



“AI+” Perspective on the Exploration of Innovative Pathways for the Cultivation of Digitally Intelligent Supply Chain Talents

Rongfu Zhan^{1*}, Jun Wu², Chengzi Liu³

¹Guangzhou College of Commerce, Guangzhou 510641, China

²Guangdong Vocational College of Post and Telecom, Guangzhou 510630, China

³Guangzhou College of Commerce, Guangzhou 510641, China

*Corresponding author's e-mail: 20141014@gzcc.cn

Abstract. Talents in digital intelligent supply chain are urgently needed for the current adjustment and upgrading of China's economic and industrial structure. They are also a key focus for the innovation of talent cultivation in higher education in the new era, which has endowed the cultivation of supply chain innovative talents with new connotations and requirements. However, the existing talent cultivation models in various universities are still unable to meet the demand for innovative talents in the “AI+” field, and they are still focused on the transformation and upgrading of logistics management majors. There is a lack of systematic and systematic cultivation for new types of supply chain talents, especially problems such as lack of theoretical guidance, insufficient integration of industry, education and teaching, and imperfect construction of training mechanisms. Against this background, universities should take the "interdisciplinary integration" talent cultivation as the main line, actively explore new forms and mechanisms of talent cultivation for the “AI+” field digital intelligent supply chain, and build a new talent cultivation plan with the characteristics of "AI+ micro-major" and "AI+ micro-course", and establish a new path for cultivating the comprehensive quality and interdisciplinary ability of innovative talents in the “AI+” field digital intelligent supply chain.

Keywords: “AI+” Perspective; Digital Intelligent Supply Chain; Talent Cultivation; Innovative Path; Interdisciplinary Integration

1 Research Background

The cultivation of talents in the digital intelligent supply chain is an objective requirement for the transformation and upgrading of China's economy and industrial structure under the new pattern. It is an urgent demand for the high-quality development of higher education in the new stage and an important driving force for empowering the development of artificial intelligence (AI) technology. In October 2017, the State Council issued the “Guiding Opinions on Actively Promoting the Innovation and Application of the Supply Chain,” promoting supply chain innovation and application

© The Author(s) 2024

C. W. K. Chen et al. (eds.), *Proceedings of the 9th International Conference on Engineering Management and the 2nd Forum on Modern Logistics and Supply Chain Management (ICEM-MLSCM 2024)*,

Advances in Engineering Research 243,

https://doi.org/10.2991/978-94-6463-531-7_24

from a national strategic level. To implement the spirit of the guiding opinions, the Development and Reform Commission of Guangdong Province and six other departments also issued the “Implementation Opinions on Actively Promoting the Innovation and Application of the Supply Chain in Guangdong Province,” further emphasizing the comprehensive strengthening and advancement of the cultivation of supply chain technical talents. The opinions not only clarify the training goals of high-end supply chain talents but also detail the measures for cultivating new types of supply chain talents. With the in-depth development of the digital industry, it is authoritatively predicted that China's demand for supply chain talents will be 4.3 million in the next three years and 6 million in the next five years. The shortage of digital intelligent supply chain talents has increasingly become a bottleneck restricting the development of new quality productive forces, making the innovative cultivation of supply chain talents in colleges and universities particularly urgent.

2 Theoretical Foundation for the Cultivation of Digital Intelligent Supply Chain Talents from the “AI+” Perspective

2.1 Connotation of Digital Intelligent Supply Chain Talents from the “AI+” Perspective

IBM first proposed the concept of the digital intelligent supply chain in 2009, which is characterized by interconnection, intelligence, and advancement, obtained through sensors, RFID radio frequency identification technology, actuators, and other means. “Huawei Digital Robotics Talent Cultivation” points out that the digital intelligent supply chain is an ecosystem that establishes “products + applications + services + operations,” characterized by intelligent integration. Song Hua et al.^[1] (2024) studied the concept and construction process of the digital intelligent supply chain, emphasizing the important role of AI technology in supply chain resilience. Pan Peng^[2] (2021) studied Japan's experience in dealing with supply chain upgrades and other issues, proposing the advancement of AI and other technology applications in the logistics field to achieve continuous optimization of the supply chain. Qiu Fusheng^[3] (2022) proposed the construction of a digital intelligent platform for manufacturing supply chains in his research, exploring the introduction of new technology applications such as AI to achieve a digital intelligent platform. Artificial intelligence promotes the high degree of integration and close connection between the upstream and downstream resource elements of the supply chain, improving the production efficiency of digital economic elements. However, the talent constraints in the transformation of the digital intelligent supply chain are particularly prominent, severely affecting the innovative development of the supply chain.

2.2 Research Status of Digital Intelligent Supply Chain Talents from the “AI+” Perspective

Talents in the digital intelligent supply chain are the innovators and top talents of the digital intelligent economy, and they are the primary element related to the digital intelligent transformation of the supply chain. American universities focus on the comprehensive quality education of students in the cultivation of supply chain talents, emphasizing the cultivation of social practice ability and innovation ability, and the cultivation process has achieved a “three-way docking” between students, enterprises, and training institutions^[4]. Hong Kong universities place great emphasis on interactive teaching in the cultivation of supply chain talents, valuing case analysis, role-playing, and simulation exercises, and by inviting industry insiders to share experiences with students, they broaden the international perspective of students^[5]. With the implementation of the “AI+” strategy, the demand for supply chain talents has surged, and there is a huge talent gap, especially for supply chain planning and operation talents with an internet mindset^[6]. At present, the cultivation of supply chain talents in China is mainly at the postgraduate stage, focusing on the cultivation of academic talents, but the cultivation model for digital intelligent supply chain talents is still in the exploratory stage. Song Xiaochen et al.^[7] (2022) believe that the cultivation of digital supply chain talents reflects the characteristics of “four modernizations”: specialization, practice, interaction, and integration, and the cultivation model focuses on the transformation of educational concepts (emphasizing the cultivation of quality and ability) and the innovation of teaching models. On this basis, Fu Xiaolian et al.^[8] (2024) discussed the training strategies for digital (intelligent) supply chain management talents based on the digital background. In summary, the demand for supply chain talents from the “AI+” perspective shows a trend of diversification, specialization, and emphasis on comprehensive skills, which points out the new connotation of talent cultivation in the future: shifting from a teaching-centered to a learning-centered approach^[9], focusing on the cultivation of interactive thinking, integrative thinking, and internet thinking, and ultimately promoting the improvement of the quality of digital intelligent supply chain talent cultivation.

3 Issues in the Cultivation of Digital Intelligent Supply Chain Talents from the “AI+” Perspective

3.1 Facing the Industrial Challenges of “AI+” Empowerment in the Cultivation of Digital Intelligent Supply Chain Talents

The transition from “Internet Plus” to “AI Plus” is ushering in a new round of innovative transformations in China's digital economy, driving the digital intelligent transformation of supply chains integrated with industrial and logistics clusters. Different from the digital supply chain (see Table 1 below),the digital intelligent transformation of supply chains is inseparable from the empowerment of “AI Plus” technologies, with main application scenarios such as sorting algorithms, big data analysis, and computer vision. The digital intelligent supply chain has given birth to new business

opportunities and services, thereby promoting the transformation of enterprise organizations. Especially in high-tech manufacturing industries with a certain foundation of informatization, there will be a large-scale emergence of a global deep digital intelligent production decision-making closed loop that runs through the entire supply chain links such as design, procurement, manufacturing, sales, and logistics. Artificial intelligence, through deep mining of massive data, enables the supply chain to achieve personalized recommendations based on clustering and collaborative filtering, quickly pinpointing product and service needs, helping enterprises quickly identify user groups, and thereby enhancing the integration of various industries and increasing the overall value of the supply chain^[10]. Artificial intelligence technology will effectively solve technical challenges such as visibility, traceability, and transparency in supply chain management, and these technologies will reshape modern productivity and production relations, ultimately providing momentum for the digital intelligent transformation of the supply chain.

Table 1. Differences Between Artificial Intelligence Supply Chain and Digital Supply Chain

Comparison Item	Artificial Intelligence Intelligent Supply Chain	Digital Supply Chain
Technological Basis	Advanced technologies such as AI, big data, cloud computing, and the Internet of Things	Mature technologies such as the internet, big data, cloud computing, and the Internet of Things
Core Features	Utilizing AI for data analysis and forecasting to achieve intelligent decision-making and optimization	Leveraging digital technology for the digital transformation and automation of the supply chain
Data Application	Using AI to deeply mine and analyze large amounts of data for intelligent decision-making in the supply chain	Utilizing big data technology for data storage, processing, and analysis to optimize the supply chain
Automation Level	High degree of automation, with AI technology enabling the autonomous operation of the supply chain	Moderate degree of automation, with information technology enabling partial automation of the supply chain
Forecasting Capability	Strong forecasting ability, using AI technology for supply chain prediction and optimization	Limited forecasting ability, using data analysis technology for supply chain prediction and planning
Adaptability	Strong adaptability, capable of quickly responding to market changes and solving supply chain issues	Limited adaptability, requiring manual intervention to respond to market changes and solve supply chain issues
Security	Strong security, with AI technology enabling real-time monitoring and protection of the supply chain	Adequate security, with information technology enabling safety management and prevention for the supply chain
Cost Efficiency	High cost-effectiveness, with AI technology reducing costs and optimizing the supply chain	Moderate cost-effectiveness, with digital technology controlling costs in the supply chain, while enhancing resilience and sustainability

3.2 Lack of Mature Path References for “AI+” Empowerment in the Cultivation of Digital Intelligent Supply Chain Talents

As the transformation from resource-based to factor-based, the density and height of digital intelligent supply chain talents determine the upper limit of the development of supply chain innovation levels. According to data from CB Insights in 2023, there are currently 11,000 artificial intelligence companies worldwide, with China ranking second. Among them, the United States has 4,171, and China has 1,275, with more than a threefold gap compared to the United States, and talent shortage and development gap trigger the barrel effect of “AI+” supply chain innovation factors. Therefore, to achieve the goals of supply chain talent cultivation, it is urgent for universities to connect with national and social needs and to innovate and explore the path of digital intelligent supply chain talent cultivation. On the one hand, “AI Plus” field research not only integrates interdisciplinary frontier disciplines such as sociology, economics, education, and management but also embeds the practical transformation needs of digital intelligent technology on the basis of supply chain talent cultivation. The existing single-discipline talent cultivation model cannot meet the needs for top innovative talents from the “AI Plus” perspective, and there is an urgent need for compound professional talents with interdisciplinary collaborative capabilities. On the other hand, although some universities in China have recognized the importance of high-end supply chain talent cultivation from the “AI Plus” perspective, such as the establishment of supply chain management research institutes (research centers) by Renmin University of China, Tsinghua University, Beijing University of Technology, Sun Yat-sen University, Harbin Institute of Technology, and other universities, relying on the existing advantages of the school, vigorously carry out the construction of interdisciplinary and talent cultivation under the “AI Plus” perspective. However, there are still some issues in the understanding of the connotation of cultivating digital intelligent supply chain talents, such as what kind of digital intelligent supply chain talents to cultivate, how to effectively cultivate digital intelligent supply chain talents, and what the innovative path of digital intelligent supply chain talent cultivation is.

3.3 The Cultivation of Digital Intelligent Supply Chain Talents Empowered by AI in China is Still in Its Early Stages

With the continuous advancement of artificial intelligence applications in various industries, the demand for digital intelligent talents is extending to every link of the supply chain. In response, China has strengthened the cultivation and support for new types of supply chain management talents from multiple levels, including government, universities, and associations, actively promoting the construction of digital intelligent supply chain specialties and talent cultivation. The State Council's “Guiding Opinions on Actively Promoting the Innovation and Application of the Supply Chain” (released in 2017) proposed to support colleges and vocational schools in setting up supply chain-related specialties and courses, and to accelerate the cultivation of multi-level and innovative supply chain talents. In 2020, the Ministry of Human Resources and Social Security released the national vocational skill standards for supply chain man-

agers, marking the recognition of supply chain managers as a new professional occupation by authoritative departments. Colleges and universities across the country have realized the importance and urgency of cultivating supply chain talents, and are successively carrying out relevant professional teaching to cultivate innovative talents in the digitalization of the supply chain. For example, relying on the intersection of disciplines such as logistics management, international trade, and computer science, Beijing University of Technology was officially approved for the supply chain management major in 2019, aiming to cultivate innovative talents with a solid foundation, rich practical experience, in-depth management cognition, and multi-disciplinary integration. In March 2024, the Ministry of Education announced that Guangdong colleges and universities will add 92 new undergraduate majors, with “supply chain,” “intelligence,” and “new energy” becoming high-frequency words in major names, and it is expected that in the next one or two years, universities in Guangdong will fully launch the “AI+ Innovative Talent Cultivation” action plan. The “Supply Chain Lecture Hall,” hosted by the Procurement and Supply Chain Management Professional Committee of the China Federation of Logistics and Purchasing, regularly invites well-known experts and outstanding entrepreneurs in the supply chain field to share and explain the latest policies, digital transformation, and supply chain transformation in the field of supply chain, which has invisibly promoted the construction of supply chain disciplines and the cultivation of new types of innovative talents.

3.4 Undergraduate Institutions Themselves Face a Weak Foundation in Digitalization

The cultivation of new types of digital intelligent supply chain talents is still in its infancy, and it still follows the characteristics and models of training in logistics management majors or management disciplines, with issues such as training mechanisms, industry-academia-education integration, and curriculum construction. First, the training mechanism is not perfect, mostly still relying on the existing logistics management major and curriculum system, still staying in the transformation and upgrading of the logistics management major, and less systematic and systematic training mechanism for new types of supply chain talents; second, the integration of disciplines is not sufficient, often it is just a simple accumulation of related courses, and the barriers between management disciplines and “AI+” and other artificial intelligence-related disciplines have not been completely broken, and the construction of a multi-disciplinary integrated professional curriculum system for the field of artificial intelligence needs further improvement. Third, the structure of the teaching staff is not optimized enough, and the adjustment of dual-teacher teaching and diversified teacher structure still needs to be promoted. Fourth, the integration of industry and education is not deep enough, the practice in the field of artificial intelligence is insufficient, the organic combination of theoretical knowledge and artificial intelligence technology is not close enough, and it cannot meet the talent demand of the digital intelligent supply chain for “AI+” technology and management.

4 Exploration of the Path for Cultivating Digital Intelligent Supply Chain Talents from the “AI+” Perspective

In light of the analysis in the previous sections, the digital intelligent supply chain is a field deeply integrated across multiple disciplines. Based on the induction and summary of the connotation and new requirements for talent cultivation empowered by “AI+” technology, as well as the core elements, key factors, characteristics, and trends of digital intelligent supply chain talent cultivation, and drawing on domestic and international innovative talent cultivation experiences^[11-15], the innovative path for cultivating digital intelligent supply chain talents cannot be separated from the coordinated innovation of multi-dimensional cultivation elements such as research directions, curriculum systems, faculty teams, and practical platforms.

4.1 Establish a New Mechanism for Cultivating Supply Chain Talents with Interdisciplinary Integration

Currently, China's economic and industrial structures are facing urgent demands for adjustment and upgrading, elevating supply chain innovation and application to a national strategy, and highlighting the bottleneck issue of supply chain innovation talent supply in the “AI+” field. Universities must break down the barriers between disciplines to assist the country in achieving its strategic transformation from “Internet Plus” to “AI Plus” in the new era, promoting supply chain innovation and application and the cultivation of digital intelligent talents. “AI+X” advantage courses should be integrated into the construction of supply chain disciplines to vigorously promote the construction of related interdisciplinary, professional, and curriculum development. First, interdisciplinary integration can achieve knowledge expansion. By offering cross-disciplinary project-based courses, a knowledge system led by “AI+” technology, industrial innovation, and open integration is strengthened, highlighting the integration of knowledge from multiple disciplines and professions and practical training, rapidly cultivating and forging students' abilities in interdisciplinary integration, thereby achieving the goal of enriching the knowledge reserve in the field of supply chain management and enhancing the innovative ability of digital intelligent talent cultivation. Second, interdisciplinary integration can achieve complementary advantages. By allowing students from different professional backgrounds to take relevant courses, students share information, collide ideas, broaden their horizons, and learn in teams, thereby achieving the effect of student interaction and interdisciplinary integration in the cultivation of digital intelligent supply chain talents. In June 2024, Nanjing University of Posts and Telecommunications released an “AI+ Innovative Talent Cultivation” action plan. Information-related majors implement the “AI + Micro-Course” training model, while humanities and social sciences and other non-information majors adopt the “AI + Micro-Major” and other training models, exploring innovative talent cultivation reforms in classification and stratification, designing “AI +” general education modules, “AI +” interdisciplinary modules, and advanced “AI +” course inno-

vation modules, and vigorously carrying out new explorations in the field of “AI+” innovative talent cultivation.

4.2 Cultivate a Multidisciplinary Integrated Supply Chain Curriculum System

The digital intelligent supply chain discipline not only integrates interdisciplinary frontier disciplines such as sociology, economics, and management but also embeds digital technology and computer technology. A multidisciplinary integrated curriculum system is a key factor in the cultivation of digital intelligent supply chain talents. According to the diverse, specialized, and comprehensive skill requirements for talents in the development trend of the digital economy, a “AI+X” menu-style personalized talent cultivation plan is formulated for supply chain major students, comprehensively reconstructing a diverse, comprehensive, skillful, and flexible curriculum system. Deep integration of artificial intelligence technology with traditional supply chain advantage courses is achieved, ensuring a balance between basic theory and professional practice on the basis of strengthening the systematic nature of academic foundations, the interdisciplinary nature of professional modules, the challenge of practical links, and the autonomy of students' learning abilities, to ensure that students master new technologies and enhance their competitive advantages. First, in terms of curriculum content, there is a shift from traditional courses to interdisciplinary professional courses, where students enhance their problem-solving abilities through integrated interdisciplinary training. Second, in terms of teaching models, there is a shift from theoretical teaching to practical exploration, strengthening the student's learning subject status and transforming teachers from knowledge transmitters to learning guides. Taking the construction of Tongji University's top major civil engineering courses as an example, AI technology is integrated into the curriculum system. In terms of theoretical knowledge, the curriculum system covers multiple disciplines or majors such as civil engineering, computer science, and management, achieving multidisciplinary integration and flexibility through the “civil engineering +” elective course form. In terms of technology, it integrates university computer and artificial intelligence science and technology to cultivate innovative talents in civil engineering with multidisciplinary integration. This reform ensures that civil engineering students have more employment options and enhance their competitive advantages.

4.3 Establishing a Diversified Faculty Team with Interdisciplinary Integration

In the context of the intersection of “digital technology + artificial intelligence + supply chain,” the cultivation of digital intelligent supply chain talents in universities urgently requires the establishment of a diversified faculty team with “interdisciplinary integration” at its core. Firstly, the integration of diverse faculties through joint teaching can achieve the integration of industry and education. Actively implement a “dual-mentor” hybrid system, forming a faculty team composed of “research mentors” and “teaching mentors,” “enterprise mentors” and “academic mentors,” “domestic mentors” and “overseas mentors,” “in-major mentors” and “cross-major mentors,” “full-time mentors” and “external mentors,” fully exploring and integrating internal

and external teacher resources to form a diversified faculty team for the cultivation of digital intelligent supply chain talents. Secondly, the expansion of knowledge can be achieved through joint teaching by a diversified faculty. Each project-based course implements a full-process management of course design, teaching, guidance, and practice, completed jointly by a diversified team of mentors, ensuring the full integration of course content and systematically cultivating students with a broad and solid foundation in “AI+” related interdisciplinary theories, achieving vertical integration and horizontal intersection. Guangzhou Huashang College, as a private university with certain influence in Guangdong, takes the construction of key disciplines and specialties as the traction, relying on the Guangdong Province Quality Engineering Experimental Teaching Demonstration Center—Economics and Management Discipline Cross-Professional Comprehensive Simulation Practice Platform, implementing the landing of business scenarios, closed-loop simulation of supply chain activities, and joint laboratory projects. The platform gathers a group of doctoral supervisors, master's supervisors, and has established a diversified faculty team led by second-level professors, distinguished professors, and professors, with lecturers, accountants, economists, and engineers as the backbone, and doctors and masters as the main force, strengthening the full coverage of practical education in schools, and promoting the development of innovative talents with interdisciplinary, multi-skills, and a global perspective.

4.4 Promoting the Seamless Integration of Industry and Education for Talent Cultivation Practice Platform (as shown in Fig.1)

During the three-year pandemic, “AI+” has empowered the resilience and development of supply chains, prompting Chinese enterprises to re-evaluate the value of the digital transformation of supply chains. A large number of application scenarios such as smart farms, unmanned docks, intelligent home appliances, and autonomous driving have emerged on a large scale. Based on the fundamental issues of “supply chain innovation and application” and the practical needs of digital supply chain talent, the cultivation of digital supply chain talent must be planned around the application scenarios of artificial intelligence, promoting the integration of industry and education with a seamless talent cultivation practice platform. In the subtle context of global supply chain competition and decoupling in the Sino-American game, artificial intelligence has also attracted high attention from Western developed countries. To ensure innovation and competitive advantages in artificial intelligence, European and American countries are actively exploring innovative development paths for the cultivation of digital supply chain talent that meet their own needs and advantages, and have built a seamless talent cultivation practice platform. Specifically, in the United States, schools focus on practice and value the combination of production, learning, and research, and industry associations have a complete certification mechanism; Japanese universities have a broad teaching caliber and solid foundation, determining training goals and formulating talent training plans according to the needs of enterprises; Germany implements a “dual system” training mechanism, closely integrating university teaching with enterprise practice, while enterprises also provide supply chain professional feedback to em-

ployees; British universities implement an "apprenticeship" training model, dividing supply chain professional knowledge into four stages and eleven levels, and industry associations also provide support for "apprenticeship" education. Looking at the talent training models of the United States, Japan, and other four countries, the seamless talent cultivation system must first find the right positioning and clarify the goals, then establish a complete qualification system for supply chain practitioners, and then play the role of government, universities, associations, and enterprises in a coordinated manner, and finally emphasize the cultivation of international and practical supply chain management talent. The typical experience of the seamless talent cultivation system must be combined with China's national conditions to explore a new model suitable for the needs of digital supply chain talent cultivation in China at this stage.

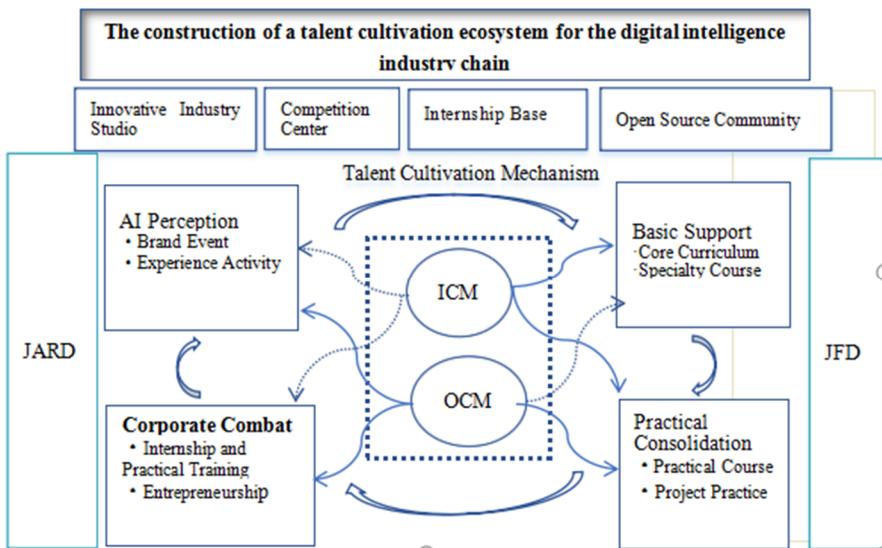


Fig. 1. The practice platform mechanism of industry-education integration

5 Conclusion

The cultivation of innovative talents in the “AI+” field of supply chain should actively respond to national strategies and meet the new needs for “AI+” professional talent cultivation. It should rely on a diversified faculty team facing the future and a multi-modal practical platform focusing on the “AI+” industry, to build an educational plan characterized by “AI+ micro-majors” and “AI+ micro-courses”. The cultivation mechanism is based on interdisciplinary integration, the core cultivation path is to enhance the comprehensive quality and interdisciplinary ability of talents, and the curriculum system focuses on multidisciplinary integration. Actively explore new forms and mechanisms for the cultivation of innovative talents in the “AI+” field of supply chain in the future, and continuously improve the quality of talent cultivation in the “AI+” field of supply chain innovation, thus providing resource element sup-

port for the country to achieve the ultimate goal of transitioning from “Internet Plus” to “AI Plus”.

Acknowledgments

This work is supported by the 2022 co-construction project of the “14th Five-Year Plan” for the development of philosophy and social sciences in Guangzhou (2022GZGJ85), the Youth Innovative Talent Project of Regular Colleges and Universities in Guangdong Province (2022WQNCX178).

References

1. Song, H., Han, M. W., & Shen, L. Y. (2024). The role of artificial intelligence in shaping supply chain resilience: A case study based on the global after-sales supply chain management practice of Maxon. *China Industrial Economics*, (5), 174-192.
2. Pan, P. (2021). Innovation of talent cultivation model under the background of digital intelligent logistics. *China Business Review*, (2), 174-175+177.
3. Qiu, F. S., & Song, H. P. (2022). Construction method of intelligent factory logistics information platform—Part three of the series on "Construction of Intelligent Factory Logistics". *Logistics Technology and Application*, 27(8), 162-168.
4. Huang, X. D., Wang, X. Y., & Song, Y. J. (2021). Reflections on the cultivation of undergraduate talents for a “digital intelligence” driven smart supply chain. *Applied Higher Education Research*, 6(3), 48-55.
5. Fan, L. H. (2018). Research on the talent cultivation model of applied logistics in the background of "Internet Plus" smart supply chain. *Economic Research Guide*, (21), 152-153.
6. Zhu, W. J. (2019). Teaching reform of supply chain management course based on the cultivation of applied talents. *Logistics Technology*, 38(3), 152-155.
7. Song, X. C., & Mao, J. Y. (2022). Research on the trust-building process between organizations based on blockchain: Taking the digital supply chain financial model as an example. *China Industrial Economics*, (11), 174-192.
8. Fu, X. L., & Chen, J. (2024). Analysis of talent cultivation strategies for supply chain in the Pearl River Delta in the digital era. *China Logistics and Purchasing*, (6), 115-116.
9. Ye, M., Deng, Y. X., & Qiu, X. B. (2023). Factors and pathways influencing the cultivation of new engineering talents in engineering-advantaged universities under the field theory. *Research in Higher Education of Engineering*, 2023(04), 15-21.
10. Acemoglu, D. and Restrepo, P., " Artificial Intelligence, Automation and Work "(No. w24196), National Bureau of Economic Research, 2018.
11. Jiang, J., Liu, X. Y., & Zhang, S. (2024). Research on the path of cultivating top innovative talents in colleges and universities under the background of "dual carbon". *Heilongjiang Education (Higher Education Research and Evaluation)*, (6), 59-61.
12. Su, J. Y., Yang, Y. X., & Park, M. J. (2023). Reform of talent cultivation model in colleges and universities under the background of interdisciplinary integration. *Beijing Education (Higher Education)*, (1), 44-48.
13. Li, L. F., Li, F. C., & Wang, F. Y. (n.d.). Service learning and the cultivation of top innovative talents: A study centered on service learning in American colleges and universities.

Journal of Jinan University (Social Science). Advance online publication. Retrieved June 21, 2024, from [appropriate URL or DOI, if available].

14. Pereira S W, Fishman E K, Rowe S P. The future is now: how technology and entertainment are transforming education in the artificial intelligence era.[J].Journal of the American College of Radiology:JACR, 2022, 19(9):1077-1078.
15. Leoste J, Jogi L, Oun T, Pastor L, San M L J, Grauberg I. Perceptions about the future of integrating emerging technologies into higher education—The case of robotics with artificial intelligence[J]. Computers, 2021, 10(9): 110-110.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

