs less effective in team leadership. Many members tend to participate in projects as “peers” rather than assuming clear managerial responsibilities, resulting in ambiguous internal authority and accountability, as well as delays and difficulties in decision-making. Second, the instability among team members amplifies management pressure. For example some members must juggle academic studies and part-time jobs, reducing the time and effort they can dedicate to projects and hindering continuity. High turnover compels frequent task reallocation, raising communication costs and undermining overall morale and efficiency. Clearly, the difficulty of team collaboration is not caused by a single factor, but arises from a combination of insufficient social experience, unclear role awareness, and poor member stability. This systemic challenge is

DOI: 10.54254/2754-1169/2025.CAU26690

especially evident in early university digital ventures, directly affecting team efficiency and project progress [1].

3.2. Weakened competitive advantage from severe entrepreneurial homogeneity

Under the digital economy, university entrepreneurship projects face insufficient innovation and severe homogeneity, greatly weakening their competitive edge. First, a lack of deep understanding of digital business logic keeps many projects at a low-entry imitation stage. Low entry barriers and easy replication in common student venture paths like online stores, purchasing agents, and cultural product sales drive rapid market saturation and hinder sustainable profitability [1]. Second, limited market insight constrains the development of differentiated strategies. Student teams often rely on intuition or local feedback, lacking systematic market research and strategic analysis, which limits their products and services in meeting broader consumer demands [1]. These cognitive limitations result in a lack of distinctiveness in positioning, branding, and user experience, making it difficult to stand out in a highly competitive digital market. Strategic short-sightedness further erodes long-term competitiveness, as some entrepreneurs prioritize short-term gains over brand building, market expansion, and long-term strategic planning, leaving projects vulnerable when facing established firms or new entrants. In summary, homogeneity manifests not only at the product level but also in limited innovation vision and market strategy, causing university entrepreneurship projects to fall into a cycle of rapid entry and exit [1].

3.3. Intensified financial strain from limited funding channels

Insufficient funding is one of the most common and structural problems in student entrepreneurship, and the high sensitivity of digital ventures to capital investment makes this issue more pronounced. Specifically, the limited availability of funding channels directly constrains project initiation. With little business history and credibility, student ventures struggle to obtain bank loans, while venture capitalists remain cautious about their maturity, leading to low early-stage funding success [11]. In addition, the inherently high capital requirements of digital entrepreneurship exacerbate cash flow pressures. Since R&D, marketing, and platform operations need constant investment, promotion costs during user growth often exceed student teams' capacity. Furthermore, the uncertainty of fund consumption renders project operations risky, as market fluctuations or product iteration demands can threaten the financial chain. Insufficient personal capital accumulation further increases risk exposure. Most students cannot depend on personal or family funds to maintain long-term financing, leaving projects exposed to external shocks. Compared with traditional small-scale ventures, digital entrepreneurship is more sensitive to capital input, while the financing system rarely favors student groups. These dual pressures make funding scarcity a lasting bottleneck for student digital ventures.

3.4. Hindered industry integration from lack of technological awareness

Lack of technological awareness is a deep-seated challenge for student digital entrepreneurship, directly limiting their integration into and expansion within industry value chains. First, although students are generally familiar with digital technologies at an application level, they typically lack practical experience in specialized areas like programming, algorithm modeling, and cybersecurity [1]. This structural gap of "proficient in use but lacking in development" often confines student ventures at a superficial level when transforming digital technologies into commercial applications. The high entry barriers of technology limit the depth of industry integration. For instance, AI and

DOI: 10.54254/2754-1169/2025.CAU26690

big data analytics require large volumes of high-quality data, yet student entrepreneurial teams often struggle to access such data and lack the capability to evaluate and clean it [12]. Therefore, when attempting to integrate emerging technologies into products or services, projects often encounter implementation failures or suboptimal outcomes. Compliance and security risks add complexity to technology adoption. Digital entrepreneurship involves issues such as user privacy protection and data compliance, which exceed the knowledge scope of most student teams. Mismanagement can not only trigger legal disputes but also undermine user trust [8]. Thus, student digital ventures exhibit a cycle of "limited knowledge-restricted application-increased risk" at the technological level, severely hindering deep integration with industry and value creation.

4. Strategies and approaches to addressing challenges

4.1. Team structure optimization for collaboration enhancement

The primary way to help university students cope with the challenges of digital entrepreneurship is to optimize team structure and enhance collaboration skills. First, the team should design a reasonable division of labor and role positioning, building a clear system of responsibilities and authority. This helps team members clarify roles, communicate effectively, and reduce delays and friction [6]. Next, universities and entrepreneurship institutions should help students enhance their organizational and management skills through educational training and practical activities. For example, by providing entrepreneurship management courses, organizing cross-disciplinary innovation competitions, and running simulated entrepreneurial projects, students can develop skills in project planning, problem-solving, and team collaboration via hands-on experience. Meanwhile, experienced entrepreneurship mentors can provide comprehensive guidance from planning to execution, further helping students establish scientific team management methods in practice. In addition, team collaboration is greatly supported by digital innovation and entrepreneurship platforms [1]. Platforms can integrate industry information, policy resources, and communication channels, providing space for experience sharing, resource matching, and problem consultation. This can help teams collaborate more efficiently and expand their network. By fully leveraging educational resources and platform support, university students can gradually make up for their lack of experience, form a strong team structure, and build an effective collaboration system, preparing them for digital entrepreneurship challenges.

4.2. Technology application advancement for innovation boost

In the digital age, entrepreneurial success heavily depends on technological innovation. University student entrepreneurs should continuously focus on cutting-edge technologies like AI, blockchain, and the Internet of Things, exploring how to combine them with their business to create unique value. It has been found that deeply embedding emerging technologies into products or services can significantly enhance market competitiveness. In addition, teams should promote cross-disciplinary collaboration between technology and business. For example, computer science members can work with marketing and operations teams to design solutions like "AI + Marketing" or "Data-Driven Optimization." Besides, new algorithms or tools from academic research can be applied to improve product performance. A dedicated role for technology exploration could be set up within the team to test and experiment with new technologies, ensuring innovation advances smoothly and fosters a culture of technological innovation. For resource-constrained student teams, a "leverage external resources" approach can be adopted. Using open-source machine learning frameworks to develop

DOI: 10.54254/2754-1169/2025.CAU26690

smart features, leveraging third-party blockchain platforms for digital asset verification, or quickly setting up data analysis systems through established cloud services to implement “AI + Blockchain” or “AI + Social Marketing” applications. This allows quick tech innovation with limited resources, leading to differentiated products. Technology should always be applied with a focus on delivering user value. The team should design models that improve user experience and address pain points, such as optimizing decisions with smart recommendations or streamlining services via data analysis. In addition, Market demand drives entrepreneurial decisions, while new technologies are tools; thus, university entrepreneurs must strategically choose the right tech mix to optimize value.

4.3. Management system improvement for resource support

The government should support student digital entrepreneurship by building infrastructure like 5G and industrial Internet of Thins, and sharing industry data, to help startups access resources more easily [1,8]. Besides, optimizing approval processes, offering financial support, and establishing effective market regulation and legal safeguards are essential for ensuring a fair and transparent entrepreneurial environment. Universities, industry associations, and businesses can collaborate to build a resource system that offers funding, tech, and guidance to student teams. By establishing incubators, practice bases, and alumni mentor networks, students can be given project experience, tech support, and investment links by universities [5,6]. Companies can open up technical interfaces and market channels, incorporating student projects into their ecosystem for resource sharing and mutual benefits. As such, student entrepreneurs should engage with the entrepreneurial network of governments, universities, companies, and investors, using online and offline communities to gather industry insights, find partners, and share experiences. On this basis, teams must remain adaptable, quickly identifying technological trends, market changes, and user needs, while rapidly iterating products and services and maintaining organizational flexibility. In digital transformation, teams with this ability are more likely to secure resources, enhance competitiveness, and achieve growth.

5. Conclusion

This paper summarizes the main opportunities and challenges of student entrepreneurship in digital transformation through literature review and case analysis. It shows that digital technologies offer policy support, tools, and access to emerging markets, while also raising demands on entrepreneurs’ skills, resource integration, and management. Thus, digital technologies are both an enabler and a challenge for entrepreneurship. However, the study also has some limitations. It mainly relies on literature and case analysis, lacking large-scale empirical data, and the case coverage is limited, which may not fully reflect the differences in student entrepreneurship across regions or types of universities. Future research could focus on integrating digital technologies with entrepreneurship education, testing strategies to enhance digital skills, and providing practical guidance for student entrepreneurs.

References

[1] Du, S. (2025). Research on the innovation and entrepreneurship path of college students based on the digital economy. Scientific and Social Sustainable Development, 5(1), 4-11.
[2] Guo, H., & Yang, Z. (2021). From digital technology to digital entrepreneurship: Connotation, characteristics and internal connections. Foreign Economics & Management, 43(9), 3-18.
[3] Cai, L., Yang, Y., Lu, S., & Yu, H. (2019). Review and prospect of research on the impact of digital technology on entrepreneurial activity. Studies in Science of Science, 37(10), 1816-1824.

DOI: 10.54254/2754-1169/2025.CAU26690

[4] Yu, J., Meng, Q., Zhang, Y., & Jin, J. (2018). Digital entrepreneurship: New trends of theory and practice in the digital age. Studies in Science of Science, 36(10), 1801-1808.
[5] Zhu, X., & Yang, S. (2022). Research review and prospect of digital entrepreneurial ecosystem. Foreign Economics & Management, 44(5), 48-63.
[6] Zhao, R., & Shan, Y. (2024). Research on innovation and entrepreneurship education for college students under the background of education digitalization. Innovation Education Research, 12(9), 510-516.
[7] Celdran, C. (2024). AI and blockchain: Redefining business model across industries. https: //www.coingeek.com
[8] Kumar, S., Lim, W. M., Sivarajah, U., & Kaur, J. (2022). Artificial intelligence and blockchain integration in business: Trends from a bibliometric-content analysis. Information Systems Frontiers, 24, 1107-1130.
[9] Khan, W. U. (2025). The business value of IoT and big data analytics. Journal of Business and Management Studies, 7(1), 279-283.
[10] Wu, Y., & Li, Z. (2024) Digital transformation, entrepreneurship, and disruptive innovation: evidence of corporate digitalization in China from 2010 to 2021. Humanit Soc Sci Commun 11, 163
[11] Antonizzi, J., & Smuts, H. (2020). The characteristics of digital entrepreneurship and digital transformation: A systematic literature review. In IFIP International Conference on Responsible ICT, 239-251. Springer, Cham.
[12] Al-Fattal, A. (2024). Entrepreneurial Aspirations and Challenges among Business Students: A Qualitative Study. Administrative Sciences, 14(5), 101.