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Exploration of College Students' Entrepreneurial Projects in the Age of Artificial Intelligence

Shuai Yuan[1]*, Jingru Han[2]

[1]School of Innovation and Entrepreneurship (Public Experimental Center), University of Shanghai for Science and Technology, Shanghai 200093, China
[2]School of Mechanical Engineering, University of Shanghai for Science and Technology, Shanghai 200093, China

***Corresponding author:** Shuai Yuan, yuanshuaiznzz@163.com

Abstract: With the rapid development of artificial intelligence (AI) technology, the world has entered the era of AI. In this context, college students using their own technical advantages, innovation advantages, and policy advantages, can apply AI technology to all walks of life and develop entrepreneurial projects to adapt to the market. Through an analysis of the advantages, challenges, and development trends of college students' entrepreneurship in the era of AI, more entrepreneurial directions are provided for college students to improve the success rate of entrepreneurship.

Keywords: Artificial intelligence; College student project; Innovation and entrepreneurship

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1. Introduction

With the release of "China Youth Entrepreneurship Youth Development Report 2023," we learn that the Youth Entrepreneurship Development Index rose from 100 to 184.4 from 2015 to 2022, showing a sustained momentum of good development. Young entrepreneurs show the characteristics of high education and small start-up capital, and more than 90% of entrepreneurs have college degrees or above. The state has also increased policy support for college students to start businesses, and the prospects for college students to start businesses are looking good. However, throughout the current stage of college students' innovation and entrepreneurship projects, the innovation and industrial value are limited. Entrepreneurial projects need to be industrialized, and they need to target fast-growing industries in the future. Only in industries with new momentum can entrepreneurial projects have more opportunities to put their achievements into practice.

According to an IDC report, the global AI market is currently worth nearly $235 billion and is expected to exceed $631 billion by 2028. This growth shows the rapid expansion and adoption of AI technology globally. The United States and China are the major concentrations of AI investment, accounting for more than 80% of global AI investment in 2020. Meanwhile, regions such as the European Union, the United Kingdom, and Israel are also making significant progress in AI investment. In this context, AI technology is gradually penetrating all

walks of life around the world, providing a broad market space for entrepreneurs. As the main force of innovation and entrepreneurship in China, how to seize the opportunity and realize the dream of entrepreneurship in the era of AI has become a concern of all sectors of society.

2. Advantages of college students' entrepreneurship in the era of AI

2.1. Technical advantages

Artificial intelligence is an interdisciplinary and emerging discipline based on computer science and integrated by computer science, psychology, philosophy, and other disciplines [1]. Since the Ministry of Education included it in the list of new undergraduate majors, the number of Chinese universities offering artificial intelligence majors has shown rapid growth. In 2018, 35 universities offered AI majors, and by 2024, 535 universities will have offered AI majors. In addition to the new AI majors, some universities are adding AI training directions to the original related majors or reorganizing the original related majors to set up AI colleges. Remarkable achievements have also been made in industry-university-research cooperation among AI majors in various universities. Many universities have established close cooperative relationships with enterprises and research institutions to jointly carry out scientific research projects and personnel training. As a result, college students have more opportunities to gain access to AI expertise and cutting-edge technologies of AI technology [2].

2.2. Innovation advantages

Entrepreneurship in the AI era requires innovative thinking, thinking about how to combine AI technology with traditional industries to create new business models and market value. College students have active minds and dare to innovate. At the same time, colleges and universities pay more and more attention to the cultivation of innovative thinking.

The National University of Defense Technology has adopted a growth-thinking teaching method in the cultivation of innovative talents and has enhanced students' interest in learning and ability to conduct experiments through new teaching methods such as flipped classrooms, micro classes, MOOC, and rain classrooms. Tsinghua University focuses on the two key directions of "Core Basic Theory and Architecture of Artificial Intelligence" and "Artificial intelligence + X," and builds China's independent "AI top talents and original innovation base" with high positioning and new mechanisms [3]. The Zhihai New Generation Science and Education Platform of Zhejiang University focuses on the cultivation of AI talents and interdisciplinary and artificial intelligence ecological construction, and promotes the transformation of AI interdisciplinary paradigm and the application of enabling scenarios [4]. The platform integrates digital teaching resources with knowledge points as the center, providing interactive immersive teaching, operational experience while learning and practicing, and low-threshold online model development. Harbin Institute of Technology integrates artificial intelligence technology into the teaching scene, with students as the main body and teachers as the guides. Through building a remote online experimental teaching platform, introducing an intelligent teaching assistant system, and making virtual digital human teachers, artificial intelligence technology is accelerating the whole process of platform construction, teaching resource production, and experimental teaching.

2.3. Policy advantages

The Chinese government has introduced a series of policy measures to encourage college students to start their own businesses. In 2021, the Guiding Opinions of The General Office of the State Council on Further Supporting

College Students' Innovation and Entrepreneurship (No. 2021) was released. The guiding opinions include deepening the reform of innovation and entrepreneurship education in colleges and universities, facilitating services for college students' innovation and entrepreneurship, implementing policies to guarantee college students' innovation and entrepreneurship, and strengthening financial policy support for college students' innovation and entrepreneurship [5].

Various provinces and cities have also issued their own relevant supporting policies. Hunan Province implements a subsidy policy to support college students' entrepreneurship. Enterprises or individual industrial and commercial businesses founded by college students for the first time, and operating normally for more than 1 year, will be given a one-time start-up subsidy, with the minimum subsidy standard of 10,000 yuan [6]. Newly established small and micro enterprises and other entrepreneurial organizations can apply for social insurance subsidies after absorbing workers for six months. Chongqing Municipality implements the "Chongqing-Chongqing-xin" Entrepreneurship Start-up Plan for college students, provides financial assistance to high-quality entrepreneurial projects, provides start-up guarantee loans of up to 300,000 yuan for individuals and 4 million yuan for enterprises, and grants financial discount interest. They can apply to settle in all kinds of business incubation carriers, and provide business incubation support such as business venues, business agents, entrepreneurial guidance, financing docking, and information consultation [7].

3. Challenges of college students' entrepreneurship in the era of AI

From the perspective of the three elements of entrepreneurship, the first is the team. College students need to establish a comprehensive and diversified initial team, including personnel with professional technical backgrounds and non-technical personnel such as finance, legal affairs, and marketing, as well as industry experts to provide empirical guidance. The members of the start-up team often lack business practice experience, consider problems more one-sided, and lack global thinking when making decisions [8]. Next is the product. The threshold of entrepreneurship in the field of artificial intelligence industry is relatively high, and college students generally have a low awareness of cutting-edge technologies and applications in the field of artificial intelligence, especially at the purely technical level. To start a business in the field of artificial intelligence, college students must master solid professional knowledge and skills to develop competitive and innovative products and services. Second is the market, as the scale of China's AI industry continues to grow, reaching 508 billion yuan in 2022 and increasing 18% year on year. The scale reached 578.4 billion yuan in 2023, with the growth rate slowing to 13.9%. China's AI industry is dominated by application-level enterprises with fierce competition. Among the 2,200 AI backbone enterprises, application-layer enterprises account for as high as 85.18%, while basic layer and technology layer enterprises are relatively few. The AI market is highly competitive, and college student entrepreneurs need to face fierce competition from mature enterprises and emerging startups.

In addition to the above challenges, funding is one of the main obstacles college entrepreneurs encounter. AI projects often require large capital investments, especially in the research and development and marketing stages. The field of AI is receiving high attention from the capital market and a large amount of capital investment. Tech giants such as Meta, Microsoft, and Amazon have reached an astonishing level of capital expenditure in the field of AI. Meta plans to invest up to 40 billion US dollars in 2024, and Microsoft is expected to invest 50 billion US dollars, while Amazon is spending $14 billion in the first quarter of 2024 [9].

With the application of AI technology, data privacy and security issues have become increasingly prominent, which may involve legal and regulatory issues such as privacy and intellectual property rights. Entrepreneurs

need to pay more attention to protecting user data security and safeguarding consumer rights and interests. College students' entrepreneurial teams lack experience in laws and regulations and are prone to legal risks [10].

These challenges require college students to not only have the ability of technological innovation but also possess market insight, team management, and risk control. At the same time, support and cooperation from the government, universities and enterprises are also needed to jointly promote college students' innovation and entrepreneurship in the field of AI.

4. Exploration of college students' entrepreneurship projects in the era of AI

In the context of the AI era, the industry is undergoing a transformation from the traditional mode of operation to a model that relies more on digital technology and intelligence. This transformation of digitalization and intelligence will bring new industrial fields and opportunities, which may be emerging industries based on artificial intelligence and large models. The transformation and development of emerging industries will push traditional industries to transform and upgrade to adapt to the new technological and market environment [11].

4.1. Leveraging AI technology

College students can use AI technology to discover more business opportunities. AI technology can quickly process and analyze massive data, help college students discover hidden business opportunities, optimize product design, formulate accurate marketing strategies, and accelerate the process of product industrialization. Through technologies such as machine learning and deep learning, college students can easily develop and test prototypes, shortening the process from concept to scale. Open-source AI frameworks can shorten the time it takes to develop complex technologies [12].

4.2. Application of AI technology

College students starting businesses in the field of AI should combine their own professional advantages and market demand, and choose projects with development potential. For example, a series of outstanding student entrepreneurship projects emerged in the 2024 China International University Innovation Competition.

Incubated at the Center for Applied Magnetism of Peking University, the "Cold Sequence Technology · Probabilistic Computing Chip" project focuses on the research and development of chips that provide dedicated computing power for cloud computing. Using magnetic tunnel junction (MTJ) and stochastic magnetic tunnel junction (sMTJ) and other new magneto-electronic devices, combined with memory and computing integration and core technology, the company designs and launches high-performance, low-cost, and development-friendly SpinPU® magnetic computing chip, committed to leading a new round of computing revolution.

The HealGPT project, developed by students from the School of Software and Microelectronics of Peking University, is an AI Alzheimer's prevention and treatment project for middle-aged and elderly groups. Based on self-developed medical and health macrolanguage model, intelligent interaction, 5G communication, and other technologies, it provides a one-stop solution for cognitive impairment screening and intervention, intelligent transformation, and medical care services. The project aims to create a hardware and software integrated product of health screening, rehabilitation, and nursing, help the elderly break through the time and place limit, reduce the cost of medical care, bring smart and convenient medical care experience, and improve the quality of life and happiness [13].

4.3. Fund raising

4.3.1. Government subsidies

In the era of AI, the government will provide financial support, tax incentives, or other incentives to encourage the development of AI projects. For example, six departments, including the Ministry of Science and Technology, the Ministry of Education, the Ministry of Industry and Information Technology, the Ministry of Transport, the Ministry of Agriculture and Rural Affairs, and the National Health and Health Commission, have issued guidelines on accelerating scene innovation and promoting high-quality economic development with high-level application of AI, encouraging market-oriented investment institutions to pay attention to scene innovative enterprises.

4.3.2. Financing

In recent years, investment and financing activities in the field of AI have continued to be active. From January to August 2024, the total amount of global venture capital projects was basically flat month-on-month, and the AIGC field was still the investment focus. From January to September 2024, the total financing of the global AIGC industry reached 278.1 billion yuan, an increase of 113% over the same period last year, and 627 investment events occurred in total, an increase of 294%. In addition, in the second quarter of 2024, the total financing of global AI enterprises reached 79 billion US dollars, refreshing the record of the past five quarters. In the first half of 2024, a total of 265 financing events occurred in the field of AI nationwide, with a cumulative disclosed financing amount of 30.244 billion yuan. AI projects still receive high attention in the capital market, especially in the fields of AIGC, computer vision, intelligent robotics, and intelligent driving [14].

5. Conclusion

The era of AI provides a broad development space for college students to start their own businesses. First of all, the rapid development of artificial intelligence technology can provide new ideas and methods for college students to innovate and start businesses, and help them solve the problems they face in traditional entrepreneurship. Secondly, the popularization and application of artificial intelligence technology also provides a new market space for college students to innovate and start businesses, which can give birth to new industries and business models and provide new opportunities for college students to start businesses. When starting a business in the field of AI, college students should fully grasp the opportunities of The Times, give play to their own advantages, and constantly explore and innovate. In the face of challenges, they should strengthen their confidence and move forward. It is believed that with the joint support of the government, society and universities, college student entrepreneurship projects in the AI era will surely achieve fruitful results.[15]

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