

Research on the Configurational Paths of International Competitiveness of Chinese RPG Games

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Abstract: Chinese role-playing game (RPG) exports are plagued by cultural discount and resource misallocation. Existing research struggles to explain the causal complexity underlying the formation of their international competitiveness. Grounded in cultural discount theory and the resource-based view, this study constructs a framework of culture-centric core with factor combination adaptation and adopts the fuzzy-set qualitative comparative analysis (fsQCA) method to analyze 154 overseas player datasets. The findings reveal that cultural-gameplay integration is a quasi-necessary condition for high competitiveness, while technological factors only play a supporting role. Three equivalent high-competitiveness paths are identified: culture + narrative integration, culture + IP linkage, and culture + localization adaptation. Two failure modes are also detected: lack of culture + technological misallocation and lack of culture + IP redundancy. This study uncovers the configurational mechanism of multi-factor synergetic adaptation and provides differentiated overseas expansion pathways for developers with varying resource endowments.

1. Introduction

Against the backdrop of the national strategy for cultural strength, the gaming industry has become a key vehicle for Chinese cultural exports. Among them, role-playing games (RPGs) bear both commercial value and cultural communication significance due to their narrative and cultural-carrying attributes. However, Chinese RPG exports exhibit a marked polarized pattern: a small number of top-tier products achieve breakthroughs, while numerous small- and medium-sized developers fail due to cultural discount and imbalanced resource adaptation. Existing academic studies mostly adopt traditional econometric methods to explore the net effect of single factors, ignoring the causal complexity of multi-dimensional conditional synergy and failing to reveal the differentiated equivalent paths to high competitiveness. Qualitative comparative analysis (QCA), with its strong explanatory power for causal complexity, provides an appropriate tool to address this research gap. Accordingly, this study constructs an analytical framework of culture-centric core with factor combination adaptation and uses fsQCA to explore the configurational paths and failure mechanisms of international competitiveness of Chinese RPGs, aiming to offer empirical support and theoretical guidance for industry practice[1].

2. Literature Review and Theoretical Framework

2.1 Origins of Influencing Factors of Game International Competitiveness

From the perspective of cross-border trade, cultural discount theory indicates that cultural products suffer value depreciation in heterogeneous cultural contexts due to differences in values, historical narratives, etc. For RPGs, which are highly narrative-dependent, superficial appropriation of cultural symbols often raises comprehension barriers. In contrast, cultural proximity theory suggests that translating abstract cultural connotations into interactive gameplay grammar can proactively build cultural proximity and reduce cross-border resistance[2].

Regarding technological foundations and firm-specific heterogeneous resources, the early emphasis on the unidirectional driving effect of technology is being challenged by empirical evidence. The depth of technology adoption and application is more explanatory than parametric superiority. The resource-based view and dynamic capability theory emphasize that heterogeneous resources such as cultural creation endowment and cross-media IP development capabilities contribute to competitiveness generation in a combined rather than isolated manner. For localization adaptation, the effectiveness of localization operations presupposes a solid cultural core of the product itself. Refined localization packaging fails to stimulate deep identification if cultural-gameplay and narrative structures lack distinctiveness.

In summary, existing research paradigms rely heavily on linear methods focusing on independent net effects, neglecting synergistic substitution and conditional adaptation among factors. The QCA method, which examines equivalent paths of multi-cause concurrence from a configurational perspective, provides a suitable methodological tool to bridge this research gap.

2.2 Theoretical Foundation and Analytical Framework Construction

This study integrates cultural discount theory, dynamic capability theory, and configurational theory to build an analytical framework of culture-centric core with factor combination adaptation (Figure 1). The core logic of the framework is: high international competitiveness of Chinese RPGs presents a configurational outcome of strategic foundation of cultural integration, with dynamic adaptation of multiple factors as sufficient conditions[3].

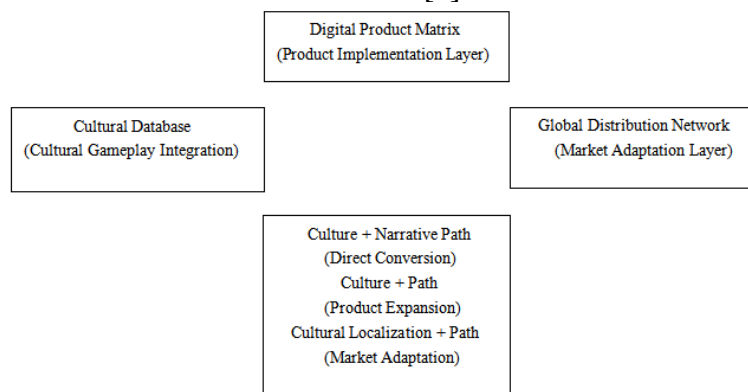


Figure 1: Framework of Cultural Database-Digital Product Matrix-Global Distribution Network

First, the cultural core forms a quasi-necessary foundation. Cultural integration, especially the deep integration of gameplay and cultural connotation, acts as a fundamental role in all high-competitiveness paths, with the core functions of reducing cultural discount and building differentiated barriers. Second, factor combination adaptation constitutes the space of sufficient conditions[4]. Peripheral conditions such as technological experience, cross-media IP, and

localization support show significant combinational flexibility and substitution effects according to firms' resource endowments and target market positioning. This framework directly guides the subsequent QCA research design, expecting to identify multiple equivalent high-competitiveness paths and provide differentiated strategic choices for various types of firms.

3. Research Design

3.1 Research Method and Sample Data

This study adopts the fuzzy-set qualitative comparative analysis (fsQCA) method, setting the international competitiveness of Chinese RPGs as the outcome variable (Y). Based on cultural discount theory, resource-based view, etc., five dimensions-cultural integration, narrative cultural integration, cross-media IP development, technological experience, and localization support-are decomposed into 10 refined condition variables. Data are derived from 154 valid evaluation datasets collected via questionnaire surveys of overseas players[5].

3.2 Variable Setting and Calibration

According to the research design and questionnaire dimensions, 10 condition variables and 1 outcome variable are determined. The dichotomous assignment method is used: responses reflecting "high level/presence" are coded 1, and 0 otherwise. Variable settings are shown in Table 1.

Table 1: Condition Variables and Assignment Instructions

Variable Type	Primary Dimension	Secondary Indicator	Variable Name
Outcome Variable	-	Y	High international competitiveness of Chinese RPGs
Condition Variable	Cultural integration	A	Cultural-gameplay integration
		B	Cultural-aesthetic integration
	Narrative cultural integration	C	Narrative-allusion integration
		D	Narrative-value integration
		E	Cross-media content linkage
	Cross-media IP development	F	Cross-media brand operation
		G	Technological performance
	Technological experience	H	Technological interactive experience
		I	Language localization
	Localization support	J	Operation localization

Following general QCA standards and sample characteristics, this study sets the frequency threshold at 3, the raw consistency threshold at 0.8, and the necessary condition analysis consistency threshold at 0.9.

4. Empirical Analysis

4.1 Necessary Condition Analysis

Necessity tests are conducted on 10 condition variables and their negation sets, as shown in Tables 2 and 3. Results for the high-competitiveness group indicate that cultural-gameplay integration (A), negation of technological performance (~G), and their combination (A~G) reach a consistency of 1.000, forming a strong quasi-necessary combination driving high competitiveness. However, the relevance of necessity (RoN) of all conditions is less than 1.0, meaning no single

necessary condition exists. The achievement of high competitiveness relies on multi-condition synergy.

Table 2: Truth Table Results for High Competitiveness Configuration (Necessary Conditions)

Condition Combination	Consistency (inclN)	Coverage (covN)	Relevance of Necessity (RoN)
Cultural-gameplay integration (A)	1.000	0.987	0.987
Negation of technological performance (~G)	1.000	1.000	1.000
Negation of technological interaction (~H)	0.987	0.724	0.628
A~G	1.000	1.000	1.000
A~H	0.987	0.987	0.987
~G~H	0.987	1.000	1.000
B+C	1.000	0.570	0.247

Results for the non-high-competitiveness group show that negation of cultural-gameplay integration (~A), technological performance (G), and their combination (~AG) have consistency close to 1.000, reversely verifying the decisive role of cultural-gameplay integration. Yet all RoN values are below 1.0, indicating that non-high competitiveness stems from the absence, misallocation, or redundancy of multiple conditions.

Table 3: Truth Table Results for Non-High Competitiveness Configuration

Condition Combination	Consistency (inclN)	Coverage (covN)	Relevance of Necessity (RoN)
Cultural-gameplay integration (A)	1.000	0.987	0.987
Negation of technological performance (~G)	1.000	1.000	1.000
Negation of technological interaction (~H)	0.987	0.724	0.628
A~G	1.000	1.000	1.000
A~H	0.987	0.987	0.987
~G~H	0.987	1.000	1.000
B+C	1.000	0.570	0.247

4.2 High-Competitiveness Configurational Analysis

Configurational computation yields 5 valid paths for high international competitiveness of Chinese RPGs (inclS = 1.000), clustered into 3 major types (Table 4). The overall model consistency is 1.000 and coverage is 1.000; all 5 paths effectively explain the sample.

Table 4: Configurational Composition Results for High International Competitiveness

Condition Variable		Narrative + Cultural Integration	Narrative + Cultural Integration	Narrative + IP Linkage	Narrative + IP Linkage	Technology + Localization-Driven
		Config 1	Config 3	Config 2	Config 4	Config 5
Cultural integration	A	●	●	●	●	●
	B	⊗	●	●	●	●
Narrative cultural integration	C	●				
	D		●	●	●	●
Cross-media IP development	E			⊗	●	
	F	⊗		●	⊗	●
Technological experience	G	⊗	⊗	⊗	⊗	⊗
	H	⊗	⊗	⊗	⊗	⊗
Localization support	I	●	●	⊗	⊗	⊗
	J	⊗	⊗	⊗	⊗	●

Note: ● = core presence; ⊗ = core absence; blank = peripheral condition. All configurations: inclS = 1.000.

Path Interpretation:

1) Narrative + Cultural Integration Type (Config 1, 3): Suitable for resource-constrained small- and medium-sized developers. Centered on cultural-gameplay integration (A) and narrative cultural integration (C/D), it requires no heavy technological investment. It forms differentiated advantages via dual cultural cores of gameplay + narrative, supplemented by basic language localization to target niche markets.

2) Narrative + IP Linkage Type (Config 2, 4): Suitable for medium-to-large developers with IP operation capabilities. Based on dual cultural integration (A+B) and narrative values (D), it selectively overlays cross-media brand (F) or content (E) to extend cultural cores into IP value, building a culture-narrative-IP linkage model.

3) Technology + Localization-Driven Type (Config 5): Suitable for resource-abundant top-tier developers. On the basis of cultural cores, it overlays cross-media brand (F) and operation localization (J), characterized by streamlined technological input + in-depth localization adaptation to enhance user experience and stickiness in mainstream mass markets.

All paths take cultural-gameplay integration (A) as core presence and negation of technological performance (~G) and negation of technological interaction (~H) as core absence, confirming cultural integration as the underlying premise of overseas competitiveness[6].

4.3 Non-High-Competitiveness Configurational Analysis

Six paths leading to non-high competitiveness are identified (inclS = 1.000), clustered into 2 major failure types (Table 5). The overall model consistency is 0.958 and coverage is 0.343, with strong explanatory power for core failure logic.

Table 5: Configurational Composition Results for Non-High International Competitiveness

Configuration Type		Lack of Culture + Technological Misallocation	Lack of Culture + Technological Misallocation	Lack of Culture + Technological Misallocation	Lack of Culture + Technological Misallocation	Lack of Culture + IP Redundancy	Lack of Culture + IP Redundancy
Config No.		Config 1	Config 2	Config 3	Config 4	Config 5	Config 6
Cultural integration	A	⊗	⊗	⊗	⊗	⊗	⊗
	B	⊗	⊗	⊗	⊗	•	•
Narrative cultural integration	C	⊗	•	•	•	•	•
	D	⊗	⊗	⊗	•	⊗	⊗
Cross-media IP development	E	•			•	•	•
	F	•	⊗	•	•	•	•
Technological experience	G	•	•	•	•	•	•
	H		•	•	•	•	•
Localization support	I	•	•	⊗	⊗	•	⊗
	J	•	⊗	•	⊗	⊗	•

Note: • = core presence; ⊗ = core absence; blank = peripheral condition. All configurations: inclS = 1.000.

Path Interpretation:

1) Lack of Culture + Technological Misallocation Type (Config 1–4): Core feature is the coexistence of negation of cultural-gameplay integration (~A) and technological performance (G). It manifests as putting the cart before the horse: excessive technological investment without a cultural core leads to homogeneous competition, making products unable to compete with mature

overseas counterparts.

2) Lack of Culture + IP Redundancy Type (Config 5–6): Core feature is the coexistence of negation of cultural-gameplay integration ($\sim A$) and full presence of cross-media IP (E/F) and technology (G). It manifests as redundant investment in IP and technology without a core cultural carrier, turning IP into a soulless shell with low resource allocation efficiency.

3) Both failure types point to one core crux: the absence of cultural-gameplay integration (A) is the root cause of low competitiveness.

4.4 Robustness Test

This study verifies result robustness via multiple standard settings. Frequency and consistency thresholds comply with general QCA norms; intermediate solutions are adopted to balance complex and parsimonious solutions[7]. Consistency values of all high- and non-high-competitiveness configurations are far above thresholds, unique coverage values are greater than 0, and no path redundancy exists. The conclusions are robust and reliable.

5. Results Discussion and Theoretical Analysis

5.1 Theoretical Interpretation of Core Findings

This study finds that high international competitiveness of Chinese RPGs presents a causal structure of culture-led, technology-weakened. Cultural-gameplay integration exists as a core condition in all high-competitiveness paths, confirming that embedding abstract cultural values into interactive gameplay is the key mechanism to reduce cultural discount and build differentiated advantages. Technological factors do not act as core drivers, explainable by the resource-based view: when technological capabilities tend toward homogeneity, their marginal contribution diminishes, and over-reliance on technological investment may instead cause resource misallocation, as confirmed in non-high-competitiveness configurations[8]. Furthermore, the coexistence of multiple equivalent high-competitiveness paths reveals causal complexity: firms with different resource endowments can achieve equally high competitiveness through differentiated condition combinations (e.g., strengthening cultural narratives or extending IP value).

5.2 Dialogue with Theoretical Framework and Practical Implications

The empirical findings of this study enhance the "Cultural Database-Digital Product Matrix-Global Distribution Network" framework. They underscore the pivotal role of cultural integration and clarify the transformation of the "Cultural Database" within the framework from a resource layer to a product mechanism layer[9]. The three highly competitive pathways correspond to distinct approaches to value realization: the "Plot + Cultural Integration" model represents the direct conversion of cultural resources; the "Plot + IP Collaboration" model facilitates the expansion of the product matrix; and the "Technology + Localization-Driven" model enables context-specific adaptation of the global distribution network.

Implications for Game Overseas Management: First, companies should embed cultural elements into gameplay mechanics, transforming cultural content from static symbols into dynamic experiences. Second, enterprises should select appropriate strategies based on their resource endowments, avoiding blind replication. Small and medium-sized teams may focus on the lightweight "culture + narrative" approach; mid-to-large developers can leverage IP collaborations; while leading companies should concentrate on localized operations[10]. Third, technical investments should be handled prudently-amid technological homogenization, prioritize resource

allocation toward building cultural content and product differentiation.

6. Conclusion

Based on a configurational perspective, this study uses fsQCA to reveal the multiple equivalent paths and failure mechanisms underlying the formation of high international competitiveness of Chinese RPGs. The main conclusions are as follows:

1) Cultural-gameplay integration is a quasi-necessary condition for achieving high international competitiveness and a core premise for avoiding overseas failure.

2) Three paths lead to high competitiveness: *Narrative + Cultural Integration*, *Narrative + IP Linkage*, and *Technology + Localization-Driven*, reflecting causal complexity of *different paths leading to the same goal*.

3) Non-high competitiveness mainly stems from two resource misallocation modes: *lack of culture + technological misallocation* and *lack of culture + IP redundancy*, both sharing the absence of cultural-gameplay integration.

4) The key to enhancing the overseas competitiveness of Chinese RPGs lies in dynamic adaptation of multiple factors around the cultural core, rather than linear superposition of single factors.

This study provides differentiated and actionable overseas expansion plans for game developers with varying resource endowments, and offers theoretical basis and practical references for the effective international communication of Chinese culture through digital games. Future research can further expand the sample size and introduce a time dimension for dynamic QCA analysis to deepen understanding of the evolution mechanism of game overseas competitiveness.

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