

# Research on the Optimization and Evaluation of Talent Development Pathways in Business Modern Industry Colleges under the Digital-Intelligence Era

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## ABSTRACT

With the rapid development of the digital and intelligent era, China's industrial structure and talent demand have undergone profound changes. As pivotal platforms for industry-academia collaboration in cultivating applied talents, modern industry colleges specializing in business disciplines represent a critical educational vehicle, yet their developmental pathways and quality assessment mechanisms require further refinement. This paper begins by reviewing the current state and shortcomings of modern industry colleges in business disciplines, explores pathways for optimization, and constructs a quality evaluation system tailored to China's national conditions based on practical contexts. It aims to provide theoretical insights and practical guidance for achieving precise alignment between the educational chain and industrial chain of modern industry colleges in business disciplines during the era of digital intelligence.

In the era of digital intelligence, China's economy driven by big data, artificial intelligence, cloud computing, and other next-generation information technologies has entered the Business 3.0 era. This has brought about profound transformations in society's modes of production, organizational structures, business models, financial paradigms, and management approaches. As an applied science, Business disciplines must evolve in lockstep with this new epoch to underpin emerging industrial forms and operational paradigms. The rise of novel commercial models inevitably generates demand for a new breed of business talent, necessitating a heightened focus within higher education on the refinement and optimization of talent development pathways. This imperative calls for establishing Modern Industry Colleges to implement ho-

listic, all-encompassing cultivation of human capital.

## 1. Current Status and Key Challenges in the Development of Modern Industry Colleges

### 1.1 The "Precision Matching" feature has yet to be fully realized

Presently, numerous business-oriented modern industry colleges, despite adhering to national industry-education integration policies, exhibit a significant operational dissonance: the educational chain fails to precisely correspond to the industrial chain. This misalignment stems from a dual challenge. Although "precision matching" has been institutionalized through regulations, its implementation still lacks adequate support (Wang, 2023). On one hand, a

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discernible information asymmetry hinders the matching of talent supply and demand. There is a lack of real-time synchronization between the talent market and universities concerning specific competency requirements and shifting skill architectures in the digital-intelligence era. The rigidity of traditional semester-based curricular systems further impedes timely adaptation to front-line industrial changes. On the other hand, the nurturing mechanism itself is not systematized into a closed loop encompassing “demand identification, resource analysis, strategic configuration, and dynamic feedback.” Without this integrated system, educational outputs cannot simultaneously reflect structural reforms in the industry, leading to a tangible mismatch between the competencies students acquire and those the industrial ecosystem requires. Furthermore, the collaboration process is frequently hampered by lukewarm corporate involvement. Even within the framework of industry-affiliated institutions, corporate involvement may remain largely nominal. This lack of deep engagement inevitably severs the vital connection between the educational process and industry realities, resulting in training objectives, course materials, and teaching methods that are detached from the practical logic.

### **1.2 The multi-stakeholder collaborative governance mechanism is not functioning effectively**

The development of Modern Industry Colleges constitutes a multi-stakeholder collaborative governance system involving universities, enterprises, local governments, and industry associations. However, its practice has yet to achieve effective synergy. On one hand, different entities have distinct development objectives: universities prioritize cultivating students’ competencies and ensuring academic quality, while enterprises place greater emphasis on cultivating qualified talent with market competitiveness and strong on-the-job readiness. Significant differences exist between the two in terms of educational pacing, resource allocation, and evaluation methods. On the other hand, the governance model of modern industry colleges remains predominantly “university-led with enterprise participation,” where corporate involvement lacks both breadth and depth, failing to leverage enterprises’ industrial strengths. Meanwhile, the establishment of diversified governance platforms that are information-based and data-driven has yet to be achieved. Insufficient flow of data, resources, and information among different entities has also resulted in low efficiency in collaborative governance. For instance, the absence of a unified collaborative platform in modern industry college management means communication between universities and enterprises

largely remains at the offline, manual coordination stage, preventing the full realization of their combined potential. Under the combined influence of these constraints, the collaborative education functions of modern industry colleges cannot be fully realized. Consequently, their governance ultimately remains superficial and formalistic.

### **1.3 The development of digital and intelligent educational resources is lagging behind.**

Against the backdrop of the digital-intelligence era, Business Modern Industry Colleges are expected to construct an educational resource system that synchronizes with the industrial and technological chains. Yet, a marked misalignment persists in resource development. Firstly, a significant gap exists between training platforms and actual industrial applications. The integration of virtual simulation, digital twins, and authentic enterprise project scenarios into pedagogy remains limited, consequently depriving students of opportunities for complex competency training in realistic settings. Secondly, the teaching faculty generally lacks sufficient digital intelligence literacy. Teachers can only apply emerging technologies superficially in teaching scenarios, making it difficult to support competency-based educational models tailored to industry demands, such as intelligent supply chain management and data-driven marketing decision-making. Furthermore, funding and management mechanisms for jointly developed courses and practical training bases between universities and enterprises remain underdeveloped. Most collaborations are still in the “cooperative commitment” phase, failing to establish efficient, long-term operational frameworks. In summary, while these modern industry colleges emphasize digital and intelligent empowerment, they have yet to establish mature systems in resource development, faculty allocation, and platform support.

### **1.4 Lack of a Quality Evaluation System for Construction**

A robust evaluation system for assessing the effectiveness of Business Modern Industry Colleges has yet to be fully developed, which significantly constrains their continuous quality improvement. First, the evaluation metrics lean heavily toward explicit indicators such as employment rates, graduate school admission rates, and student academic performance, while lacking robust mechanisms to measure implicit indicators like students’ digital literacy, cross-disciplinary capabilities, and job adaptability. Second, data collection dimensions are limited and technical support is inadequate. The absence of data-sharing platforms between universities, enterprises, and government entities results in a lack of horizontal

comparison and longitudinal tracking mechanisms during the evaluation process. Third, evaluation mechanisms lack continuous improvement cycles. Most college assessments remain confined to periodic reporting phases, lacking a closed-loop “evaluation-feedback-improvement” process. Furthermore, single-source evaluation bodies, unclear weighting criteria, and illogical indicator frameworks hinder accurate reflection of industrial colleges’ overall effectiveness in cultivating applied talent for the digital era. Consequently, the absence of a robust quality evaluation system severely impedes the achievement of modern industrial college development objectives.

## **2. Optimization Strategies for Talent Development Pathways in Business-Oriented Modern Industry Colleges in the Digital Intelligence Era**

### **2.1 Reconstructing a Competency-Oriented Curriculum System Driven by Digital-Intelligence Technologies**

Business modern industry colleges need to evolve their talent development focus from knowledge transmission to capability building, based on real-world industrial needs in the digital-intelligent age. The first step is to identify key competencies for modern business roles—like data analysis, cross-disciplinary integration, innovation in decision-making, and composite technical literacy—from an industry chain viewpoint, and formally set these as training objectives. These objectives should then directly translate into the structure of the curriculum modules. Second, break away from rigid thinking patterns by integrating typical scenarios such as intelligent supply chain analysis, digital marketing models, platform-based business models, and blockchain finance. Embed competency development tasks within real or simulated industrial environments (Jiang, 2024). Furthermore, organize classroom instruction through diverse methods including theoretical lectures, project-based practice, corporate case studies, and problem-driven research, emphasizing students’ ability transfer and practical application. Simultaneously, implement a dynamic adjustment system for course modules and content, revising them monthly or per semester. Continuously optimize and refine course modules and content based on industry shifts, corporate feedback, and student employment tracking data. The curriculum framework thus constructed realizes a training logic centered on “competency-based, job-oriented, and industry-contextualized” education, achieving high-level integration and collaborative talent development between industry and academia.

### **2.2 Establish a governance mechanism featuring deep collaboration among multiple stakeholders**

Establishing an efficient collaborative training mechanism requires genuinely embedding diverse stakeholders—including universities, enterprises, governments, and industry associations—into the governance system of modern industrial colleges. This ensures shared resource development, joint mechanism oversight, and mutual benefit from outcomes. First, establish university-enterprise joint councils or professional committees where representatives from all parties participate in key aspects such as talent development planning, curriculum design, practical training base construction, and employment tracking. This guarantees direct enterprise involvement at the strategic level throughout the entire university education process. Second, sign collaborative education commitment and performance agreements with enterprises, incorporating factors such as corporate participation levels, resource contributions, and student competency development outcomes into governance assessment systems to ensure enterprises fulfill their educational responsibilities. Third, establish a multi-stakeholder coordination mechanism guided by government and involving industry associations. Supported by policy guidance, industry standards, and talent demand forecasting, this mechanism should foster an integrated framework where regional industries, educational resources, and social services converge (Cheng, 2023). Furthermore, an information-sharing mechanism should be established to aggregate talent supply-demand data, industrial development dynamics, and student growth trajectories, providing governance decision-making support for diverse stakeholders. Leveraging these mechanisms, modern industrial colleges can transition from loose collaboration to integrated governance, institutionalizing and systematizing university-enterprise collaborative education.

### **2.3 Strengthen the development of digital and intelligent educational resources and practical training platforms**

To cultivate business-oriented applied talents for the digital intelligence era, modern industry colleges must strengthen resource and platform development based on practical needs. On one hand, grounded in industry training objectives and talent development needs, allocate “learn-do-apply” teaching resources. This includes introducing real corporate projects into classrooms, creating simulated real-world teaching scenarios, organizing interdisciplinary project competitions, and establishing workshops or practice bases through university-enterprise

collaborations for internships and practical training. On the other hand, regarding faculty development, university teachers should be required to regularly engage in corporate work, deeply participating in technological R&D to gain new knowledge and experience. Simultaneously, corporate mentors should be encouraged to participate in teaching processes and jointly evaluate students' practical skills. Additionally, a robust resource recommendation and feedback mechanism should be developed based on students' growth trajectories. By leveraging data on students' competency development, targeted resources and practical opportunities aligned with their skill progression can be precisely delivered. Through continuous advancement in these areas and strengthened platform development, students can gain comprehensive training within the "learn-do-apply" framework, thereby fulfilling the educational mission.

### **3. Establishing a Quality Evaluation System for Modern Industry Colleges in Business Disciplines**

#### **3.1 Establish a data-driven quality evaluation and continuous improvement mechanism**

To optimize educational pathways, modern industry colleges in business disciplines should establish a data-driven, long-term mechanism for quality evaluation and continuous improvement. First, develop an indicator collection system based on data such as student competency development, output quality, employment competitiveness, and industry alignment. This system should cover metrics including student performance during enrollment, practical achievements, job-position matching, and competency transfer. For assessing student competency development, collect data on participation in practical activities, corporate evaluations, and job competency attainment. Regarding curriculum alignment, monitor course update frequency, corporate engagement levels, and consistency between graduate job roles and course content. For resource development, track metrics such as training base coverage rates, number of university-industry collaborative projects, and faculty participation rates in corporate initiatives (Lu, 2023). Second, develop data analysis methodologies to collect, analyze, mine, and monitor educational process data through student growth profiling, curriculum mapping analysis, and corporate feedback tracking. Third, apply evaluation outcomes to core improvement areas, including curriculum systems, resource allocation, industry-academia collaboration, and training platforms. Implement periodic adjustments, then

advance talent cultivation, resource distribution, and governance optimization based on the revised development plan. Fourth, ensure the transparency and participatory nature of the evaluation mechanism. This guarantees that universities, enterprises, and government agencies can access evaluation results and engage in improvement discussions, thereby establishing a genuine "monitoring-diagnosis-improvement" closed-loop system. Establishing this mechanism will provide robust support for modern industry colleges to continuously enhance educational quality in the era of digital intelligence.

#### **3.2 Indicator System Design**

The evaluation framework should be constructed upon a foundation of scientific rigor, operational feasibility, multi-tiered structure, and dynamic adaptability, with indicators systematically designed across macro, meso, and micro dimensions. Macro indicators include industry alignment (the degree to which talent development objectives match industry needs), depth of university-enterprise collaboration (the proportion of enterprise involvement in all stages of talent cultivation), and resource supply quality (the coverage level of practical training platforms and the degree of faculty professionalization). Mid-level indicators track operational aspects such as curriculum renewal frequency, student participation rates in corporate projects, and graduate career persistence. Micro-level metrics focus on individual outcomes including practical project performance, interdisciplinary competency assessments, and aggregated employer satisfaction ratings. Each indicator must possess clearly documented data sources, standardized calculation methodologies, and established evaluation criteria, all assigned appropriate weighting values. Crucially, the system requires embedded periodic review mechanisms to refresh its indicator library in response to industrial transformation and institutional development priorities.

#### **3.3 Feedback Mechanism and Closed-Loop Improvement System**

The evaluation system must not only ensure the timely release of evaluation results but also strengthen feedback mechanisms for both the university and enterprises, as well as for the college's principal leadership and relevant departments. This includes interpreting evaluation data, discussing improvement plans, and clarifying responsible parties. Improvement plans should incorporate recommendations such as using specific courses as breakthrough points and intensifying talent cultivation efforts, while

specifying timelines and responsible parties. Additionally, the college must institute a regime of systematic monitoring and evaluation at regular monthly or semesterly intervals to assess the progress of improvement initiatives. Data pertaining to the efficacy of these interventions must be rigorously collected and integrated into the subsequent evaluation cycle. This process ensures the establishment of a multi-stakeholder, multi-round feedback loop, thereby fostering continuous advancement through iterative refinement.

#### 4. Conclusion

In summary, to effectively address the developmental bottlenecks and governance challenges confronting business-oriented modern industry colleges in the digital-intelligence era, a multifaceted optimization approach is imperative. This should encompass the restructuring of curriculum systems, the enhancement of multi-stakeholder collaborative governance, the construction of resource platforms, and the establishment of robust quality evaluation mechanisms. Concurrently, it is essential to develop an evaluation framework tailored to China's specific contextual requirements. This paper aims to provide universities, enterprises, government agencies, and other relevant stakeholders with a holistic conceptual reference for the development of modern industry colleges. Ultimately, it seeks to contribute to the refinement of educational mechanisms, improve the quality of application-oriented talent cultivation, and thereby support regional industrial transformation and the development of the digital economy.

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