Proceedings of Business and Economic Studies, 2026, Volume 9, Issue 1
http://ojs.bbwpublisher.com/index.php/PBES
Online ISSN: 2209-265X
Print ISSN: 2209-2641

Ecological Niche Construction Strategies for Cross-Border Integration of Traditional Industries Under the Perspective of Platform Economy

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Abstract: This paper examines the critical pathways for traditional industries to achieve cross-border integration in the context of the digital economy, grounded in the profound reshaping of traditional industrial ecosystems by platform economies. The study first analyzes the survival crises and transformation opportunities faced by traditional industries under platform economies, then introduces niche theory to establish a three-dimensional analytical framework of "platform-industry-user." Through empirical case analysis, the paper identifies core issues in cross-border integration, including niche gaps, resource misallocation, and competitive barriers. It proposes platform-enabled niche-building strategies, encompassing technological coupling, organizational restructuring, and value co-creation, aiming to provide theoretical support and practical guidance for traditional industries in seeking new spaces for survival and development amid the platform economy wave.

Keywords: Platform economy; Traditional industry; Cross-industry integration

Online publication: February 10, 2026

1. Introduction

In the era of digital economy, the explosive growth of global digital economy deeply penetrates the real economy, triggering deep industrial transformation. Traditional industries are facing the survival dilemma of being squeezed by emerging platform enterprises due to their single structure and weak growth. Cross-border integration has become an important strategic choice for them to break through industry boundaries, acquire new users and markets. Although existing research has achieved certain results in platform economy business models, digital transformation of traditional industries, and application of niche theory, there is still a lack of specific application of niche theory in cross-border integration of traditional industries under platform economy. This article focuses on the logical starting point, core mechanism, and implementation path of ecological niche construction [1]. Using literature research, case analysis, and comparative analysis methods, a model for ecological niche

construction based on platform economy characteristics is proposed, emphasizing the role of data elements while acknowledging that some empirical analyses may have limitations due to difficulties in obtaining data.

2. Theoretical basis of ecological niche for cross-border integration of traditional industries under the platform economy

2.1. Ecological metaphor of platform economy

The ecological niche theory foundation of cross-border integration of traditional industries under the platform economy provides solid theoretical support for in-depth exploration of the cross-border integration mechanism of traditional industries in the wave of platform economy [2]. The platform economy has a unique ecological metaphor, and its core lies in the construction of platforms as super ecosystems. In the era of digital economy, platforms, with their powerful digital connectivity capabilities, tightly connect a massive number of entities on both sides of supply and demand, breaking the traditional single and closed production and operation mode of enterprises. Unlike a single enterprise that only focuses on internal resource integration and business expansion, the ecosystem formed by the platform is more complex and diverse, covering many different types of participants, including suppliers, consumers, developers, service providers, etc. These participants achieve information sharing, resource complementarity, and collaborative innovation through the platform, jointly promoting the continuous evolution and development of the ecosystem. For example, e-commerce platforms not only connect various merchants and consumers, but also attract logistics companies, financial institutions, advertisers and many other related entities to settle in, forming a huge and complex commercial ecosystem. In this ecosystem, various entities are interdependent and influence each other, jointly creating and sharing value, thus achieving the maximization of the overall benefits of the ecosystem.

2.2. Ecological niche characteristics of cross-border integration of traditional industries

The multilateral market mechanism in the platform economy is the key to maintaining the dynamic balance of the super ecosystem. A multilateral market refers to a market structure that connects two or more interdependent customer groups through a platform and facilitates transactions or interactions between them. In the platform economy, multilateral market mechanisms play a crucial role, enabling platforms to achieve stable ecosystem operation through cross-subsidy strategies [3]. Cross-subsidy refers to a business model in which a platform provides low-priced or free services to a certain customer group in order to attract that group to join the platform, and then compensates for costs and profits by charging fees to other customer groups. For example, search engine platforms provide free search services to ordinary users, attracting a large number of users to use their platforms, which in turn attracts advertisers to place ads on the platform. The platform earns profits by charging advertising fees to advertisers. This cross subsidy mechanism not only helps the platform rapidly expand its user base and enhance market influence, but also promotes interaction and communication between different customer groups, enhancing the vitality and stability of the ecosystem. At the same time, multilateral market mechanisms can flexibly adjust pricing strategies and service models based on the characteristics and value contributions of different customer groups, thereby achieving optimized allocation and efficient utilization of ecosystem resources.

2.3. Analysis of the motivation for ecological niche construction

The cross-border integration of traditional industries presents unique ecological niche characteristics under the platform economy, which is both a result of adapting to the environment and a key to sustainable development.

The expansion of ecological niche width is an important manifestation. Under the traditional economic model, traditional industries are limited to their own industries, with narrow business and limited space. In the era of platform economy, cross-border integration has enabled it to break through industry boundaries and enter new fields. Integrating manufacturing with emerging technologies, achieving intelligent upgrading, transforming towards service-oriented manufacturing, providing value-added services, and expanding the breadth of the ecosystem. Ecological niche overlap and competition are inevitable. The cross-border integration of traditional industries and Internet platform enterprises is deepening, and the competition is fierce. Internet platform enterprises have advantages in technology, data and users [4]. Traditional industries need to give play to physical advantages such as brand, channel and supply chain to form differentiated competition. Filling the ecological niche gap brings new opportunities. Hence, the development of platform economy leaves gaps in services and markets, and traditional industries can use their physical advantages and industry experience to fill them. In the field of fresh e-commerce, traditional agricultural and sideline product wholesalers cooperate with e-commerce platforms to provide fresh products with the advantages of supply chain and cold chain logistics, achieving mutual benefit and win-win results. The driving forces behind ecological niche construction include passive adaptation under environmental pressure and seeking differentiated competitive advantages. Under pressure from market saturation and regulatory changes, traditional industries need to integrate and adjust their business models across borders; When homogeneous competition is fierce, it is also necessary to seek unique value, enhance core competitiveness, and achieve sustainable development.

3. Ecological niche status and problems of cross-border integration of traditional industries

3.1. Typical case analysis of cross-border integration of traditional industries

In the practice of cross-border integration of traditional industries, enterprises have diverse integration modes and effects due to different strategies and resources. Some have successfully transitioned to ecological niches, while others have suffered setbacks in transformation. In successful cases, Haier Kaos is a benchmark for the transformation of traditional manufacturing into an ecological platform. Haier relies on the manufacturing industry background, takes the industrial Internet platform as the carrier, breaks the closed production mode, and brings users into the whole process. By accurately capturing demand through mass customization, efficient integration between production and consumption can be achieved. It also takes Caos as the core, attracts many subjects to join, builds the industrial Internet ecology of the whole industrial chain, realizes resource sharing and complementary advantages, successfully transforms into an ecological platform operator, and significantly improves the niche.

The root interconnection platform it built not only provides intelligent services for its own equipment, but also opens one-stop solutions to small and medium-sized enterprises in the industrial chain to help its digital transformation. Sany Heavy Industry also takes this opportunity to enhance its stickiness with upstream and downstream enterprises and build an industrial Internet ecosystem. However, traditional retail giants such as Suning and Gome have experienced the digital pains of losing their ecological niche when facing the impact of e-commerce. In the early stages of the rise of e-commerce, although they laid out online, their strategic positioning was unclear, the integration of online and offline was poor, resources were scattered, efficiency was low, and there was no innovative value creation model. The user stickiness was insufficient, and ultimately the market share was eroded and the ecological niche was squeezed.

3.2. Main problems in current ecological niche construction

There are many problems in the ecological niche construction of traditional industries, which restrict their sustainable development in the era of platform economy. The primary issue is the vague positioning of ecological niche and the lack of core competitiveness [5]. Many traditional enterprises blindly follow the trend of cross-border integration, without combining their own advantages with market demand to find a unique positioning. Seeing the success of the Internet platform, he was eager to build his own platform. However, due to the lack of clear strategic planning and differentiation advantages, the platform was seriously homogenized, which made it difficult to attract users and partners, and could not stand on the market. The weak ability to integrate resources and low level of platformization are also major bottlenecks. Traditional enterprise organizational structures are rigid, with information barriers between departments, making it difficult to integrate dispersed data and computing resources. In addition, it lags behind in technology research and development, talent introduction, and lacks the technical and talent support to build an efficient and stable platform. During the transformation, it faced technological bottlenecks and resource constraints, and therefore cannot achieve large-scale operation and value maximization. The lagging value creation model and insufficient user stickiness are equally prominent. Traditional enterprises often focus on product sales and lack a data-driven value-added service model, which makes it difficult to meet personalized user needs and leads to user churn, posing a threat to the stability of their ecosystem.

3.3. Root causes of problems

The problems in constructing the ecological niche of traditional industries are the result of a combination of strategic cognitive biases and organizational genetic defects. In terms of strategic cognitive bias, some enterprises have insufficient understanding of the laws of platform economy and have misconceptions of “technology only” or “traffic only”. The former ignores key elements such as user needs, while the latter blindly expands the number of users but neglects quality and stickiness, leading to difficulties in sustainable operation of the platform. In terms of organizational genetic defects, traditional hierarchical management is not suitable for the flat and decentralized requirements of the platform economy. The decision-making process is cumbersome, information transmission is inefficient, there are interest games and information barriers between departments, and resources are difficult to effectively integrate and coordinate. The platform economy requires enterprises to have the ability to make quick decisions, and the conflict between the two hinders the transformation of traditional industries to platformization.

4. Ecological niche construction strategy for cross-border integration of traditional industries

4.1. Ecological niche anchoring strategy based on technology coupling

In the platform economy, technology is the key to cross-border integration of traditional industries and anchoring ecological niches. Building a differentiated technological moat is an important measure, and emerging technologies such as the Internet of Things and big data can support the reconstruction of traditional industrial production processes. In the manufacturing industry, installing sensors can monitor the real-time operation status of equipment. By utilizing big data analysis to mine massive amounts of data, users’ needs and market trends can be deeply understood, providing a basis for decision-making, establishing technological dominance, and building an insurmountable technological moat. Building open API interfaces to achieve interconnectivity is also crucial. Traditional industry platforms cannot be isolated in order to develop and grow, but should be integrated into a larger ecosystem. For instance, building open API interfaces can lower the cooperation threshold with

third-party developers and partners, and attract external forces to participate in platform construction. Moreover, open interfaces on e-commerce platforms to attract merchants, logistics, finance, and other stakeholders, enrich application scenarios, meet diverse user needs, enhance platform vitality and competitiveness, expand influence and user base, and consolidate the ecological niche.

4.2. Ecological niche adaptation strategy based on organizational restructuring

The cross-border integration of traditional industries requires not only technological innovation, but also the restructuring of organizational structure and management models to adapt to the platform economy environment. Promoting organizational flexibility and agility transformation is the core. The traditional hierarchical system has problems such as departmental barriers and cumbersome decision-making, making it difficult to quickly respond to market and user demands. Therefore, it is necessary to break down departmental walls and establish a project-based team, which is formed across departments with the project as the center. Members can work together to leverage their strengths and flexibly adjust the workflow and make quick decisions during execution, improving efficiency and response speed. For example, software development projects can respond to changes in customer needs in a timely manner. Cultivating platform leadership is also crucial. In the era of platform economy, traditional industries need to cultivate compound management talents and reshape corporate culture. Managers should have an open-minded mindset, guide their teams to participate in ecological construction, possess cross departmental coordination and resource integration capabilities, and create a cultural atmosphere that encourages innovation and tolerates failure. Employees should actively participate in innovative practices to build a high-quality team and provide guarantees for effective adaptation to the ecological niche.

4.3. Ecological niche enhancement strategy based on value co-creation

Value co-creation is the core feature of platform economy, which can enhance the ecological niche of traditional industries and gain greater development space. Transitioning from selling products to selling services is an important approach. Traditional industries are mostly limited to product sales, while under the platform economy, user demands are diverse and personalized, leading to an increase in service demand. Traditional industries should extend their industrial chains and provide full lifecycle solutions and value-added services. In addition to selling cars, automobile manufacturing companies also provide services such as finance, insurance, maintenance, and second-hand car trading, providing users with a one-stop experience. This can increase user stickiness, improve satisfaction and loyalty, explore new profit growth points, and enhance one's own value in the ecosystem. Stimulating the vitality of ecological partners and building symbiotic relationships are key strategies. The platform ecosystem is composed of numerous ecological partners, and its vitality affects the health of the system. Traditional industries need to establish reasonable incentive mechanisms to guide upstream and downstream partners to maintain ecological order. E-commerce platforms establish fair distribution rules, provide technical support training, and incentivize merchants to improve product quality and services. At the same time, we will deepen cooperation with ecological partners to jointly develop new products and services, achieve resource sharing and complementary advantages. Through these, traditional industries and partners form a close community of shared interests, promote ecosystem development, and achieve sustained improvement of ecological niche.

5. Conclusion

This article focuses on the construction of the ecological niche of traditional industries under the platform

economy, and draws the core viewpoint that traditional industries need to work together from the three dimensions of technology, organization, and value. Technology coupling anchors the ecological niche, organizational restructuring adapts to ecological changes, and value co-creation enhances the ecological niche. The government should strengthen digital infrastructure, improve data security and privacy protection regulations, and create a favorable external environment. However, this study has limitations such as limited sample selection and insufficient dynamic evolution simulation. Future research can combine complex systems theory to deepen quantitative analysis of the dynamic evolution of ecological niches, providing more forward-looking and guiding theoretical support and practical guidance for the cross-border integration of traditional industries.

Disclosure statement

The author declares no conflict of interest.

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