

Research on the Transformation and Upgrading of Management Majors in the Context of Intelligence and New Liberal Arts

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Abstract: Digitalization and intelligentization have become the core forces driving China's leapfrog development in science and technology, optimization and upgrading of industry and social governance, and overall enhancement of productivity. According to the 2023 Report on Research and Development of Industrial Digital Talent, China's current digital talent gap has reached 25-30 million, a deficit that continues to expand. In stark contrast, traditional management majors face structural challenges—inadequate cultivation of digital literacy, with knowledge, skills, and theoretical frameworks lagging behind era demands. As the primary base for talent cultivation, universities urgently need to undertake reality-grounded digital-intelligent transformation of their programs. This will both enhance quality and efficiency in new liberal arts development and supply society with digitally-capable interdisciplinary talent. Accordingly, this study integrates contemporary context and policy orientation, proceeds from the fundamental laws of talent cultivation and essential requirements of the education system, and systematically promotes optimization and upgrading of talent training models across key dimensions including top-level design, curriculum modules, and teaching resources.

Keywords: Management Majors; Education Reform; New Liberal Arts; Digital Transformation

1. The current situation of the development and demand for digital professionals

Driven by the dual forces of the digital intelligence wave and the advancement of new liberal arts, the management discipline is accelerating its transformation. In response to actual development needs, the training of

management talents in the digital context has taken several new directions: first, fostering data-driven thinking to strengthen the foundation of digital capabilities; second, deepening the integration of industry and education to better align with practical industry demands; and third, implementing a hierarchical and classified training model alongside establishing a digital-oriented evaluation system.

1.1 The Development Status and Talent Demand in the Digital - Intelligent Era

The rise of the digital and intelligent era is accelerating the transformation of social development and industrial production models, accompanied by a surge in demand for digital talent. According to the “2023 Report on Research and Development of Industrial Digital Talent”, China currently faces a shortage of 25 to 30 million digital professionals, and this gap continues to widen. Underlying this significant shortage is a profound mismatch between talent development and real-world needs—society and enterprises are no longer satisfied with “tool-type” talents who possess only a single skill. Instead, there is an urgent demand for versatile, innovative, and adaptable professionals with comprehensive capabilities, creative thinking, and the potential for continuous growth. This core demand is driving a systematic reshaping of the fundamental principles behind talent development.

1.2 The Background of Digital Intelligence and the Construction of New Liberal Arts

The wave of digitalization and intelligence is driving organizational structures toward flexibility, openness, and flat management, with management logic shifting from traditional interpersonal collaboration to human-machine synergy. Cross-border integration and digital-intelligent empowerment are constantly spawning new organizational forms, forcing

traditional management science to undergo systematic restructuring in multiple dimensions such as theoretical frameworks and organizational structures.

Meanwhile, the in-depth penetration of digital and intelligent technologies has made digital skills a rigid demand in social production. Looking to the future, management talents must not only possess solid digital literacy but also develop lifelong learning capabilities. Against this backdrop, management majors must proactively respond to the dual missions of technological change and educational innovation, and reshape the talent training paradigm.

1.3 Optimize the Top-Level Design for Student Training

Based on China's first approved national standard "Digital transformation - Technical competence and literacy requirements for digital talents", digital talents have been clearly classified into three categories, corresponding to the three core roles: digital leadership talents, digital application talents, and digital professional talents.

For management majors, focus should be placed on the first two categories. Among them, digital leadership talents need to possess sharp market insight and strong digital awareness, capable of leading and promoting the implementation of enterprise digital practices. Digital application talents need to have both a business perspective and digital literacy—they must master the use of digital tools and integrate digital thinking into practical business scenarios, realizing management optimization and new opportunity exploration through in-depth insight. The third category, digital professional talents, takes professional digital technology as their core competitiveness. Proficient in key technologies such as big data, AI algorithms, and digital system architecture, they are important collaborators for digital management talents.

1.4 Development Requirements for Digital Management Professionals

Based on the aforementioned research foundation, against the backdrop of evolving times, technological shifts, and industrial transformation demands, universities urgently need to establish a training system for management professionals that aligns with the data economy era. Specifically, this entails

cultivating students' digital mindset, rooted in the underlying logic of digital technologies, while strengthening the deep integration of foundational technological competencies—such as big data and artificial intelligence—with business scenario analysis capabilities. Based on the aforementioned research foundation, against the backdrop of evolving times, technological shifts, and industrial transformation demands, universities urgently need to establish a training system for management professionals that aligns with the data economy era. Specifically, this entails cultivating students' digital mindset, rooted in the underlying logic of digital technologies, while strengthening the deep integration of foundational technological competencies—such as big data and artificial intelligence—with business scenario analysis capabilities. It also requires constructing a deeply coupled industry-education integration paradigm that promotes permeation of real industrial business scenarios into all aspects of talent cultivation, establishing a dynamic curriculum updating mechanism that keeps pace with technological iterations, and introducing cutting-edge corporate cases and real-time business data. These measures will achieve synchronization and resonance between training programs, industrial technological evolution, and business model innovation.

2. Challenges of Transformation and Upgrading of Management-Related Majors

Corresponding to the current development status and needs, there remain significant deficiencies in the cultivation and development of management talent. Specifically, three core shortcomings stand out: first, the system lacks a systematic top-level design, which hinders interdisciplinary integration and collaboration between universities and enterprises; second, there is a structural imbalance in resource allocation, characterized by inadequate teacher capabilities and insufficient practical training resources; third, a prominent mismatch exists between talent supply and demand, as curricula and evaluation mechanisms are disconnected from enterprise needs, ultimately compromising the quality of talent development.

2.1 The Construction of the Talent Training System Is Still Inadequate.

The training system is inadequate, and in practice, there are also problems such as

disconnected training, a shortage of teachers, and weak resources.

Specifically, the existing curriculum system is overly theoretical with insufficient comprehensive design-oriented courses. There is an imbalance between the supply and demand of teachers: digital technology involves multi-field and cross-level knowledge and skills, such as mathematics, computer science, and psychology. Currently, most teachers focus more on progress and development in technical fields, leading to a mismatch between teachers' capabilities, scale, quality and the needs of talent training.

The quality of teaching resources varies greatly. Most colleges and universities are unable to effectively support the innovative practice of digital management talents, lacking "testbeds" and "demonstration zones". Although many colleges and universities actively promote the school-enterprise cooperative training of management talents, there are still issues such as a shortage of high-quality resources, poor resource relevance, and low achievement conversion rates.

2.2 Insufficient Allocation of Educational Resources

For university majors related to digital new occupations such as big data, cloud computing, and artificial intelligence, some face shortages of practical training textbooks and insufficient practical training platforms. Many training bases or industrial colleges established through university-enterprise cooperation lack systematic practical operation teaching in their training content. Although policies encourage practitioners from leading enterprises and key industries to participate in teacher training, factors such as the certain cycle required for developing training materials (especially practical training content) for new occupations, and the difficulty of including all new occupation training programs in the subsidy scope at present, have adversely affected the implementation of training policies for new occupations.

2.3 Insufficient Alignment Between Talent Training and Industrial Needs

There is insufficient connection between talent training institutions and digital occupations. The teaching content of digital economy-related majors fails to keep up with the development of

emerging industries, and the connotation and scope of digital economy-related disciplines remain unclear. A considerable proportion of traditional teaching teams are not familiar with actual business scenarios, and many schools face a shortage of talents with interdisciplinary backgrounds.

Overall, many graduates of digital economy-related majors struggle to match the current needs of industrial development in terms of capability building and data thinking. Secondly, the training requirements are higher: knowledge in the field of digital technology updates rapidly, requiring individuals to continuously learn new knowledge and skills to adapt to the rapid iteration and innovation of the technological environment. Those who are actively curious about new things, master scientific learning methods, have high learning efficiency, and are willing to maintain lifelong learning can become digital talents more quickly through learning.

3. Methods and Measures for Conducting Teaching Reform

Drawing on the research above, this study focuses on innovation in educational concepts and system reform, proposing five targeted recommendations: enhancing top-level design to adapt to the digital economy, connecting cutting-edge innovations with industrial digital transformation, promoting the transformation of curriculum delivery to overcome traditional teaching limitations, optimizing the supply of teaching resources and advancing the reform of digital literacy assessment and cultivation.

3.1 Optimize the Top-Level Design for Student Training

Establish new interdisciplinary majors or directions integrating digital economy, big data management and application, form a sound pattern where top-tier "pursuit of excellence" majors and "Four New" majors (new engineering, new science, new medicine, new liberal arts) are fully covered and mutually promoted. Take the development of new liberal arts as a new growth point for discipline construction, realize the effective penetration of modern information technology into management disciplines, and achieve the empowerment and transformation of relevant disciplines by big data and artificial intelligence. Guided by new concepts and centered on new

quality in curriculum development, accurately grasp the characteristics of the digital era, adhere to the concepts of innovation, sharing and development, focus on improving professional connotation and talent training quality. Cultivate students with digital thinking, the ability to understand digital business, sensitivity to digital execution, and proficiency in digital innovation—these multi-dimensional competency goals are the training standards for management talents in the digital age.

3.2 Connect with the Frontier Technological Update

Focus on cultivating digital management talents and connect with cutting-edge technological innovations. Add basic courses on big data and artificial intelligence in training programs, design differentiated teaching content under the "one course, multiple syllabi" model, and form technology integration with varying difficulty and breadth for students. Integrate digital and intelligent technologies into the existing curriculum knowledge system to develop modular curriculum directions such as "Big Data + X" and "Artificial Intelligence + X," achieving a $1+1>2$ effect through optimization and integration. Adopt a multi-stakeholder collaborative talent training model involving industry, academia and research institutions. Introduce frontline industrial professionals as industrial mentors, take industrial development needs and "bottleneck" issues as research orientations, and build a talent training mechanism of "co-construction, co-management and sharing" between industrial partners and universities. This mechanism is based on enterprises' actual businesses and specific projects, with multiple joint internship and training bases as the medium.

3.3 Promote the Transformation of Curriculum Carriers

Build a new teacher-student interactive relationship, shifting from the traditional teacher-centered model to a student-centered teaching approach. Teachers transform into collaborators, helping students achieve knowledge transfer and stimulating their initiative and habit of independent thinking. Create diverse teaching formats such as "Internet + Classroom," "experiential" virtual teaching, online-offline blended teaching, and micro-courses, realizing dynamic, diversified,

flexible and interesting innovative classroom teaching. Promote continuous iterative innovation in liberal arts education in terms of methods, approaches and student assessment standards. Capture and mine big data related to students' and teachers' learning enthusiasm and participation in class, and intelligently push knowledge to students with a challenging level, so as to achieve individualized teaching and personalized development.

3.4 Optimize the Supply of Teaching Resources

Rely on the industrial college platform to cooperate with well-known domestic industry enterprises or Internet companies. Keep up with the country's new requirements for technological innovation, explore distinctive industry-education integration models through real-time feedback on industrial needs, and address the pain points of superficial industry-education integration and inadequate university-enterprise cooperation. With the support of national and provincial-level research platforms, realize the collection and integration of humanities and social sciences data, data purification and processing, data service visualization, and data value realization. Build project portfolios, enhance the promoting role of big data and artificial intelligence in traditional management research projects, improve the scientificity of decision-making, and cultivate students' digital management capabilities and ability to develop creative solutions. Encourage teachers to compile digital and intelligent textbooks and participate in innovative teaching competitions, laying a solid foundation for professional development through the accumulation of high-level teaching achievements.

3.5 Integrated Reform of Digital Literacy Assessment and Cultivation

Break free from the limitations of traditional score-based evaluations by establishing a competency-centered, multi-dimensional assessment system. Decompose skills such as digital tool application, data-driven decision-making, and system optimization into specific indicators, integrate them into core evaluation dimensions, and enable students to demonstrate their digital literacy through multiple channels. Strengthen the promotion of lifelong learning concepts by encouraging students to engage in

active learning and the transfer of learning abilities. Develop learning support platforms, provide access to open online course resources, and create practical training case libraries to help students continuously update their digital skills after graduation.

Incorporate digital ethics into core curricula to reinforce students' foundational understanding of appropriate digital behavior. Emphasize critical areas such as data privacy protection, algorithmic fairness, cybersecurity responsibility, and compliance with digital content regulations. Cultivate students' sense of responsibility and their ability to discern ethical issues within the digital environment.

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