Research on the Development of Chinese MCN Agencies and Pathways for International Communication: Strategic Considerations for Content Globalization and Cultural Transcoding

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Abstract: This study examines the development of Chinese MCN agencies and their emerging role in international communication, focusing on content globalization, cultural transcoding, and cross-platform distribution. Through an analysis of industry reports, platform governance frameworks, and transnational media practices, the research identifies key structural challenges—content homogenization, limited localization capacity, regulatory risks, and talent gaps—that hinder effective global expansion.

1. Introduction

The rapid transformation of global digital ecosystems has redefined how culture, commerce, and communication circulate across borders. In this evolving environment, Chinese Multi-Channel Network (MCN) agencies have emerged as central actors shaping the production, distribution, and international dissemination of digital content.

Over the past decade, China has experienced a sweeping digital transformation driven by the rapid adoption of short-video and livestreaming platforms such as Douyin, Kuaishou, Xiaohongshu, and Bilibili. Within this ecosystem, MCNs have evolved from small-scale creator agencies into complex organizations offering content incubation, IP development, e-commerce integration, data analytics, and brand partnerships.

At the same time, global audiences are exhibiting heightened interest in Asian—particularly Chinese—cultural narratives, aesthetics, and lifestyles. This trend is demonstrated by the international success of creators such as Li Ziqi, whose YouTube channel has attracted millions of subscribers by offering poetic, slow-paced depictions of Chinese rural life and traditional craftsmanship.

However, the rapid expansion of MCNs has also revealed structural weaknesses that may hinder China's cultural globalization goals. A significant portion of MCN-produced content remains formulaic, algorithm-driven, and domestically oriented.

Given these opportunities and challenges, this paper seeks to answer a central research question:

How can Chinese MCN agencies build the organizational capacity, cultural competency, and strategic frameworks needed to achieve sustainable international communication outcomes?

To address this question, the paper undertakes a systematic examination across five major dimensions:

(1) the developmental landscape and structural characteristics of Chinese MCNs;

(2) the core challenges that impede the global dissemination of Chinese content;

(3) strategic pathways for enabling cultural globalization through MCN infrastructures;

(4) pilot program design, evaluation systems, and risk management models;

and (5) implications for China's broader international communication strategies.

This study adopts a mixed analytical approach rooted in communication theory, cultural globalization studies, platform governance research, and policy analysis. Concepts such as cultural proximity, narrative persuasion, transcultural adaptation, and platform capitalism provide analytical lenses for evaluating the strengths and limitations of Chinese MCNs within the global media

environment.

The significance of this research lies in the strategic role MCNs play in China's global cultural communication ambitions. Unlike traditional media organizations, MCNs operate within decentralized, algorithm-driven environments where the ability to create resonant narratives and navigate local cultural norms is essential.

In summary, this introduction situates Chinese MCN agencies within China's evolving global communication strategy and frames the analytical concerns of the paper. By examining both institutional development and global communication challenges, the paper provides a holistic foundation for assessing how MCNs can enhance China's soft power and cultural presence in the international digital sphere.

2. Industry Landscape and Development Conditions

2.1. The Rise of China's Digital Content Ecosystem

The emergence and rapid expansion of Chinese MCN agencies cannot be understood without situating them within the broader evolution of China's digital content ecosystem. Over the past decade, China has experienced one of the fastest-growing digital economies in the world, characterized by an unparalleled adoption rate of mobile internet, algorithmic recommendation engines, and video-based social platforms.

Short video platforms such as Douyin and Kuaishou catalyzed the industrialization of online content by introducing fine-grained algorithmic distribution models that rewarded consistent output, high levels of viewer engagement, and content specialization. These recommendation algorithms incentivized creators to adopt specialized production workflows, and simultaneously encouraged agencies to assemble multi-creator portfolios, leading to the formation of MCN agencies as we understand them today.

This unique platform-driven environment distinguishes Chinese MCNs from their Western counterparts. Whereas early MCNs on YouTube focused primarily on ad-revenue management and creator representation, Chinese MCNs evolved into multi-functional enterprises with capabilities spanning content incubation, IP development, livestream e-commerce operations, supply chain integration, brand collaborations, influencer training, data analysis, and even offline retail.

2.2. Industry Scale, Market Growth, and Institutional Expansion

The scale of China's MCN industry has grown dramatically. According to publicly available industry summaries, the number of Chinese MCNs reached approximately 29,000 by 2025, representing significant growth over previous years (China Online Performance Report, 2025)[1].

A major driver of this expansion is livestreaming e-commerce. Since 2020, livestream commerce has become a dominant revenue model for MCNs.

Furthermore, China's favorable regulatory environment for digital commerce during the early 2020s accelerated MCN monetization. The integration of payments, logistics, and marketing tools—often provided natively by platforms—lowered the barriers for MCNs to scale their operations.

2.3. Structural Characteristics: Concentration at the Top, Fragmentation at the Bottom

Despite the impressive number of MCN agencies, industry influence is highly concentrated among a small number of leading institutions. This "Matthew Effect" has been frequently noted in industry analyses.

In contrast, the long-tail segment of the industry consists of thousands of small or mid-sized MCNs that struggle with limited traffic, inconsistent monetization, and high operational costs. Many of these smaller agencies lack access to high-quality supply chain partnerships, premium platform traffic, or well-trained in-house creative teams.

The stratification of the MCN industry has several implications for international development. First, only large MCNs possess the resource base—capital, multilingual teams, compliance officers,

and cross-border operation units—required to expand into overseas markets.

2.4. Transformation of Monetization Models

The revenue landscape for MCNs has undergone significant transformation. Initially dependent on advertising and brand partnerships, MCNs diversified their monetization models through livestream e-commerce, IP licensing, online courses, virtual gifting, subscription services, and offline commercial events.

2.4.1. Livestream E-commerce Dominance

Livestreaming accounted for the majority of MCN revenue by 2023–2024. The success of livestreaming relies heavily on high-performing hosts, rapid product cycles, and deeply integrated supply chains. While lucrative in the short term, this model is highly sensitive to:
• platform algorithm adjustments
• consumer fatigue
• regulatory tightening
• disruptions in manufacturing or logistics

These vulnerabilities raise concerns about the sustainability of livestream-driven business models in global environments where consumption behaviors and platform affordances differ significantly from China.

2.4.2. IP Commercialization and Brand Ecosystems

Some top-tier MCNs have succeeded in extending creator brands into multi-format IP ecosystems, including books, documentaries, animation, merchandise, and international expos. Successful examples demonstrate the potential for long-term brand equity development, but such IP ecosystems require substantial investment and cross-cultural storytelling capability—resources that most long-tail MCNs lack..

2.4.3. Overseas Monetization Challenges

For overseas markets, monetization models differ dramatically. YouTube relies on ad-revenue sharing; TikTok monetization varies significantly across regions; Instagram and Facebook depend heavily on branded content; and international e-commerce lacks the vertically integrated supply chains found in China.

2.5. Early Attempts at Internationalization

In recent years, Chinese MCNs have increasingly sought to expand overseas, motivated by China's broader cultural globalization initiatives. Southeast Asia, North America, Europe, and the Middle East have become key markets due to their linguistic accessibility, cultural receptivity, and strong digital consumption patterns.

Case studies reveal that international audiences often respond positively to content illustrating traditional crafts, rural lifestyles, food culture, and human-centered narratives. Li Ziqi's success exemplifies how Chinese aesthetic values—slowness, craftsmanship, environmental consciousness, and community—resonate globally.

Most MCNs lack:
• localized content strategies
• cross-cultural editors
• legal and compliance specialists
• multilingual marketing teams
• long-term international investment capacity

These gaps result in inconsistent quality, unpredictable performance, and fragmented brand presence abroad.

3. Core Challenges and Structural Bottlenecks

Despite remarkable domestic growth, Chinese MCN agencies face multiple structural obstacles that constrain their ability to expand globally. These challenges arise from a combination of organizational limitations, cultural constraints, platform governance issues, and gaps in global competency.

3.1. Content Homogenization and Algorithm-Driven Creativity

One of the most persistent challenges in China's MCN ecosystem is content homogenization. The rapid growth of short-video platforms has led to a highly algorithm-driven creative environment.

Scholars argue that China's "content assembly line" model limits narrative complexity and reduces cross-cultural resonance (Xu & Fung, 2023)[2]. Audiences in Europe, North America, and Southeast Asia increasingly prefer authenticity, slow-paced storytelling, documentary-like aesthetics, and culturally grounded narratives.

3.1.1. Lack of Narrative Depth

Many MCNs focus on short-term traffic rather than long-term cultural storytelling. As a result:
• narratives are fragmented
• cultural symbols are superficial
• contextual explanations are missing
• character development is minimal

These weaknesses hinder the ability of Chinese MCNs to construct durable cultural brands abroad[3]. In contrast, globally successful creators—such as Li Ziqi—emphasize narrative richness, cultural detail, emotional resonance, and universal human values.

3.1.2. Overreliance on Template-Based Production

MCN production workflows often rely on standardized templates designed for speed and efficiency. While suitable for high-frequency domestic posting schedules, template-based production constrains creativity and makes global differentiation difficult.

3.2. Weaknesses in Language Ability and Cultural Transcoding

Cross-cultural communication lies at the heart of international content dissemination. Yet the vast majority of Chinese MCNs lack the linguistic and cultural competencies required to translate Chinese narratives effectively for global audiences.

3.2.1. Linguistic Limitations

Many MCNs lack professional bilingual content teams. As a result:
• subtitles are often directly translated without contextual adaptation
• voiceovers sound mechanical or unnatural
• descriptions and captions fail to capture tone or nuance
• cultural idioms are misunderstood or mistranslated

For example, Chinese idiomatic expressions or culturally specific references often lose meaning when translated literally. International audiences may find such translations confusing, awkward, or unintentionally humorous.

3.2.2. Inadequate Localization Practices

Localization is far more than translation. It requires restructuring the entire narrative to align with the cultural norms, humor, pacing, and preferences of the target audience. Many successful international content creators employ specialized localization teams that:
• rewrite scripts
• adjust cultural references
• modify visual symbols
• improve narrative coherence

• adapt humor and emotional cues

Most Chinese MCNs do not have such capacities. Instead, they rely on automated translation tools or low-cost freelancers, resulting in:
• loss of cultural nuance
• narrative dissonance
• reduced emotional resonance
• higher risk of cultural misinterpretation

3.2.3. Weak Cultural Transcoding Capabilities

Transcoding refers to the deep adaptation of cultural meaning—not just language—into another cultural context (Jenkins, 2006)[4]. Chinese MCNs often struggle with:
• selecting culturally transferable symbols
• avoiding unintentional cultural taboo violations
• adjusting social values or interpersonal norms
• contextualizing historical or cultural references

Without transcoding, even visually appealing content may fail to build lasting cross-cultural engagement.

3.3. Compliance Risks: Copyright, Data Governance, and Regulatory Complexity

Global digital platforms operate under strict compliance standards that differ significantly from China's domestic regulatory environment. Many Chinese MCNs are unfamiliar with these requirements, leading to account suspension, demonetization, or legal disputes [5].

3.3.1. Copyright Enforcement

Platforms such as YouTube and TikTok rely heavily on automated copyright detection systems. MCNs that use unlicensed music, footage, or images risk:
• video takedowns
• copyright strikes
• demonetization
• channel suspension

Cases reported in international digital rights news indicate that automated copyright enforcement systems are often exploited or produce false positives, leading to wrongful takedowns. This presents substantial risks for Chinese MCNs unfamiliar with international licensing practices [6].

3.3.2. Advertising and Commercial Disclosure Requirements

In many countries, influencers and MCNs must disclose:
• sponsorships
• brand partnerships
• affiliate marketing
• product placements

Failure to comply with disclosure laws in the United States (FTC guidelines), Europe (EU consumer protection laws), or Southeast Asia can result in:
• fines
• legal penalties
• removal from brand campaigns
• platform-level sanctions

Given that livestream e-commerce often involves highly integrated commercial messaging, Chinese MCNs face significant adaptation challenges in markets where advertising transparency is strictly regulated[7].

3.3.3. Data Privacy and Localization Regulations

The global content environment is increasingly shaped by data governance regulations such as: GDPR (Europe),CCPA (California), PDPA (Singapore),and regional cybersecurity laws.

These frameworks regulate:
• user data collection
• cross-border data transfers
• algorithmic transparency
• privacy protection

Many Chinese MCNs lack legal counsel or compliance teams capable of navigating these regulations, exposing them to legal and financial risks[8].

3.4. Talent Gaps and Organizational Limitations

International expansion requires sophisticated, cross-functional talent teams. Yet most Chinese MCNs lack personnel with expertise in:
• cross-cultural communication
• translation and localization
• international media strategy
• global copyright law
• platform-specific optimization
• narrative design and editing

3.4.1. Overreliance on Single-Skill Creators

Many Chinese creators specialize in domestic thematic content such as food preparation, daily vlogs, comedy, or product demonstrations. Their skill sets may not translate effectively to global markets. MCNs must therefore develop new talent pipelines capable of producing culturally resonant content abroad.

3.4.2. Limited Organizational Structure

Small and mid-sized MCNs often lack:
• dedicated overseas departments
• multilingual editing teams
• compliance officers
• international marketing specialists
• long-term planning units

This lack of institutional capacity severely constrains their ability to compete in markets where professionalization is essential to success.

3.5. Financial and Ecosystem Limitations

Internationalization is costly. It requires long-term investment in:
• local teams
• cultural consultants
• production studios
• marketing campaigns
• compliance infrastructure
• multi-platform distribution

3.5.1. High Costs of Overseas Operations

Unlike domestic expansion—where platforms often subsidize growth—overseas markets require upfront capital with uncertain returns. Smaller MCNs cannot afford:
• multi-regional teams
• market research
• creator relocation
• content experimentation cycles

This produces a "resource barrier" that prevents most small agencies from exploring global opportunities.

3.5.2. Absence of Long-Term Funding Models

MCNs often rely on short-term commercial revenue rather than long-term investment. Large-scale cultural storytelling projects—such as documentaries, multilingual series, or high-production-value narratives—require sustained funding that most MCNs cannot provide.

3.5.3. Fragmented Support Ecosystem

Unlike industries with mature export frameworks—such as film, gaming, or publishing—China's MCN export ecosystem lacks:
- government-supported cultural export platforms
- standardized international distribution channels
- centralized training programs
- global partnership networks

This fragmentation results in inefficiencies and missed opportunities for international expansion.

4. Strategic Recommendations for Sustainable Global Development

To enable Chinese MCN agencies to achieve sustainable, scalable, and culturally effective global communication, strategic intervention is required across multiple dimensions. These recommendations address structural weaknesses identified earlier and propose pathways to enhance content quality, institutional capacity, cross-cultural competencies, regulatory compliance, and long-term ecosystem development.

4.1. National-Level Coordination and Demonstration Projects

Achieving global communication at scale requires top-level coordination. As China continues to enhance its international communication capacity, MCN agencies play a pivotal role as flexible, content-oriented, digitally native actors.

4.1.1. Establishing National Pilot Programs

A government-supported "Chinese MCN Content Going Global Pilot Program" could provide institutional stability through:
- competitive project selection
- targeted financial support
- multilingual production subsidies
- international promotion channels
- coordination with cultural institutions abroad

Such pilots should prioritize projects that demonstrate cultural depth, translatability, narrative originality, and cross-platform demonstrability.

4.1.2. Metrics for Evaluating International Communication

The evaluation of international communication should extend beyond simple view counts. More meaningful metrics include:
- average watch time and retention rate
- sentiment analysis and comment quality
- media citation frequency
- user engagement depth
- cross-cultural resonance indicators
- compliance stability and takedown frequency

A shift toward multi-dimensional evaluation will promote higher-quality content that aligns with long-term communication objectives.

4.2. Deep Content Production: Moving Beyond Fast Consumption

While short-form content and livestreaming dominate China's domestic digital landscape, the global digital ecosystem is increasingly characterized by hybrid formats—mini-documentaries,

narrative series, personal storytelling, ethnographic vignettes, and hybrid authenticity formats. To succeed globally, Chinese MCNs must diversify their content offerings and develop deeper, more culturally grounded narratives..

4.2.1. Building Thematic Content Incubators

MCNs should establish long-term content incubation programs in areas such as:
• Chinese intangible cultural heritage
• rural revitalization narratives
• culinary traditions
• ecological civilization
• technological innovation
• urban community stories
• traditional craftsmanship
• contemporary social transitions

These themes have proven appeal among global audiences seeking cultural authenticity and emotional resonance. Incubators should function similarly to film or documentary studios, with specialized teams managing research, scripting, visual development, and cultural consultation.

4.2.2. Investing in High-Production-Value Projects

Unlike domestic short videos where rapid output is prioritized, global communication benefits from:
• cinematic storytelling
• documentary formats
• episodic series
• multi-language versions
• character-driven narratives

High-quality productions may require greater initial investment, but they build stronger long-term cultural impact and provide opportunities for cross-platform expansion.

4.2.3. Expanding into Cross-Media IP Ecosystems

Top-performing cultural narratives can be expanded into:
• books and graphic novels
• documentaries
• animations
• podcasts
• merchandise
• exhibitions
• international events

This transformation from "content" to "IP" increases cultural presence and ensures that Chinese narratives are represented across multiple global touchpoints.

4.3. Localization Infrastructure and Cultural Transcoding Systems

Localization is not simply translation; it is the creative and cultural adaptation of content to fit local norms, humor, values, and aesthetics. Most Chinese MCNs lack systematic localization capabilities, which significantly hinders their global reach. The following structural reforms are essential.

4.3.1. Dual-Track Production: Chinese and Target-Language Versions

A dual-track production system involves:
• scripting separately for domestic and international audiences
• adapting pacing and narrative structure
• reshaping humor and emotional cues
• adjusting cultural references for local comprehension

This approach mirrors practices at established global media studios and ensures that content is both culturally grounded and internationally comprehensible.

4.3.2. Cultural Consultant Networks

To prevent misinterpretation or cultural insensitivity, MCNs should work with:
• anthropologists
• cultural historians
• regional experts
• linguists
• cross-cultural marketers

These consultants help rewrite scripts, refine symbolism, and ensure that content aligns with cultural norms in target regions.

4.3.3. A/B Testing for Cross-Cultural Resonance

Before large-scale promotion, MCNs should perform A/B testing:
• Version A: direct translation
• Version B: fully localized adaptation

Metrics such as viewer retention, engagement, and shareability can identify which version performs better. This data-driven method ensures that content decisions reflect international audience preferences.

4.3.4. Multilingual Metadata Optimization

Global content success often depends on metadata: titles; keywords; thumbnails; hashtags; descriptions.

MCNs must optimize metadata in multiple languages to ensure discoverability across platforms like YouTube, TikTok, Instagram, and Facebook.

4.4. Compliance Governance and Risk Management

Compliance is a major barrier to international expansion, yet it remains an area where most Chinese MCNs lack expertise. Effective compliance requires both legal knowledge and operational systems.

4.4.1. Copyright Licensing and Digital Rights Management

To minimize risk, MCNs should implement:
• digital asset management systems
• copyright pre-clearance procedures
• soundtrack and footage licensing protocols
• creator contract standardization
• third-party DRM monitoring

These measures reduce the likelihood of copyright strikes, wrongful takedowns, or revenue disputes on platforms such as YouTube.

4.4.2. Advertising and Sponsorship Transparency

MCNs must comply with:
• FTC guidelines in the U.S.
• EU consumer protection laws
• regional advertising disclosure rules

Livestream commerce poses particular risks because it often blends content and advertising. MCNs should develop on-screen disclosure systems and standardized host scripts for global markets.

4.4.3. Data Privacy and Cybersecurity Compliance

To operate globally, MCNs must align with:

• GDPR
• CCPA
• PDPA
• local cybersecurity laws

Cross-border data flows must be reviewed to avoid regulatory violations. Establishing data governance teams is essential.

4.4.4. Crisis Management and Public Relations Preparedness

Cultural misunderstandings can lead to public backlash. MCNs require:
• crisis response teams
• multilingual public relations specialists
• social listening tools
• rapid response protocols
This ensures reputational stability in sensitive global environments.

4.5. Talent Development and Industry–Academia Collaboration

Global expansion requires hybrid, interdisciplinary talent—yet such talent is scarce in China's current MCN industry. Building a long-term talent pipeline is therefore essential.

4.5.1. Multilingual Content Teams

MCNs should develop in-house teams specializing in:
• English
• Spanish
• Arabic
• French
• Malay/Indonesian
These languages cover a significant portion of global digital audiences.

4.5.2. University Partnerships

Universities in China possess strengths in:
• foreign languages
• communication studies
• comparative literature
• regional studies
Partnerships between MCNs and universities can support:
• co-designed curricula
• internship pipelines
• bilingual content labs
• research-driven content development

4.5.3. Creator Training for Global Audiences

Training programs should include:
• intercultural communication
• global media ethics
• international storytelling techniques
• platform-specific optimization
This prepares creators for cross-cultural performance and narrative adaptation.

4.6. Financial Mechanisms and International Market Infrastructure

Finally, sustainable global development requires robust financial support systems and infrastructural development.

4.6.1. Cultural Export Insurance

To mitigate the risks associated with overseas investment, China could expand cultural export insurance programs that cover:
• market entry losses
• regulatory penalties
• production disruptions
• distribution failures

4.6.2. Credit Lines for Global Content Projects

Low-interest credit lines or multi-year funding programs could support:
• high-production-value content
• multilingual production
• regional studio development

4.6.3. Overseas Content Hubs

MCNs should establish regional content hubs in:
• Southeast Asia
• the Middle East
• Europe
• North America
These hubs would coordinate production, localization, and compliance at the regional level.

4.6.4. Cross-Border Partnerships

Partnerships with local:
• media companies
• cultural organizations
• tourism bureaus
• universities
• brands
can enhance cultural legitimacy and provide alternative revenue streams.

5. Pilot Program Design, Evaluation Metrics, and Risk Control

To translate strategic recommendations into actionable practice, it is essential to develop a structured pilot framework for Chinese MCN agencies entering global markets. A well-designed pilot program allows stakeholders to test scalable models, evaluate communication effectiveness, refine content strategies, and manage potential risks before launching large-scale international initiatives.

This section outlines a comprehensive system encompassing pilot selection criteria, evaluation metrics, and risk control mechanisms, ensuring that Chinese MCNs can operate sustainably and responsibly in diverse global environments.

Pilot Selection Standards. Selecting appropriate pilot agencies and content portfolios is crucial for success. Not all MCNs are suited for immediate overseas expansion, and choosing the wrong candidates can lead to financial losses, reputational damage, or regulatory disputes. Thus, clear standards should guide pilot selection.

Organizational Maturity. Ideal pilot MCNs should demonstrate:
• stable multi-year operations
• transparent governance and financial practices
• established creative workflows
• reliable talent pipelines
• experience in long-form or narrative-driven content

6. Conclusion

The globalization of Chinese MCN agencies represents both a strategic opportunity and a structural challenge. Domestic success has been fueled by algorithmic efficiency and commercial integration, but international communication demands narrative depth, cultural sensitivity, compliance governance, and long-term institutional investment.

Chinese MCNs must reconcile three key tensions:

(1) speed vs. depth,

(2) uniformity vs. localization,

(3) commercial logic vs. cultural logic.

Only by transforming from traffic-driven producers into culturally responsible narrative mediators can MCNs become sustainable contributors to China's international communication system. With proper national coordination, localization infrastructure, compliance systems, and talent cultivation, Chinese MCNs can evolve into globally credible cultural intermediaries and play a vital role in promoting cross-cultural understanding in the digital age.

References

[1] China Online Performance Report. (2025). *2025 China MCN agency development white paper*. Beijing Digital Media Association.

[2] Fung, A., & Xu, J. (2023). From platformization to global reach: Digital content ecosystems in China's short-video industry. *Journal of Asian Communication*, 33(2), 115–132.

[3] Rieder B, Borra E, Coromina Ò, et al. Making a living in the creator economy: A large-scale study of linking on YouTube[J]. Social Media+ Society, 2023, 9(2): 20563051231180628.

[4] Jenkins, H. (2006). *Convergence culture: Where old and new media collide*. New York University Press.

[5] Li, X., & Chen, Y. (2022). Cross-cultural communication challenges in Chinese internet media exports. *International Journal of Communication Studies*, 16(3), 201–225.

[6] Peres R, Schreier M, Schweidel D A, et al. The creator economy: An introduction and a call for scholarly research[J]. International Journal of Research in Marketing, 2024, 41(3): 403-410.

[7] Wang, H. (2023). Localization and transnational content flows in Asian short-video platforms. *Media, Culture & Society*, 45(7), 1412–1426.

[8] Zhang, L., & Zhao, X. (2024). Cultural transcoding in digital storytelling. *New Media & Society*, 26(5), 1093–1112.