

Mapping Collaborative Governance in Modern Industry Colleges: A Multi-Case Study of the 'Eight Co-Actions' Framework in China

Zou Mingmin^{1*}, Lucio T. Encio², Xu Maoyun³

¹ Jiangxi University of Technology

² Central Philippine University

³ Nanchang University

Accepted

2025.10.20

Keywords

Modern Industry Colleges,
Collaborative Governance,
Industry-Education Integration,
Eight Co-Actions, Higher
Education Reform, China

Corresponding Author

Zou Mingmin

Copyright 2025 by author(s)

This work is licensed under the
CC BY 4.0



<https://doi.org/10.70693/itphss.v2i10.1538>

Abstract

This paper explored construction paths and collaborative governance mechanisms of Modern Industry Colleges (MICs) in China in terms of the Eight Co-Actions model which promotes synergy between government, industry and higher education. Based on collaborative governance theory and value co-creation theory, we explored how universities institutionalize multi-stakeholder collaboration to advance regional innovation and talent development. Using a multi-case study design we studied three types of MICs (campus-led, enterprise-embedded and park-integrated) based on semi-structured interviews, policy document analysis and field observation. Thematic content analysis supported by NVivo 12, identified common governance themes in the Eight Co-Action dimensions. Findings revealed strengths and systemic challenges in MIC implementation, including fragmentation of governance and lack of dual-qualified teaching teams. We proposed dual-tier governance model and platform-based coordination mechanisms to promote sustainable industry-education integration. We contribute multi-dimensional analysis framework linking Eight Co-Actions, MIC typologies and collaborative mechanisms and provides policy insights relevant for education reform and innovation in transition economies.

1. Introduction

China has more than 800 types of application-oriented undergraduate colleges with development homologism of tradition university mentality (National Development and Reform Commission 2021). Li & Yang (2024) emphasized the idea of untying the tradition path dependence: the inertia and interest bounds a certain social behavior to a certain way of thinking. European and American type transformation successful models of university entrepreneurship instruct China applied university deeply how industry cooperation and application researches can develop cultivating talents, creating new technologies, serving society and encouraging China applied universities from academic research to technology development and providing guidance (Xia & Luo 2025).

MIC is laboratory and arena of talent development, new place of applied technology growth, new carrier of regional industry innovation. It is the portal for applied universities to bypass path dependence and break through development (Li et.al., 2022). MIC is co-governance form of

universities, industries and governments, which uses demand of economy into university campus jointly (Yue et.al., 2023). Eight Co-Actions policy guideline is beginning for development of MICs, which clarifies joint planning, joint teaching, mutual evaluation, research cooperation, teacher training, resource sharing, etc.

However, the execution of MICs is rather heterogeneous even with firm top-down policy guidance owing to stakeholders engagement, managerial abilities, and context. In this paper, we study three models of MICs (campus-based, enterprise-based, and park-based) to map their collaborative operations and governance, and to distill those to guard a longterm realization (Zhang, 2024).

Recent international studies further strengthened the theoretical foundation of collaborative governance and co-creation in higher education. Cohen et al. (2024) summarized university-industry R&D collaboration impact. Liu (2022) evaluated industry-education integration performance using coupling coordination model. Ervits (2024) explored developing indicators for the social benefits of university-industry collaborations. Elken (2024) studied collaborative design of governance instruments in higher education. Edu (2025) discussed fostering collaboration between administrators and faculty for effective governance. Freitas et al.(2013) explored university–industry collaboration and innovation in emergent and mature industries in new industrialized countries.

The Eight Co-Actions framework reflects an operationalization of collaborative governance principles within the specific context of MICs. Collaborative governance, as defined by Ansell & Gash (2008), involves the direct engagement of multiple stakeholders including public institutions, private enterprises, and civil actors in a consensus-oriented process aimed at collective decision-making. Each of the Eight Co-Actions, including joint goal setting, plan design, teaching, evaluation, research, curriculum development, teacher cultivation, and base construction, represents a different phase of stakeholder collaboration. From a theoretical point of view, Eight Co-Actions is an applied model of collaborative governance. It extends existing theory by translating abstract principles such as inclusivity, accountability, mutual trust, shared responsibility into concretely actionable domains for institutional integration and co-management (Hsu et al., 2024). This study not only applies the theory, but also tests its viability across three distinct MIC models and varying regional contexts. Our analysis reveals that the Eight Co-Actions framework captures both the procedural and relational dimensions of governance, making it a useful lens for diagnosing implementation challenges and designing systemic interventions. The framework can thus be seen as both an application and a context-specific extension of collaborative governance theory, tailored to the Chinese higher education reform landscape.

The major research question that we pursue in this study are the following.

- How is ‘Eight Co-Actions’ model leveraged in the design and the management of MICs?
- How to differentiate and compare the campus-driven, industry-linked, and park-driven MIC models?
- Systemic bottlenecks to collaborative implementation-what governance challenges can be identified?
- What institutional arrangements can support sustainable, scalable collaboration among government, universities, and enterprises?

2. Literature Review

2.1 Collaborative Governance in Higher Education

Collaborative governance, is emerging as a potentially beneficial approach in supporting the management of complex, cross-sectoral challenges related to higher education (Elken, 2024). Ansell & Gash (2008) define collaborative governance as any manner of involvement of the public, private and civil sector in forming cooperative decision making around a public policy issue. For higher education, this implies an organized cooperative effort among different types of organizations, institutional agendas and interests in order to better align curriculum responsiveness, research output, and graduate workforce skill development with societal and industrial demands (Li, 2025). Empirical evidence to date indicates that this type of approach may lead to enhanced flexibility on the part of organizations and less hierarchical control, entrepreneurial behavior, and more social control (Bal et al., 2023).

2.2 Theoretical Foundations of MICs

The theoretical foundations of Modern Industry Colleges (MICs) originate in the strategic integration of industry and education, as outlined in the "Guidelines for the. Construction of Modern Industrial Colleges (Trial)" issued by the Ministry of Education and the Office of the Ministry of Industry and Information Technology (2020). The guidelines emphasize the need for a new educational model that aligns programs with industry needs, innovation and practical skills development. They provide a framework for development of MICs with collaboration, innovation and industry needs.

2.3 Theoretical Foundations of the Eight Co-Actions Framework

The Eight Co-Actions framework for MICs builds upon in the principles outlined in the "Guidelines for the Construction of. Modern Industrial Colleges (Trial)" by the General Office of the Ministry of Education and the Ministry of Industry and Information Technology (2020) and "Implementation Plan for Reforming Vocational Education" by the State Council of China (2019). This framework aims to foster innovative and sustainable development in higher education by integrating industry and educational resources. The theoretical foundations of the Eight Co-Actions framework originate in the principles of innovation, collaboration, and integration. It provides a structured approach to developing MICs that are sustainable, adaptable, and closely aligned with the needs of industry and society.

2.4 Implementation and Practical Implications

The implementation of MICs involves addressing various practical challenges and opportunities. Research by Qin et al. (2024). Elken (2024) underscores the importance of flexible governance structures, mentorship, and practical training in enhancing student employability. These studies highlight the need for well-defined collaborative mechanisms to ensure the effective operation of MICs. Su et al. (2023) further emphasizes the importance of adaptive collaboration models to meet the dynamic demands of industry. The use of thematic content analysis, supported by tools

like NVivo, and triangulation techniques are widely adopted to ensure the validity and reliability of research findings (Hsieh & Shannon, 2005; Jackson & Bazeley, 2019; Creswell, 2013).

This review highlights the importance of collaborative governance and multi-stakeholder alliances in achieving the goals of industry-education integration. Future research should focus on flexible models, detailed implementation strategies and the impact of this approach in diverse contexts (Bal et al.,2023).

The methodological design of this paper, using triangulations of case data, thematic content analysis and NVivo-assisted coding, is consistent with previous high-quality research in university-industry collaborations. For example, Cohen et al. (2024) use cross-case analysis to evaluate R&D collaborations. Ervits (2024) uses content analysis to identify developing indicators for the social benefits of university-industry collaborations. Liu (2022) uses model-based integration to assess industry-education integration effectiveness.

3. Methodology

3.1 Research Design

Table 1: Overview of Case Study MIC Models

MIC Model	Description	Example Institution
Campus-Based	University-led, internal control	Jiangxi University of Finance and Economics
Enterprise-Based	Industry-integrated, on-site model	Hangzhou Bay Automobile College
Park-Based	Government-university-industry collaboration	ElectroMIC hosted by Donghua University of Technology

Table 2: Triangulation Data Sources

Data Source	Number of Items	Description
Policy Documents	15	National, local, and

		institutional documents
Interviews	12	With university, industry, and government stakeholders
Observations	3	On-site visits to each MIC

In this study, we use a multiple case study to study the implementation strategy and the governing process of three MICs in China, corresponding to the three major typologies of MICs: campus-based, enterprise-based and park-based (Pan, 2024). The data were retrieved using a triangulation data-collection strategy, policy document analysis, semi-structured interviews with top management (universities' managers, enterprises' partners, and local government officials) and the on-site observations of operational premises in MICs.

Table 3: NVivo Coding Summary (Extended)

Co-Action Theme	Codes Extracted	Interview Frequency	Document Support
Joint Goal Setting	21	High	Yes
Joint Designing Plans	17	Medium	Yes
Joint Teaching	18	Medium	Yes
Joint Evaluating Quality	12	Medium	Yes
Joint Conducting Research	15	Low	No
Joint Developing Courses	16	Medium	Yes
Joint Cultivating Teachers	14	Low	No
Joint Building Bases	13	Low	Yes

3.2 Analytical Framework: Thematic Content Analysis

Table 4: Interviewee Profile Summary

Stakeholder Type	Number of Interviews	Role Examples
University Leaders	5	Deans, MIC Directors, Academic Affairs Officers
Enterprise Partners	4	HR Managers, Training Heads, Project Mentors
Government Officials	3	Local Education Officers, Industry Policy Makers

We analyzed the data with a thematic content analysis supported by NVivo 12 (Jackson & Bazeley, 2019). We did three steps: (1) Open Coding to extract first ideas from raw data; (2) Axial Coding to group the codes into a thematic category (Hsieh & Shannon, 2005) for each of the Eight Co-Actions theme; (3) Selective Coding to integrate themes into a conceptual model of MIC collaborative governance; and finally read and interpret various sources of the data.

3.3 Validation and Reliability

In order to strengthen internal validity for credibility and reliability of the results, the use of triangulation techniques of data from multiple sources (interviews, documents, observation) was included in the study (Creswell, 2013). A verification of intercoder-reliability was assured by double coding done jointly by three team researchers and feedback was obtained through member checks from all the participants in order to test researchers' interpretations as well as factual representations.

3.4 Theoretical Mapping of Eight Co-Actions to Collaborative Governance

The "Eight Co-Actions" framework, which includes jointly setting goals, designing plans, teaching, quality, research, developing courses, teaching teachers, and building bases, follows the collaborative governance principles of Ansell and Gash (2008), which emphasis consensus decision making, stakeholder inclusion, mutual trust, shared accountability for public sector governance. Each Co-Action corresponds to a different phase of the collaborative process. Joint Goal-Setting aligns with collaborative governance goal setting, plan design and curriculum development reflect collaborative institutional planning. Joint Teaching and Teacher Cultivation highlight operational co-management and knowledge transfer. Joint Evaluation and Research ensure ongoing feedback, accountability and innovation. Joint Base Construction consists of resource pooling and long-term infrastructure sharing. The Eight Co-Actions framework is an application and an extension of the general theory of collaborative governance theory. It extends the general theory by introducing a multi-dimensional governance model explicitly integrating education, industry and government actors in a localised institutional platform, thereby enriching the framework by incorporating sector-specific mechanisms, such as base construction and dual

qualified faculty development, that are not explored in western governance literature. By implementing the Eight Co-Actions in three MIC models (campus-led, enterprise-embedded and park-integrated) is also used as a test ground for the feasibility of collaborative governance in higher education transformation. The results show that structured, role-defined co-action mechanisms can significantly improve coordination and innovation across institution boundaries.

4. Theoretical Foundations and the Concept of Eight Co-Actions

4.1 From Industry-Education Integration to Collaborative Governance

It may not be a coincidence that the development from elementary cooperation between institutions of education and enterprises to the integrated governance among them presents a phase transition in China. Higher education reforms, from isolated knowledge producing mode to demand-based mode, flexible enough to respond to industry and social needs (Xie et.al. 2022). The joint governance fits well a sense of both the government, institutions of higher education and industry participating on common goal making and delivering results of education and innovation.

4.2 Functional Transformation of Higher Education Institutions

As the entry-to-university attainment levels massifies and industries experience a fast reorganization, universities are changing their missions from a role of knowledge providers to that of regional innovations engines. In particular, missions of application-oriented universities include not only education and research, but also technology development and social services (Li, 2025). It demands the closer connection between the education models and economy/social development models.

4.3 Functional Transformation of Higher Education Institutions

As the entry-to-university attainment levels increase and industries are rapidly changing, universities are changing their role from knowledge provider to regional innovation engine. Applications-oriented universities, for example, include education, research, technology development, social services (Li, 2025) and education model to economy/social development model.

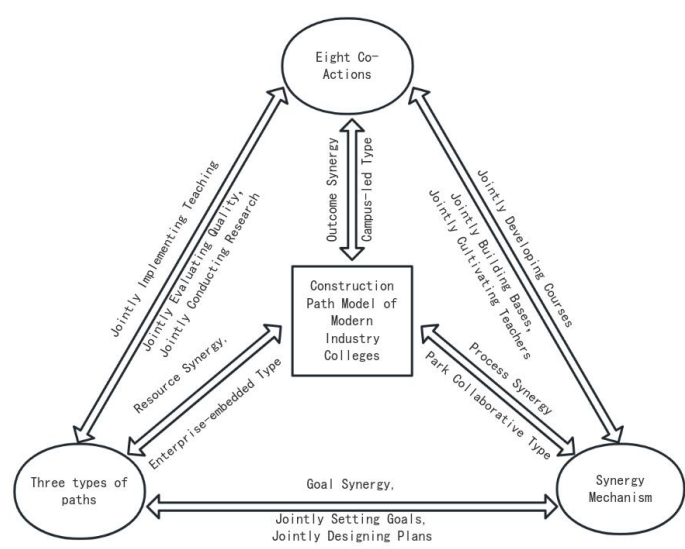
4.4 Collaborative Governance Theory and Value Co-Creation

Co-governance emphasizes multiple stakeholder government, university, industry, industry park as co-planing, co-producing and co-evaluating (Bal et al., 2023). MICs represent another transformation that overcomes bilateral cooperation and form multi-stakeholders platform with vision, risk and results as a shared goal to realize value co-creation and promote sustainable and inclusive talent ecosystem.

4.5 Conceptualizing the Eight Co-Actions Framework

From the practical perspective of undergraduate MIC building, the mechanism of the ‘Eight Co-Actions’, designed for high education, can also be utilized in the practice of undergraduate MIC building (Li & Yang, 2024). The Eight Co-Actions can be combined as co-operation mechanism involving mutual research, implementation or leadership in (1) Jointly Setting Goals, (2) Jointly Designing Plans,. (3) Jointly Implementing Teaching, (4) Jointly Evaluating Quality, (5) Jointly Conducting Research, (6) Jointly Developing Courses, (7) Jointly Cultivating Teachers, and (8) Jointly Building Bases.

Firgue 1. Construction Path Model of Modern Industry Colleges

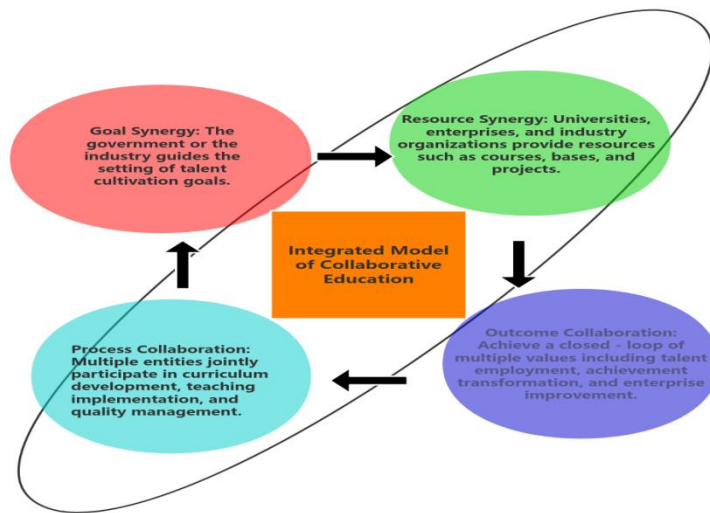


4.6 Integrated Model of Collaborative Education

The Eight Co-Actions and community co-governance mixed together offer the whole theoretical representation for the development of an MIC that coordinats its operations under four dimensions. (objectives, resources, processes and evaluation) and allows to configure as well the diagnostic and the design of sustainable and adaptable to local economic development MICs (Pan, 2024).

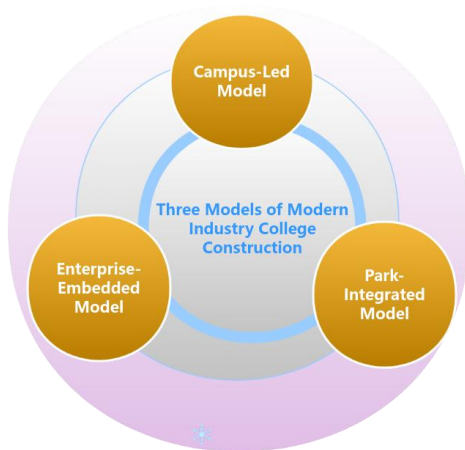
The Eight Co-Actions and community co-governance together provide the whole theoretical representation for the development of an MIC which coordinates its operations under four dimensions (objectives, resources, processes and evaluation) and allows configure as well diagnostic and design of sustainable and adaptable to local economic development MICs (Pan, 2024).

Firgue 2. Integrated Model of Collaborative Education



4.7 Analysis of Three Models of Modern Industry College Construction

Figure 3. Three Models of Modern Industry College Construction



4.7.1 Campus-Led Model: Institution-Centered Integration

This is the most mainstream MIC model, which means that all aspects of institution's running, curriculum setting, and management are controlled by universities. It can be applicable to any local undergraduate university which has excellent foundation and teaching ability. A typical representative is Jiangxi University of Finance and Economics Virtual Reality MIC which combines with experimental teaching, industry-education platform, innovation workshop (Qiu & Zhang, 2025).

The strengths are a well-defined student identity, a well-ordered education, and consistency with a university's corporate governance. This approach, however, routinely experiences narrow business collaboration and lack of trans-sector innovation.

4.7.2 Enterprise-Embedded Model: Industry-Driven Collaboration

Under the factory education paradigm, the course content is closely related to work, which emphasizes project-oriented teaching and learning, realistic work situation simulation and competency-oriented course curriculum (Hickey & Healey, 2024). Bay Automobile College of Hangzhou is typical case where more than 80 % of its staff are industry professionals who have become the teachers and the course content reflects realistic job content (Shi et al.,2022).

Key strength are industry relevance, good employment fit and student projects with dual purpose. Weakness are weak student identity, relying on industry commitment and uneven stability amid the dynamics of the market.

4.7.3 Park-Integrated Model: Multi-Stakeholder Ecosystems

Government-enterprise-university three-party park-inclusive model. The ElectroMICs Information MI hosted by Donghua University of Technology and Jinggangshan Economic Development Zone jointly launched by the government, enterprises and universities in industrial parks integrated the formation of innovation system (Wei, 2022).

The advantages are in terms of resource pooling, interdisciplinary cooperation, and facilitation of applying research outcomes. The risk points concern the stakeholder interface management, coordination management and operational longevity management.

5. Analysis of Implementation Challenges and Mechanism Design

5.1 Common Implementation Challenges

Traditional implementation challenges suffers from coordinating and accountability. We list following four challenges.

5.1.1 Fragmented Responsibilities and Weak Governance Structures

Despite the fact that development of MIC usually engages stakeholders such as the government, universities, enterprises, etc. are entrusted, but the roles and responsibilities are vague. Sometimes colleges (universities) are dominant participants in the process of educational planning, and enterprises are either silent partners or lacking in participation (Li & Yang, 2024). It is still frequently observed that industry representatives are totally missing. Such disordered decisionmaking and disordered collaborative implementation have been observed.

5.1.2 Uneven Enterprise Engagement and Capacity

The quality and extent of involvement can vary greatly. Some firms only support their students by sponsoring them with their name or a small fee to conferences. Other companies do not contribute much to the curriculum or their students mentoring. Such firms may only be involved in part because they perceive they are a long-term partner (Su et.al. 2023).

5.1.3 Talent Gaps in Dual-Qualified Teaching Teams

Some of the academic teachers have no project/engineering background and some industry people lack the teaching experience. These features pose difficulties in the establishment of dual qualified teachers teams which enable to link theory and practice in MICs (Su et al., 2023).

5.1.4 Short-Term Cooperation and Lack of Institutional Platforms

Many collaborative efforts are tied to short-term projects or grants, lacking institutional stability. There is insufficient development of shared digital platforms, long-term governance bodies, and performance-based incentive systems (Que, 2024).

5.2 Designing Sustainable Collaborative Mechanisms

In order to solve these issues, a mechanism covering five aspects including goal-oriented management, coordination among organizations, resource coordination, process management, as well as performance management is established.

5.2.1 Goal Alignment via 'Eight Co-Actions' Task Matrices

Define joint task matrices under the watchfulness of government, where each stakeholder has a defined role in each of the Eight Co-Actions. Provide output indicators, outputs, and metrics linked to respective coordination responsibilities (Wang et. al., 2024).

5.2.2 Dual-Tier Governance Structure: Council and Executive Committee

Practice a two-tier governance. A board articulates forward planning and sets multi-actor flow, and an executive board oversees implementation and flowback (Zhang & Liu, 2022).

5.2.3 Platform-Based Operations

To jointly build platform for curriculum resource, enterprise training and employment matching. Digital tools and data system for open, accountable and dynamic fine-tuning.

5.2.4 Collaborative Evaluation and Incentive Systems

Craft design performance models that are metrics of stakeholder contributions with respect to growth of students, satisfaction of the enterprise, and output of research. Link evaluation results to resource allocation and to promotion opportunities to maximize participation incentives (Zhang, 2024).

5.3 Institutional Case: Changshu Institute of Technology (Luo, 2021)

Changshu Institute of Technology (CIT) as an applied transformation pilot unit has standardized the Eight Co-Actions mechanisms at various levels and layers of MIC affairs, such as co-developed and co-implemented modular teaching, academic and enterprise tutor based. CIT also established the tutor system, categorized performance evaluation mechanisms, two level management system of council operations office, resource coordination and management mechanism, utilizing a general network platform for teaching, scientific research and employment to manage the affairs.

6. Countermeasures and Institutional Recommendations

6.1 Strengthen Top-Level Policy Alignment and Role Definition

Government authorities at central level to provide transparent and detailed implementation rules and policy incentives directed at MIC development. The rules and related policies should clarify how each role (government, university, enterprise, industry association) should play, and in what way to form a collaboration (Xiao et. al., 2024).

Universities should restructure their administrative structure for internal affairs and human resources, and review system to link it with cross-sectoral goals, create internal governance bodies at university level to manage MIC activities, and create a shared responsibility institution.

6.2 Develop Platform-Based Operational Mechanisms

Moving from disparate projects towards holistic solutions. These operations need to be platform-based and integrated with strategic, operational and managerial processes including the collaboration of cross-domain governance actors (councils, steering committees) for the “long-haul” and implementation units for “day-to-day” governance processes.

Digital tools should be developed to support end-to-end management including curriculum design, project allocation, faculty exchange, and performance tracking, thus fostering transparency and agility (Yan & Ma 2021).

6.3 Build Dual-Qualified Teaching Teams

It requires robust faculty development. There needs to be policies that incentivise the academic staff to undertake externships and projects and secondments with the industry. There should be incentives that drive enterprises to provide project mentors who have pedagogical training and certification.

A dual-track certification system recognizing both teaching and industrial expertise should be used to evaluate and promote educators engaged in MIC programs (Su et. Al., 2023).

6.4 Establish Collaborative Performance Evaluation Systems

The metrics for evaluation needs to be conceived based on the products of Eight Co-Actions of student development, project achievement, industry approval, and innovation output. Feedback from the evaluation outcome for budgets, rewards and prestige in the market needs to be provided in order to motivate and attract stakeholders to continue being more involved in the project (Shi et.al., 2022).

6.5 Embed Mechanisms in Institutional Structures

Finally, MICs should be institutionalized in the statutes of the university and departments, in the government development programs. Regional or industry – university coalitions need to be created to enhance success models and share the governance of them. MICs need to be normal state of affairs of the education-industry collaboration and move from pilot projects to embedded solutions (Yang et.al. 2023).

Findings and Discussion

Further thematic content analysis using NVivo, as summarized in Table 3, highlighted the prominence of 'Joint Goal Setting', 'Joint Teaching', and 'Joint Designing Plans' as the most frequently coded themes across all data sources. This indicates that strategic alignment and curriculum co-design are primary focal points in MIC governance. Conversely, lower coding frequency for 'Joint Cultivating Teachers' and 'Joint Conducting Research' suggests these aspects are still underdeveloped, possibly due to capacity gaps in dual-qualified faculty and research collaboration logistics.

7.1 Findings

This study's investigation into MICs through the lens of the 'Eight Co-Actions' model reveals several key insights:

Leveraging the 'Eight Co-Actions' Model: The model serves as a foundational framework for the design and management of MICs, effectively breaking down the collaboration process into manageable, interlinked actions that enhance integration between educational and industrial entities.

Differentiation of MIC Models: As shown in Table 1, the three MIC models—campus-led, enterprise-embedded, and park-integrated—offer different governance advantages and challenges. Our analysis confirms that the Campus-Led Model excels in structured education management but often lacks external innovation input. In contrast, Enterprise-Embedded Models deliver high employment alignment yet face instability due to fluctuating industry commitment. The Park-Integrated Model demonstrates potential for ecosystem collaboration, although it demands high-level coordination across sectors. Each model's effectiveness is context-dependent, influenced by local industry needs, educational goals, and available resources.

Systemic Bottlenecks and Governance Challenges: Common systemic bottlenecks include

fragmented governance structures, uneven stakeholder engagement, talent gaps in teaching teams and a lack of integrated platforms for collaboration. These challenges hinder the seamless execution of the 'Eight Co-Actions' and affect the scalability of MICs.

Supporting Sustainable Collaboration: Institutional arrangements that support sustainable collaboration include goal alignment, dual-tier governance, platform-based operations, collaborative evaluation and institutionalization. These arrangements are crucial for fostering long-term partnerships among government, universities, and enterprises.

Our results echo those in the global literature on collaborative governance and co-creation. For example, the challenges of fragmented responsibilities and uneven stakeholder engagement identified in this paper align with observations by Cohen et al. (2024), who highlight coordination problems in university–industry R&D contexts. Moreover, the importance of structured collaboration frameworks mirrors insights from the Higher Education review (2024), which emphasizes agency and co-planning as keys to effective co-creation. While our study uniquely operationalizes the Eight Co-Actions model in MIC settings, it contributes to the broader discourse on institutionalizing collaborative education systems and stakeholder-inclusive innovation.

7.2 Discussion

In the rapidly changing post-industrial society, traditional universities have to work harder to attract and develop talent and knowledge to meet changing social and industry demands, owing to slow renewal of academic disciplines and traditional governance (Xia & Luo 2025).

In order to address this problem, China started Modern Industry Colleges (MICs) as a means to connect knowledge with industry applications. Since the 2020 Joint Guidelines of Ministry of Education and Ministry of Industry and Information Technology, MICs have become national demonstration projects to revive higher education's economic responsiveness (MOE 2020).

MICs aim to overcome the developmental inertia common to China's 800+ application-oriented universities. They are often 'homologous development' modelled on traditional research universities (National Development and Reform Commission 2021). Drawing on successful entrepreneurial university models in Europe and the US, MICs aim to combine academic training, applied research and regional innovation (Cohen et al. 2024).

In addition to being a lab for talent development, incubators of applied technologies, and accelerators of regional innovation, MICs operate as collaborative centers of governance with planning, teaching, evaluation, research, and resource sharing among universities, industries and local governments (Que, 2024).

However, MIC implementation is uneven. Institutional capacity, stakeholder engagement and context affect how well MICs perform. We use multiple case studies to examine 3 MIC models

(campus-led, enterprise-based and park-based) using the 'Eight Co-Actions' framework to map collaborative governance and provide policy insights.

Theoretical Background: Collaborative Governance and the Eight Co-Actions

Collaborative governance refers to formal consensus-based and deliberative processes where public agencies, stakeholders and private actors jointly take decisions and implement policies (Ansell & Gash, 2008; Elken, 2024). For higher education reform, collaborative governance allows multiple stakeholders (government, universities, and enterprises) to codesign institutions that promote flexibility, responsiveness, and accountability.

The Eight Co-Actions framework used here is a China-based concept for working collaboratively in MICs. Eight dimensions are co-setting objectives, codesigning programs, co-developing curricula, cobuilding infrastructure, co-teaching, co-evaluating quality, co-conducting research, co-developing faculty.

This framework is similar to the principle of collaborative governance, for example co-designing programs and co-developing curricula are akin to collaborative governance's value of cooperation. Co-evaluating and co-research are similar to shared accountability.

The Eight Co-Actions model is used as both a generalizing analytical framework and as a practical framework for collaborative governance between the three MIC types. The paper is thus an applied extension of collaborative governance theory, contextualizing it in China's higher education-industry reform program.

8. Conclusion and Implications

8.1 Conclusion

This paper contributes to the growing literature on collaborative governance in higher education by showing how MICs in China implement Eight Co-Actions. Three different MIC models (campus based, enterprise-based, park-integrated) show how collaborative collaboration depends on context.

We have shown that effective collaborative governance in MICs depends on the balance between autonomy, shared authority and trust among stakeholders. We also found that although the Eight Co-Actions provide a common operation model, real-world implementation depends on governance capacity, regulatory environment and actors motivations.

Theoretically, we extend collaborative governance literature to China's higher education system. The Eight Co-Actions model is diagnostic but also generative, providing concrete tools for cross-sector governance assessment and improvement.

Practically, the findings may be useful for policymakers and university administrators interested in strengthening education-industry links. Future MIC policies should focus on adaptive

governance, capacity building for academic partners and industry partners, and co-creation at the Eight Co-Actions.

We can examine the future evolution of the Eight Co-Actions, i.e., different regions or subject areas, and long-term effects for students, institutions and industry.

8.2 Theoretical contributions

A three-dimensional model of "Eight co-actions", "Three types of paths" and "Four synergy mechanisms" is proposed explicitly and provides a framework for future studies on the operation mechanism of modern industry colleges, to improve the transition path of modern industry colleges from teaching form to institute collaborative platform, and to expand organizational perspective of the theory of industry - education integration. By analyzing typical cases, flowcharts and operational models for cross - subject collaborative participation were built and augmented implementability and instrumental value of policy recommendations.

8.3 Policy and Managerial Implications

From the point of view of policymakers, the results imply additional enabling mechanisms must be installed alongside top-down instructions to instill trust, hold to account, and encourage mutually beneficial incentives. This must be taken at the national level with local room for manoeuvre in collaborative policy action. The institutions concerned can build governance models within their boundaries that facilitate forms of engagement beyond sectors, and resource allocation on the basis of performance. Digital mechanisms for tracking and reporting, as well as learning, can be a vital facilitating element.

8.4 Analytical Approach and Coding Strategy

Qualitative data from three MICs were analysed using NVivo-assisted thematic content analysis. This three-step process involved open coding for the emergence of initial concepts, axial coding for categorisation of themes according to Co-Action and selective coding for the creation of a collaborative governance model. Inter- rater agreement, member checks and cross-case validity matrices ensured reliability.

8.5 Limitations and Future Research

Although this paper has developed quite good analytical framework, there are limitations and possibilities for future work:

Limitations of data empiricism: The data research is mainly based on typical cases. Quantitative data models can be used to test the performance of the "Eight co-actions" on talent development, employment quality, and corporate evaluation. Insufficient research on differences between types of universities: There is a need to study differences between types of universities internal and external in encouraging the construction of industry colleges (university colleges, vocational

colleges, independent colleges, etc.). The collaborative performance evaluation system needs to be improved: Research on standard system of collaborative performance, develop assessment tools and promote quantitative transformation of governance efficiency improvement. MICs are not only the cooperative process between universities and enterprises. They need to construct future concepts of platformization, institutionalization and ecologicalization.

Institutional design: Industry and education system will be upgraded to explore sustainable path for improving the higher education system and upgrading service functions under the context of Chinese modernization.

8.6 Final Remarks

This study emphasizes the crucial role of context-sensitive collaborative governance, institutionalized through the Eight Co-Actions model, in the effective implementation of MICs in China. Theoretical contributions include the translation of abstract principles into actionable mechanisms tailored to higher education reform, thereby extending collaborative governance. From a practical standpoint, the study underscores the necessity of dual-tier governance, platform-based operations, and dual-qualified faculty to foster sustainable university-industry-government partnerships. Policymakers are advised to prioritize adaptive frameworks, performance-based incentives, and regional alliances to integrate MICs into broader development strategies. These findings present a replicable model for other transitional economies aiming to harmonize education with innovation and workforce requirements.

References

Ansell, C., & Gash, A. (2008). Collaborative governance in theory and practice. *Journal of public administration research and theory*, 18(4), 543-571.

<https://academic.oup.com/jpart/article-abstract/18/4/543/1090370>

Bal, A. S., Käpylä, J., Li, H., & Helander, N. (2023). Collaborative value co-creation from a stakeholder perspective: A literature review. *Journal of Creating Value*, 9(2), 259-274. <https://journals.sagepub.com/doi/full/10.1177/23949643231151831>

Creswell, J. W. (2013). Steps in conducting a scholarly mixed methods study. <https://digitalcommons.unl.edu/dberspeakers/48/>

Cohen, M., Fernandes, G., & Godinho, P. (2024). Measuring the impacts of university-industry R&D collaborations: a systematic literature review. *The Journal of Technology Transfer*, 1-30. <https://link.springer.com/article/10.1007/s10961-024-10114-5#Fig4>

Edu, N. (2025). Fostering Collaboration Between Administrators and Faculty for Effective Governance.

<https://www.seahipublications.org/wp-content/uploads/2025/01/IJIER-M-8-2025.pdf>

Elken, M. (2024). Collaborative design of governance instruments in higher education. *Studies in Higher Education*, 49(6), 1095-1106.

<https://www.tandfonline.com/doi/full/10.1080/03075079.2023.2258905>

Ervits, I. (2024). Developing indicators for the social benefits of university-industry collaborations. *International Journal of Corporate Social Responsibility*, 9(1), 8.

<https://link.springer.com/article/10.1186/s40991-024-00097-9>

Freitas, I. M. B., Marques, R. A., & e Silva, E. M. D. P. (2013). University–industry collaboration and innovation in emergent and mature industries in new industrialized countries. *Research policy*, 42(2), 443-453.

<https://www.sciencedirect.com/science/article/abs/pii/S0048733312001552>

Hickey, R., & Healey, N. (2024). The rise of the remote metropolitan branch campus—Definitions, motivations and models. *Higher Education Quarterly*, 78(3), 1175-1189.

<https://onlinelibrary.wiley.com/doi/full/10.1111/hequ.12522>

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative health research*, 15(9), 1277-1288.
<https://journals.sagepub.com/doi/abs/10.1177/1049732305276687>

Hsu, D. H., Hsu, P. H., Zhou, K., & Zhou, T. (2024). Industry-university collaboration and commercializing Chinese corporate innovation. *Management Science*.

<https://pubsonline.informs.org/doi/abs/10.1287/mnsc.2022.00788>

Jackson, K., & Bazeley, P. (2019). Qualitative data analysis with NVivo.
https://scholar.google.com/scholar?hl=zh-CN&as_sdt=0%2C5&q=Jackson+%26+Bazeley%2C+2019&btnG=

Li, H. (2025). Reflections on collaborative education for fostering new productive forces under industry-education integration. *Journal of Hubei Open Vocational College*, 38(6).
<https://openurl.ebsco.com>

Li, J., Sun, X., Dai, X., Zhang, J., & Liu, B. (2022). Knowledge map analysis of industry–university research cooperation policy research based on CNKI and WOS visualization in China. *Sustainability*, 14(13), 7862. <https://www.mdpi.com/2071-1050/14/13/7862>

Li, X., & Yang C. (2024). Connecting with Economic Development and Integrating Regional industries to Build a "government-park-enterprise-School" Four-party Collaborative industry-education Consortium. *Education Forum*, 6(5).

<https://china.piscomed.com/index.php/jylt/article/view/19063>

Liu. X.(2022). Analysis of the Characteristics of Modern Industrial Colleges Based on the Perspective of Comparison between China and Foreign Countries. *Transactions on Comparative Education*. Vol. 4: 30-36. DOI: <http://dx.doi.org/10.23977/trance.2022.040305>.

Luo Bing. (2021). Technological Advancement Boosts the High-Quality Development of Modern Industry Colleges: A Case Study of the School of Applied Pharmaceutical and Biotechnology at Changshu Institute of Technology. *Journal of Changshu Institute of Technology*.

National Development and Reform Commission. (2021). Implementation Plan for Building a Strong Nation through Education during the 14th Five-Year Plan Period (Society [2021] No. 671). Retrieved from <http://www.gov.cn>

Pan, J. (2024). Exploration of a diversified collaborative training model for entrepreneurial talent in private universities. *Journal of Hubei Open Vocational College*, 37(14). <https://openurl.ebsco.com>

Qin, H., Zheng, Y., & Xu, X. (2024). The Practical Status, Operational Predicaments and Countermeasures of Establishing Industry Colleges in Higher Vocational Colleges.. *Advances in Education*, 14, 1090. <https://www.hanspub.org/journal/paperinformation?paperid=85784>

Qiu, Q., & Zhang, Y. (2025). Research on the construction of modern industrial colleges based on industry-education integration: A case study of Tianjin University of Science and Technology. *Advances in Education*, 15, 7.

<https://www.hanspub.org/journal/paperinformation?paperID=108726>

Que, X. (2024). Research on the path and method of industry-education integration and university-enterprise cooperation in vocational undergraduate colleges. *Journal of Hubei Open Vocational College*, 37(21). <https://openurl.ebsco.com/>

Shi, M., Peng, B., & Cao, X. (2022). Research on industrial college construction and talent cultivation models under the vision of industry-education integration: A case study of the School of New Energy. *Advances in Education*, 12, 3453. <https://www.hanspub.org/journal/paperinformation?paperid=55926>

State Council of China. (2019). Implementation Plan for Reforming Vocational Education. Retrieved from <http://www.gov.cn>

Su, J., Wang, R., & Liu, G. (2023). Construction and practice of dual-mentor studios and talent cultivation in industrial colleges. *Science and Technology Entrepreneurship Monthly*, 36(6), 123–126. <https://www.zgkjcy.com/CN/abstract/abstract3275.shtml>

The Ministry of Education and the Office of the Ministry of Industry and Information Technology(2020). The Guidelines for the Construction of Modern Industrial Colleges (Trial). Retrieved from <http://www.gov.cn>

Wang, M., Tang, C., & Zhang, Y. (2024). Construction of a multi-stakeholder collaborative talent cultivation model in modern industry colleges under industry-education integration. *Advances in Education*, 14, 466. <https://www.hanspub.org/journal/paperinformation?paperid=97855>

Wei, Y. (2022). Exploration and practice of university-enterprise collaborative education in vocational undergraduate universities: A case study of Guangzhou Vocational University of Science and Technology. *College and Job*, 11, 778. <https://www.hanspub.org/journal/PaperInformation?paperID=58174>

Xia, L., & Luo, Y. (2025). A review of industry-education integration and university-enterprise cooperation in Chinese vocational education. *Advances in Social Sciences*, 14, 429. <https://www.hanspub.org/journal/paperinformation?paperID=110529>

Xiao, J., Liu, C., & Ma, Y. (2024). Research on collaborative innovation and talent cultivation in

higher vocational colleges promoted by industry-education integration and university-enterprise cooperation. *Educational Theory and Research*, 2(8), 30–32.
<https://artdesignp.com/journal/ETR/2/8/10.61369/ETR.7208>

Xie, Y., Liu, Y., & Zou, F. (2022). Reform and Practice of Computer Application Technology Major Construction and Development in Higher Vocational Colleges in China--Taking Jiangxi Vocational College of Applied Technology as An Example. *arXiv preprint arXiv:2212.07080*.
<https://arxiv.org/abs/2212.07080>

Yan, L., & Ma, J. (2021). Innovative collaborative education model in higher vocational colleges based on industry-education integration. *Computer and TelecommuMICsation*, 1(5), 79–81.
<https://www.computertelecom.com.cn/CN/Y2021/V1/I5/79>

Yang, T., Yao, J., Zhang, J., Zhao, H., Wei, J., Chen, C., ... & Liu, W. (2023). Exploring the path to high-quality training of professional master's students through deep industry-education integration and multi-party collaboration. *Vocational Education*, 12, 1006.
<https://www.hanspub.org/journal/PaperInformation?PaperID=75453&>

Yue, X., Wang, H., & Zhang, W. (2023, October). Practical research on the construction of modern industry college in application-oriented universities. In *2023 2nd International Conference on Sport Science, Education and Social Development (SSESd 2023)* (pp. 214-220). Atlantis Press.

<https://www.atlantis-press.com/proceedings/ssesd-23/125992308>

Zhang, J. (2024). Research on the path of university-enterprise collaborative education under the background of industry-education integration. *Modern Education Progress*, 2(11), 156–158.
<https://ojs.s-p.sg/index.php/xdjyz/article/view/20865>

Zhang, Y., & Liu, Y. (2022). Exploration of a multi-stakeholder collaborative education model in industrial colleges. *Advances in Education*, 12, 3199.
<https://www.hanspub.org/journal/paperinformation?paperid=55483>