Empirical Study on the Enhancing Effect of Intellectual Property Capability on Economic and Social Benefits of Innovation in Cultural Enterprises: Postprint

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Date: 2023-10-08T00:00:00+00:00

Abstract

[目的/意义] Intellectual property capability is the key for knowledge-intensive cultural enterprises to break through development bottlenecks and enhance competitiveness. This article explores the influence paths of different intellectual property capabilities on the innovation performance of cultural enterprises, thereby providing countermeasures and suggestions for enhancing the innovation economic and social benefits of cultural enterprises. [方法/过程] A structural equation model is constructed, and based on questionnaire survey data from Chinese cultural enterprises, an empirical analysis is conducted on the impact of intellectual property capabilities of cultural enterprises on their innovation economic benefits and innovation social benefits. [结果/结论] The four types of intellectual property capabilities of cultural enterprises all have significant direct effects on their innovation economic benefits. The intellectual property creation and protection capabilities of cultural enterprises also exert significant indirect effects on innovation economic benefits through the mediating role of intellectual property management and utilization capabilities. The intellectual property management capability of cultural enterprises has a significant direct positive effect on their innovation social benefits. The intellectual property creation and protection capabilities need to exert their significant positive effects on the innovation social benefits of cultural enterprises through the mediating role of intellectual property management capability.

Full Text

Preamble

An Empirical Study on the Effect of Intellectual Property Capability on the Promotion of Innovation, Economic and Social Benefits of

Cultural Enterprises

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Abstract: Intellectual property capability is the key for knowledge-intensive cultural enterprises to break through development bottlenecks and enhance competitiveness. This paper explores the impact pathways of different intellectual property capabilities on the innovation performance of cultural enterprises, providing countermeasures and suggestions for improving their innovation economic and social benefits. Using structural equation modeling based on questionnaire survey data from Chinese cultural enterprises, we empirically analyze the effects of cultural enterprises' intellectual property capabilities on their innovative economic benefits and innovative social benefits. The results show that: (1) All four dimensions of intellectual property capability have significant direct effects on cultural enterprises' innovative economic benefits, while intellectual property creation and protection capabilities also exert significant indirect effects through the mediating roles of management and application capabilities; (2) Intellectual property management capability has a significant direct positive impact on innovative social benefits; (3) Intellectual property creation and protection capabilities significantly influence innovative social benefits through the mediating effect of intellectual property management capability.

Keywords: cultural enterprises; intellectual property capabilities; innovation performance; structural equation model

Introduction

The cultural industry, characterized by high added value and knowledge intensity, represents a new driver of economic growth in the knowledge economy era and constitutes a crucial pillar industry that China must vigorously develop during its critical economic and social transformation period. According to National Bureau of Statistics data, in 2018, China' s cultural industry added value reached 3.8737 trillion yuan, accounting for 4.30% of GDP. Although the cultural industry has developed rapidly, the problem of low innovation benefits in cultural enterprises persists. Compared with developed countries, China' s cultural industry started relatively late, with a higher proportion of private and small-medium enterprises. Cultural enterprises possess relatively few independent intellectual properties, and their independent innovation capabilities remain weak, leading to severe homogeneous competition and overcapacity. Some enterprises transformed from former cultural institutions exhibit low innovation vitality. Consequently, many enterprises achieve low economic benefits from innovation, with some even experiencing losses or bankruptcy.

Unlike enterprises in other industries, cultural enterprises bear the mission of

providing spiritual products, disseminating values, and preserving cultural heritage, requiring them to deliver social benefits. However, some cultural enterprises currently focus solely on economic benefits while neglecting social benefits, even compromising the latter for profit by disseminating incorrect values and negative energy, which seriously hinders the healthy development of the cultural industry. Under these circumstances, how to achieve innovation and enhance innovation benefits—particularly social benefits—has become both a critical factor for cultural enterprises to break through development bottlenecks and ensure survival, and an important aspect for Chinese cultural enterprises to actively respond to increasingly severe competition and challenges while strengthening cultural soft power.

With the in-depth development of new technologies and increasing constraints on traditional resources, knowledge resources represented by intellectual property (IP) have become increasingly prominent in driving enterprise innovation and development, serving as strategic resources and new sources of innovation for cultural enterprises centered on creativity and innovation. Enterprise IP capability has also become an important measure of innovation capacity for both enterprises and nations. In practice, developed countries such as the United States and Germany have enhanced product differentiation and innovation capabilities through IP strategies, gradually forming strong competitiveness. Against the backdrop of IP and innovation-driven development strategies, improving IP capability undoubtedly offers an excellent solution to the problem of low innovation benefits in Chinese cultural enterprises.

However, existing research has not reached consistent conclusions regarding the relationship between enterprise IP capability and innovation benefits. While most studies suggest that IP capability positively affects innovation benefits, some findings indicate partial positive or even negative effects. Moreover, the relationships among different IP capabilities and their connections with innovation benefits in cultural enterprises are complex and differ significantly from other industries. Unfortunately, current research has paid insufficient attention to cultural enterprises, lacking empirical evidence. This study addresses the core question: Do cultural enterprises' IP capabilities significantly affect their innovation benefits, and if so, how? Based on questionnaire survey data, this research empirically examines these relationships to provide evidence-based recommendations.

Theoretical Framework and Research Hypotheses

Relationships Among Different IP Capabilities

According to China' s National Intellectual Property Strategy Outline and existing research, IP capability comprises four dimensions: creation, protection, management, and application. Most studies suggest these capabilities are closely interconnected. IP creation capability in cultural enterprises refers to the ability

to invest talent and R&D funds to generate new knowledge, transforming new ideas and concepts into intellectual achievements such as copyrights and trademarks. Based on enterprise capability theory and the perspective of Amit and Schoemaker, effective management and application of owned IP are necessary to generate high innovation benefits.

IP management capability refers to the ability of cultural enterprises to organize and manage IP through established systems, specialized agencies, and personnel. More rational IP creation structures help improve the efficiency and effectiveness of IP management. IP management includes archival management of IP and operation of intellectual capital. IP application capability refers to the ability to utilize IP to obtain commercial economic benefits and social benefits. Improvements in IP creation quantity and quality facilitate enhanced commercial conversion rates and social benefits.

IP protection capability refers to the ability to avoid and respond to infringement through legal means and appeals. Strengthening IP management during the protection phase through multiple approaches enhances management effectiveness. Greater protection efforts increase the likelihood that IP will generate more innovation benefits for cultural enterprises. Research suggests that IP management capability comprises planning, integration, and protection of IP, consisting of both organizational and protective components. Broadly defined IP protection includes IP application elements.

Therefore, we propose the following hypotheses:

H1a: IP creation capability has a positive effect on IP management capability.
H1b: IP creation capability has a positive effect on IP application capability.
H2a: IP protection capability has a positive effect on IP management capability.
H2b: IP protection capability has a positive effect on IP application capability.

Effects of IP Management and Application Capabilities on Innovation Benefits

IP management capability safeguards the implementation of IP strategy and promotes innovation benefits through effective management of specialized agencies and personnel. Strong IP management capability helps enterprises develop advanced management concepts, systems, and cultures, reducing IP disputes caused by innovation uncertainty and improving innovation efficiency.

IP application capability critically influences market competitiveness. Cultural enterprises can legally use others' IP through licensing, ownership transfer, and pledge, mining IP value to achieve conversion and commercial utilization, thereby obtaining innovation benefits. IP application can generate various social benefits in employment, environmental protection, public safety, living standards, life and health, and international exchanges. Enhanced IP application capability improves innovation conversion rates and positively impacts enterprise performance.

Therefore, we propose:

H5a: IP management capability has a positive effect on innovative economic benefits.
H5b: IP management capability has a positive effect on innovative social benefits.
H6a: IP application capability has a positive effect on innovative economic benefits.
H6b: IP application capability has a positive effect on innovative social benefits.

Effects of IP Creation and Protection Capabilities on Innovation Benefits

According to China' s requirement for cultural enterprises to achieve "unity of dual benefits" (social and economic) and existing research, we divide innovation benefits into economic and social dimensions. IP creation and protection significantly affect economic benefits such as business revenue. IP created by cultural enterprises possesses spiritual core and value, playing an important role in enhancing market competitiveness and economic benefits while delivering social benefits through cultural dissemination and value guidance. IP creation serves as the driving force for technological innovation and a primary source of commercial benefits, influencing enterprise performance and value.

Effective IP protection prevents infringement and safeguards enterprise interests, ensuring that IP generates more innovation benefits. Enterprise competitiveness stems from the ability to utilize IP protection for knowledge assets. IP protection enhances innovation motivation, and there exists a U-shaped relationship between IP protection and technological innovation in advanced manufacturing SMEs. IP protection is crucial for preventing potential competitor replication and securing innovation performance.

Therefore, we propose:

H3a: IP creation capability has a positive effect on innovative economic benefits.
H3b: IP creation capability has a positive effect on innovative social benefits.
H4a: IP protection capability has a positive effect on innovative economic benefits.
H4b: IP protection capability has a positive effect on innovative social benefits.

Research Design

Scale Development

Based on China' s National Intellectual Property Strategy Outline and drawing upon measurement scales from Chi Ming, Yuan Bo, Chi Renyong, Wen Lianyang,

and others, we designed a questionnaire tailored to cultural enterprise characteristics. We measured IP creation capability through three aspects: cumulative IP ownership, internal reward systems, and proportion of agreements specifying IP ownership in external cooperation. IP protection capability was measured through four aspects: familiarity with protection channels and procedures, internal mechanisms for clarifying copyright ownership, protection mechanisms in external cooperation, and pursuit of infringement actions. IP management capability was measured through three aspects: establishment of specialized IP management agencies, number of IP management personnel, and their involvement in design, manufacturing, and marketing. IP application capability was measured through IP conversion rates and contribution to product/service differentiation.

Innovative economic benefits were measured through contributions of creativity and innovation to business revenue growth and profit. Drawing upon China' s 2019 "Trial Measures for Social Benefit Evaluation of State-owned Theaters" and "Trial Measures for Social Benefit Evaluation of Book Publishing Units," innovative social benefits were measured through four aspects: product/service quality, industry awards and honors, market and audience influence, and communication platform performance.

The questionnaire comprised three sections: basic enterprise information, four IP capability dimensions, and innovation benefits. Except for basic information and screening items, all questions used a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree), resulting in 6 latent variables and 18 items.

Data Collection and Sample Characteristics

We collected data through field surveys and online questionnaires targeting cultural enterprises in Xi' an, Beijing, Shanghai, Hangzhou, Guangzhou, Jinan, and Harbin. A pilot survey was conducted in July 2019. We distributed 300 questionnaires, receiving 264 responses. After excluding invalid questionnaires with missing answers, completion times under 100 seconds, excessive consecutive identical responses, or obvious patterns, we obtained 232 valid responses (77.3% validity).

We coded variables as CR, AP, PR, and MA for IP creation, application, protection, and management capabilities, respectively, and EP and SP for economic and social benefits of innovation. Items were named with variable prefixes and serial numbers (e.g., cr1, cr2, cr3 for IP creation capability). Among valid respondents, private enterprises accounted for 54.92%, state-owned and holding enterprises for 27.87%. In terms of size, enterprises with fewer than 50 employees accounted for 37.7%, aligning with industry development realities.

Reliability and Validity Tests

The questionnaire was based on mature scales in this field, ensuring good content validity. We further examined consistency and accuracy through reliability

and validity tests using SPSS 20.0 for Cronbach' s Alpha and Bartlett' s test of sphericity, and Amos 20.0 for composite reliability and average variance extracted (AVE). Results are shown in Table 1 .

All six latent variables achieved Cronbach' s Alpha coefficients above 0.7 (high reliability), with composite reliabilities above 0.8 (exceeding the 0.7 threshold). Bartlett' s test values ranged from 127.181 to 361.38, all rejecting the null hypothesis (sig. = 0.000) and showing significant correlation at the 0.000 level. AVE values ranged from 0.599 to 0.933, exceeding the 0.5 threshold, indicating satisfactory validity.

Empirical Results

Model Fit Results

We constructed a structural equation model using maximum likelihood estimation with Amos 20.0. After model modification, the final model achieved satisfactory fit across three categories of indices, as shown in Table 2 . Chi-square/degrees of freedom ≤ 2, RMSEA < 0.08, RMR ≤ 0.08, and CFI, TLI, IFI, and NFI all ≥ 0.9. AIC and BCC values showed the theoretical model was smaller than the saturated model. PGFI > 0.5 indicated ideal parsimony. AGFI and GFI ≥ 0.8 indicated acceptable fit. Overall, the final model demonstrated high fitness and was acceptable.

The final structural equation model is shown in Figure 1 [Figure 1: see original paper], with standardized path coefficients.

Analysis of Effects and Mediation

We estimated parameters using Amos 20.0, with results shown in Table 3 . Path coefficients in Figure 1 reflect direct effects. Further calculations of direct, indirect, and total effects are presented in Table 4 .

Key findings:

1. **IP Creation Capability (CR) Effects:** CR showed a significant direct negative effect on EP (-0.31, $p < 0.05$), contrary to H3a. This may reflect cultural enterprises' high upfront costs, long production cycles, and the contradiction between profitability and rapidly changing market demands. Some enterprises, particularly newer ones, invest heavily in IP creation without successful commercialization, yielding negative short-term economic returns. The "inhibition theory" suggests excessive IP ownership may reduce competitive pressure for exchange. CR' s direct effect on SP was non-significant, rejecting H3b. However, CR exhibited significant indirect effects: CR→MA→EP and CR→AP→EP paths were significant ($p < 0.05$ and $p < 0.01$, respectively), supporting H1a and H1b. The indirect effect (0.36) exceeded the direct effect, indicating MA and AP mediate

CR' s impact on EP. CR→MA→SP was also significant ($p < 0.05$), with a significant indirect effect (0.19), showing MA mediates CR' s effect on SP.

2. **IP Protection Capability (PR) Effects:** PR showed a significant direct positive effect on EP (0.30, $p < 0.05$), supporting H4a, but a non-significant direct effect on SP, rejecting H4b. Indirect effects were significant: PR→MA→EP and PR→AP→EP paths were significant ($p < 0.01$ and $p < 0.05$), as was PR→MA→SP ($p < 0.01$). PR' s indirect effects on EP and SP (0.36 and 0.30, respectively) exceeded direct effects, indicating MA and AP mediate PR' s impact on EP, while MA mediates PR' s effect on SP. Total effects were 0.66 for EP and 0.30 for SP.
3. **IP Management Capability (MA) Effects:** MA showed significant direct positive effects on both EP (0.35, $p < 0.05$) and SP (0.48, $p < 0.05$), supporting H5a and H5b.
4. **IP Application Capability (AP) Effects:** AP demonstrated a significant direct positive effect on EP (0.45, $p < 0.05$), supporting H6a, but a non-significant direct effect on SP, rejecting H6b.

Conclusions and Implications

Based on relevant theories and existing research, this study proposed hypotheses and tested them using structural equation modeling with 232 valid questionnaires from cultural enterprises. Main conclusions include: (1) All four IP capabilities have significant direct effects on innovative economic benefits; (2) IP management capability directly affects innovative social benefits and significantly mediates the effects of IP creation and protection capabilities on social benefits; (3) IP creation and protection capabilities influence innovative economic benefits both directly and indirectly through the mediation of IP management and application capabilities.

Practical implications:

1. **Enhance IP Management Capability to Improve Social Benefits:** Cultural enterprises should increase investment, establish specialized management agencies, expand IP management personnel, and enhance their involvement across design, manufacturing, and marketing. They should fully utilize industry associations and government IP management services and public platforms to strengthen IP management capability. By leveraging the mediating role of IP management, enterprises can create high-quality products, improve service quality, expand market influence, gain industry awards and international honors, and disseminate correct values and advanced culture through corporate platforms, thereby enhancing innovative social benefits.

2. **Strengthen IP Quality Construction:** Given cultural enterprises' heavy dependence on creative talent, they should establish an atmosphere that respects talent and innovation, improve reward systems, recruit and cultivate talent, and protect legitimate interests of IP creators. To address resource constraints facing small enterprises and less-developed regions, enterprises should integrate resources across regions, fully exploit knowledge and characteristic resources, and conduct secondary innovation. They should understand IP application policies, evaluation standards, review systems, and writing techniques, conduct information searches before R&D initiation to avoid duplicate applications, and investigate personalized and rapidly changing cultural market demands to optimize IP portfolios and reduce maintenance costs. Familiarity with IP transaction systems and evaluation mechanisms, along with R&D cooperation through IP alliances, can improve conversion rates and application capabilities.

3. **Leverage Cultural Crossover Empowerment:** Enterprises should enhance IP contributions to product/service differentiation, revenue growth, and profit, thereby improving innovative economic performance. They should increase training and seminars, publicize IP legal systems, improve IP security and confidentiality mechanisms, early warning systems, and rights protection mechanisms to enhance IP protection capability and provide guarantees for cross-industry cooperation.

Limitations and Future Research: This study surveyed primarily IP department and R&D/technology managers in cultural enterprises in Xi' an, Beijing, Shanghai, and other cities, providing strong specificity. Future research should expand sample scope and scale and continuously improve questionnaire items based on development practices.

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Author Contributions: Yuan Dan: proposed research framework, analyzed data, wrote and revised the paper; Li Jing: participated in data collection and organization, revised paper details, checked formatting; Zhan Shaowen: guided topic selection, provided revision suggestions for sections.

Note: Figure translations are in progress. See original paper for figures.