New Quality Productive Forces and the Innovation Functions of the MICE Industry: A Circular Feedback Model

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Abstract: China's policy emphasis on accelerating the development of New Quality Productive Forces (NQPF) raises a core question for the MICE (Meetings, Incentives, Conferences, and Exhibitions) industry: how can it simultaneously promote the rapid formation of these new productive forces and achieve its own innovation-driven development? This paper is primarily a conceptual and theoretical study. It constructs a "Transactional Flow–Knowledge Flow Circular Feedback System" (the "Circular Feedback" model) to reveal the mechanisms through which the industry's innovation function is realized. The model shows that the MICE industry possesses "dual innovation functions": driving wider industrial innovation and fostering its own innovation, through the interaction of internal and external circulation systems. Applying this framework to NQPF exhibitions, we argue that such exhibitions can achieve dual development goals: accelerating the formation of NQPF and promoting innovation within the MICE industry. At this stage, prioritizing NQPF exhibitions is therefore a strategic and inevitable choice for the industry.

1. Introduction

With the accelerated formation of New Quality Productive Forces (NQPF) becoming a defining national objective, the MICE industry faces a dual challenge: how to upgrade and innovate internally while simultaneously advancing the formation of NQPF at the societal level. This raises a central theoretical question: under policy guidance, how can the MICE industry achieve the "dual development goals" of promoting broader industrial innovation and enhancing its own innovation capacity? A corresponding practical question is: why and how should NQPF exhibitions be developed?

We argue that the innovation function of the MICE industry provides the fundamental logic for addressing these questions. Methodologically, we construct a "Transactional Flow-Knowledge Flow Circular Feedback System"(the "Circular Feedback" model) to explain the mechanisms and characteristics of the industry's innovation function. By highlighting its "dual innovation functions"-driving industrial innovation and promoting self-innovation----we demonstrate that NQPF exhibitions can become key carriers for achieving these dual goals.

This paper is primarily a conceptual and theoretical study, it has two main parts. First, it develops the Circular Feedback model as a theoretical framework for the MICE industry's innovation function. Second, it applies this framework to NQPF exhibitions, analyzing their strategic significance, development status, and policy pathways.

2. Literature Review

The MICE industry serves as a multidimensional, cross-disciplinary platform with three core functions: information dissemination and communication, economic development and industrial promotion, and urban development with international exchange. Exhibitions act as hubs for knowledge creation, networking, and market expansion, generating"global buzz" through intensive face-to-face interactions and knowledge spillovers (Bathelt & Schuldt, 2010[2];Gardner,

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2022[4];Knoblauch, 2022[7];Gold & Gold, 2024[5]). Economically, they function as "market indicators" and catalysts for digital and green economic transition, mobilizing innovation, supply, and value chains (Xu & Yan, 2016[13];Chen, 2022[3]; Shen, 2024[12]). On the urban level, exhibitions foster industry clusters, strengthen service sectors, and enhance cities' global image and soft power(Abbott & Minner, 2024[1]).

The concept of New Quality Productive Forces (NQPF), introduced in 2023, emphasizes innovation-led, high-tech, and efficiency-oriented development. NQPF arises from technological breakthroughs, reconfigured production factors, and sustainability integration, reshaping industrial structures and business models (Y.X. Lan, 2024[9]; Liu, 2024[10]). Within the MICE industry, NQPF supports advanced manufacturing platforms, drives digital transformation, and facilitates service innovation, accelerating the shift from quantity/factor-driven to quality/innovation-driven growth (Pei, 2024[11]; X. Lan, 2024[8]).

Despite these developments, two scholarly gaps remain: (1) Ambiguity in conceptualizing innovation functions within exhibitions——knowledge spillovers are acknowledged but not systematically theorized; and (2) Unidirectional analysis——research predominantly highlights NQPF's benefits to exhibitions, with insufficient examination of how exhibitions reciprocally promote NQPF diffusion across industrial ecosystems.

3. Innovation Realization Mechanism in the MICE industry: The "Circular Feedback" System

The Circular Feedback model conceptualizes the exhibition operation system as one in which transactional flows serve as primary inputs, professional exhibitions act as catalytic platforms, and multidimensional factor flows (knowledge, capital, technology, etc.) generate compound outputs. This framework explains the industry's multifunctional roles, including transaction facilitation, economic multiplier effects, and--most crucially here--its innovation function.

We define the MICE industry's innovation function as its capacity to enhance production efficiency via: (1) innovation-oriented exhibitions, (2) technology-driven spatial development, and (3) adoption of advanced operational technologies[6]. Mechanistically, external circulation (industry-exhibition interactions) drives industrial upgrading, while internal-external co-circulation fosters self-innovation. Policy interventions can amplify this dual innovation function, forming a synergy among industrial innovation, MICE industry evolution, and policy frameworks.

3.1 Composition of the "Circular Feedback" System

The Circular Feedback system consists of two interconnected subsystems:Internal Circulation centers on the exhibition platform. Transactional flow is the input; trade flow, consumption flow, and service flow are the outputs. Its driving forces--transaction capability, promotional capability, and aggregation capability--correspond to transaction, promotional, and agglomeration effects. This forms the core mechanism of internal operations in the MICE industry.External Circulation outputs knowledge flow, driven by innovation capability. It manifests as industrial and regional innovation, exerting industrial and regional spillover effects and linking the MICE industry to other sectors and territories. (see Figure 1).

More specifically, Internal Circulation comprises three secondary cycles:

(1) A trade circulation system (trade flow, driven by transaction capability);

(2) A consumption circulation system (consumption flow, driven by promotional capability, benefiting urban services);

(3) A service circulation system (service flow, driven by aggregation capability, fostering MICE industry chain agglomeration).

External Circulation operates as a trans-industrial ecosystem, in which knowledge flow diffuses through the host city and broader regions. It includes an industrial innovation circulation system and a regional innovation circulation system.

Under China's hybrid development model, the MICE industry can align resource allocation with policy orientation. Incorporating policy factors into the Circular Feedback model better captures the

dynamics of China's MICE industry.

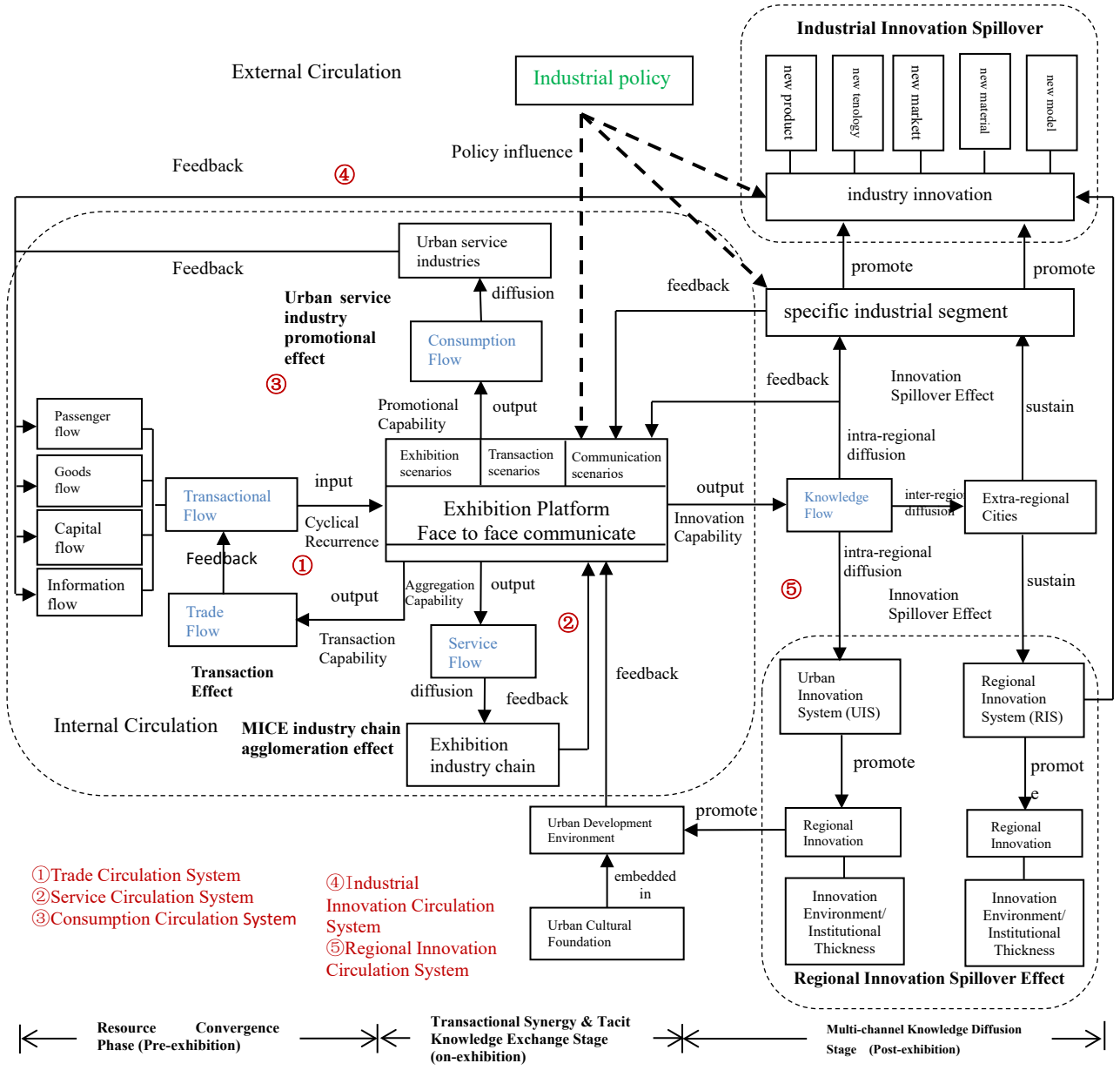

Figure 1. Transactional Flow-Knowledge Flow Circular Feedback System Model

3.2 External Circulation and the Industrial Innovation Function of the MICE industry

The external circulation functions as a cyclical "knowledge flow-transactional flow" system. Knowledge generated and exchanged at exhibitions diffuses across sectors, interacts with capital and labor, and drives industrial and regional innovation. This, in turn, generates new transactional flows that sustain and upgrade exhibition platforms.

At the industrial level, the MICE industry's innovation function materializes through Schumpeterian innovation. Exhibitions provide platforms for new product launches, technology diffusion, market expansion, application demonstrations, and low-cost business model experimentation. Post-event knowledge diffusion stimulates enterprise innovation; innovative firms then re-engage with exhibitions, amplifying transactional flows, enhancing platform capabilities, and completing the feedback loop.At the regional level, exhibitions act as learning platforms within regional innovation systems. They foster knowledge flows and information dissemination, creating "innovation fields" and communication multipliers that bolster regional innovation. In the Circular Feedback model, knowledge diffusion improves regional institutional and innovation ecosystems, which in turn elevates the MICE industry's catalytic effect on urban service sectors and raises

industrial chain sophistication. These spillovers drive iterative platform innovation and reinforce a positive feedback loop at the regional scale.

3.3 Dual Circulation and Self-Innovation in the MICE industry

Internal Circulation refers to the transformations among multiple elements within the MICE industry via exhibition platforms. One critical function is to drive the industry's own innovation, through three mechanisms:

(1) Innovation hub function: Exhibition platforms aggregate human capital, logistics, capital, and information, creating geographic proximity and accelerating technological learning and innovation.

(2) Face-to-face communication advantages: On-site interactions are an effective communication technology, a coordination and incentive mechanism under uncertainty, a tool for social screening and network-building, and a real-time medium for information production and imitation. These features underlie technological learning and innovation processes.

(3) Positive feedback effects of transactional flow: Periodic convergence and dispersion of transactional flows through recurring events require continuous innovation to maintain client satisfaction and perceived value. Interactions between Internal and External Circulation improve platform innovation efficiency, enabling the industry to function as an innovation catalyst.

3.4 Tripartite Synergy: Industrial Innovation, MICE Innovation, and Policy

In the Circular Feedback model, industrial innovation originates from External Circulation, while MICE industry innovation arises from the interaction of Internal and External Circulation. Internally, enhanced transaction, promotional, and aggregation capabilities generate cumulative transactional flows and sustain platform innovation capacity. Externally, industrial innovation further boosts these flows and feeds back into platform upgrading.

Policy interventions --particularly innovation and industrial policies--serve as external catalysts that amplify the dual innovation function. By strategically intensifying sector-specific exhibitions aligned with policy directives, the MICE industry can both accelerate the formation of NQPF and advance its own innovation-driven transformation.

4. NQPF Exhibitions from the Perspective of MICE Innovation

The development of NQPF poses a critical question: how can the MICE industry advance the formation of NQPF while realizing its own innovation-driven development? Within the Circular Feedback framework, NQPF-focused exhibitions emerge as key mechanisms for achieving this dual objective. Existing industry-based exhibition classification systems, however, do not fully accommodate NQPF exhibitions, highlighting the need for a technology-oriented classification framework.

4.1 Definition and Typology of NQPF Exhibitions

Under the dominance of transaction function, exhibition classification has traditionally been based on industry categories. On February 14, 2022, China's Ministry of Commerce issued the MICE industry Statistical Survey System (Document No. [2022] 48), which categorizes exhibitions into 15 major categories, 80 medium categories, and 52 minor categories based on thematic alignment with the China Standard Industrial Classification (GB/T 4754—2017) and the Statistical Classification of Digital Economy and Its Core Industries (2021). The Annual Report on China's MICE industry (2023), published by the China Council for the Promotion of International Trade (CCPIT), adopts this classification framework. In contrast, the China Exhibition Index Report (2022), released by the Beichen Exhibition Research Institute under the Capital Exhibition Group, builds on the China Standard Industrial Classification (GB/T 4754—2017) but introduces a refined typology. By incorporating factors such as linkages between upstream and downstream industries and distinctions between professional exhibitions (focused on industry-specific products) and consumer exhibitions (targeting public audiences), it further divides exhibitions into 19 major categories and 90 minor categories (Table 1).

Table 1. Examples of Mainstream Exhibition Classifications in China

CCPIT Classification	Beichen Exhibition Research Institute Classification
1. Industrial and Technological 2. Housing Construction, Decoration & Operational Services 3. Transportation, Storage & Postal Services 4. Consumer Goods & Residential Services 5. Food, Beverages & Hospitality Services 6. Agriculture, Forestry, Fisheries & Agricultural Products 7. Culture, Sports & Entertainment 8. Healthcare 9. Leasing & Business Services 10. Education 11. Energy & Minerals 12. Information Transmission, Software & IT 13. Finance 14. Comprehensive (Covering Two or More Themes) 15. Others	1-BM:Building Materials 2-CA:Culture and Arts 3-CI:Chemical Industry 4-CS:Commercial Services 5-EP:Environmental Protection 6-FA:Farming, Forestry, Animal Husbandry & Fisheries 7-FT:Food and Hospitality 8-HE:Home Equipment 9-IS:Information Technology 10-LE:Leisure and Entertainment 11-LS:Lifestyle Services 12-LT:Logistics and Transportation 13-MR:Mineral Resources 14-MT:Medical and Healthcare 15-PM:Production and Manufacturing 16-SD:Security and Defense 17-TT:Transportation Tools 18-TW:Textiles and Apparel 19-OC:Others(Exhibitions Covering Two or More Industries)

Source: Compiled based on the Annual Report on China's MICE industry (2023) and the China Exhibition Index Report (2022).

From an innovation function perspective, exhibition classification should include a technology-oriented category alongside traditional industry-based models. This study identifies NQPF exhibitions as a distinct technology-driven type, centered on cutting-edge technologies in theme design, layout, activities, and standards, aiming to accelerate innovation and NQPF formation. Aligned with China's 14th Five-Year Plan and MIIT's 2023 "8+9" standardization framework for strategic emerging and future industries, it proposes a technology-driven classification system for NQPF exhibitions, with preliminary themes summarized in Table 2.

Table 2. Classification of NQPF Exhibition Themes in China

Emerging Industries Exhibitions	Future Industries Exhibitions
1.Next-Generation Information Technology Exhibitions 2.Biotechnology Exhibitions 3.New Energy Exhibitions 4.New Materials Exhibitions 5.High-End Equipment Exhibitions 6.New Energy Vehicle Exhibitions 7.Green and Environmental Protection Exhibitions 8.Aerospace Exhibitions 9.Marine Engineering Exhibitions 10.Others	1.Metaverse Exhibitions 2.Brain-Computer Interface Exhibitions 3.Quantum Information Exhibitions 4.Humanoid Robotics Exhibitions 5.Generative AI Exhibitions 6.Bio-Manufacturing Exhibitions 7.Future Display Technologies Exhibitions 8.Next-Generation Networks Exhibitions 9.Advanced Energy Storage Exhibitions 10.Others

Source: Compiled based on the 14th Five-Year Plan and the Implementation Plan for the Standardization Leadership Project in Emerging and Future Industries (2023-2035).

4.2 Dual Effects of NQPF Exhibitions

Drawing on the "Circular Feedback" model and the "Dual Innovation Functions" framework, NQPF exhibitions exhibit two distinct yet interconnected effects:

(1) Accelerating the formation of NQPF.

Innovation is a multifaceted learning process embedded in specific institutional and socio-cultural contexts. Tacit knowledge, accumulated through practice, is crucial and depends on geographic, relational, and institutional proximity. Exhibitions provide these proximities, thereby enabling three innovation pathways:(1)Platform innovation: leveraging spatial clustering and knowledge spillovers on exhibition sites;(2)Integration innovation: bridging cross-sectoral networks and combining diverse expertise;(3)Cultural/institutional innovation: aligning institutional agendas and reinforcing regional innovation identities. Through these pathways, NQPF exhibitions enhance technology diffusion, stimulate industrial innovation, and strengthen regional competitiveness.

(2) Promoting innovation-driven development of the MICE industry.

As a key category of technology-driven exhibitions, NQPF exhibitions have strategic implications for MICE evolution. Internationally, technology-based classification systems are underdeveloped. By pioneering such frameworks, China can enrich exhibition typologies, accelerate industry standardization, and gain greater voice in setting exhibition norms. At the same time, rebalancing from product-focused to technology-focused exhibitions optimizes the industry structure. Encouraging new NQPF exhibitions not only accelerates NQPF formation but also expands China's technology-oriented exhibition segment, creating new growth fields such as quantum computing or bio-manufacturing trade shows.

4.3 Development Strategies for NQPF Exhibitions

Grounded in the "Circular Feedback" model, the development of NQPF exhibitions should couple the accelerated maturation of NQPF with the innovation-driven expansion of the MICE industry. At the industry level, they function as both drivers of emerging productivity and strategic assets, requiring classification and certification embedded in statistics, market-oriented governance with limited direct state intervention, greater private-sector participation, and globally competitive brands to build a full portfolio within a decade. At the industrial synergy level, their impact depends on embedding exhibitions in cross-sector innovation networks, aligning programs with R&D agendas, accelerating commercialization, and institutionalizing "Exhibition–Industry" integration for mutual value creation. At the policy level, reforms recalibrate rather than diminish government roles, calling for a multi-tier regulatory system that integrates national and regional plans, industry strategies, targeted MICE policies, and specialized regulations, supported by vertically coherent governance.

NQPF exhibitions also catalyze MICE innovation through intelligent upgrading, foundational research, and talent development, harnessing AI, big data, and the metaverse to progress from informatization to smartization, reshaping workflows, fostering interdisciplinary collaboration, strengthening theoretical foundations, and embedding human capital strategies—including "university–enterprise–institution" partnerships—into industry planning to cultivate technology-driven, innovation-oriented professionals for sustained competitiveness

5. Conclusions and Prospects

The "Circular Feedback" model provides a theoretical explanation for the multifunctional nature of the MICE industry, with innovation being one of its core functions. This model establishes a pathway connecting factor flows and the innovation functions of the MICE industry: Exhibition platforms serve as the foundational kernel, transactional flows and knowledge flows act as primary drivers, Internal Circulation and External Circulation constitute the dual operational mechanisms, and the "Dual Innovation Functions" emerge as outcomes of these circulatory dynamics. Policy interventions can amplify the Dual Innovation Functions, creating a tripartite synergy among industrial innovation, MICE industry innovation, and policy direction. The development of NQPF

exhibitions necessitates the establishment of a technology classification system for exhibitions. Guided by the Circular Feedback model and Dual Innovation Functions, these exhibitions exhibit dual effects. It can accelerating the formation of New Quality Productive Forces by leveraging the MICE industry's innovation function to realize technological value; and also enriching exhibition typologies and optimizing the industrial structure of the exhibition sector, thereby injecting new momentum into its innovative development.

While the innovation function of the MICE industry is empirically observable, its theoretical underpinnings remain underexplored—particularly in the context of debates on New Quality Productive Forces and MICE industry development. There is pressing need to address two questions: Can the MICE industry simultaneously drive the accelerated formation of societal New Quality Productive Forces and promote its own innovative development?

How might such dual objectives be achieved? The Circular Feedback model proposed in this study originates primarily from empirical observations and practical insights, supplemented by theoretical reflections. To enhance its explanatory power and practical utility for the MICE industry's innovation, further refinements are imperative, that is track industrial advancements and systematize emerging practical knowledge, integrate interdisciplinary theories to strengthen the model's theoretical core and conduct empirical validations to improve actionable guidance for industry stakeholders.

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