

Digital economy platforms - how HRM collaboration balances globalization and localization in supply chains

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Abstract. In the context of accelerating global economic integration and digital transformation, it is crucial to strike a dynamic balance between globalization and localization in corporate supply chains for effective strategic management. From a systems integration perspective, this paper discusses core mechanisms through which digital economy platforms collaborate with Human Resource Management (HRM) to achieve supply chain balance. By synthesizing research on global versus local supply chains, digital-economy platforms, and HRM, the author proposes a "technology—organization" collaboration framework that unveils how digital-platform empowerment and HRM-driven organizational empowerment are intrinsically linked and mutually reinforcing. Research indicates that digital economy platforms provide technological support, while HRM offers organizational capability guarantees; their collaboration optimizes the balance of the supply chain. However, existing studies are often limited by either "technological determinism" or "organizational determinism" perspectives, which lack systematic exploration of their collaborative mechanisms. Based on this gap, the paper proposes a "Platform-HRM Collaboration" theoretical framework, which elucidates the dialectical relationship between technological embedding and organizational adaptation. It reveals how the two factors form complementary and mutually reinforcing relationships at different levels of the supply chain to achieve a dynamic balance among efficiency, resilience, and innovation. This framework not only enriches interdisciplinary research in digital economy and supply chain management but also provides systematic theoretical guidance for companies to achieve coordinated globalization and localization development in complex environments.

Keywords: digital economy platforms, human resource management, supply chain globalization, supply chain localization, collaboration

1. Introduction

Global supply chains are undergoing transformation and restructuring. They now show features of both globalization and localization. This dual trend is not a zero-sum game but a complex dialectical relationship that calls for more flexible and adaptable supply chains. Digital economy platforms have brought new technology and collaboration methods to supply chain management. HRM, as the core of organizational capability, plays an essential and irreplaceable role in driving supply chain transformation and upgrading.

However, current research shows theoretical fragmentation and limited perspectives. Studies on digital economy platforms often take a binary view, "technological determinism" overemphasizes the efficiency of automation and neglects the costs of platform-organizational compatibility, while "social determinism" focuses on risks such as monopolies and data security but overlooks how similar technologies affect organizations differently. HRM research addresses issues such as the effect of algorithmic management on employees and the use of platform data in talent selection, but these insights typically remain isolated and are not integrated into broader supply chain systems.

Existing research lacks a systematic analysis of the collaboration between platforms and HRM. The literature does not examine platforms as "organizational technologies" in depth. Nor does it explain how platform technology can effectively work with HRM's organizational empowerment. For example, how can real-time data from platforms improve employee decisions? How can algorithm-driven processes adapt to cross-cultural management systems? This unsolved "technology-organization" collaboration is the central barrier to understanding how platforms and HRM drive supply chains toward a dynamic balance between globalization and localization.

This paper aims to review literature and build a "platform-HRM synergy" theoretical framework. Starting from the relationship between technology embedding and organizational adaptation, this approach offers new perspectives and practical

guidance on how to balance supply chain globalization and localization.

2. The dialectical relationship between supply chain globalization and localization

The essence of supply chain globalization is to allocate resources globally for economies of scale, division of labor, and cost optimization. This follows the classical theory of comparative advantage, aiming to maximize efficiency by expanding geographically. Yet, this efficiency-first logic now faces serious challenges. The global political and economic environment has become increasingly uncertain, marked by rising protectionism, conflicts, and public health crises. These issues expose global supply chains to risks such as disruptions, political pressure, and new sustainability demands [1]. Businesses now must reassess globalization strategies. They need to balance efficiency with risk evaluation and pursue more resilient supply chain structures.

Supply chain localization shortens supply chains, reduces transportation costs and carbon emissions, and enhances market responsiveness and emergency preparedness. Its key focus is to build a market-responsive system through geographic proximity. Localized supply chains aim for closer alignment with demand, enabling companies to adapt to personalized and customized consumption trends [2, 3]. Yet, localization also has limits: limited resources, higher costs, and less innovation. In technology-driven industries, excessive localization can isolate firms from global innovation networks, potentially compromising their access to technical advancements [2].

Therefore, globalization and localization are not a simple binary opposition, but rather two interdependent and complementary strategic poles that span time and space. The concept of "Glocalization" provides important theoretical guidance for balancing these two approaches. Its essence lies in structurally integrating the scale advantages of globalization with the responsiveness advantages of localization, rather than making simplistic trade-offs. Achieving this balance requires firms to maintain global resource integration capabilities while enhancing adaptability and responsiveness to local markets [4]. This balance is manifested not only in spatial layout but more profoundly as an organizational capability: companies should establish a dynamic management system capable of addressing the complexities of globalization and the specificities of localization [4].

3. The dual role of digital economy platforms in supply chains and the limitations of existing research

Digital economy platforms are shifting supply chains from linear collaboration to networked coordination. Utilizing cloud computing and big data, these platforms establish digital hubs to connect supply chain partners. Their main impact is to reshape traditional supply chain power and value distribution through algorithms and data [5, 6].

Different platform types reshape supply chain operations through unique empowerment. E-commerce platforms (e.g., Alibaba International) build global digital markets and standardize online transactions, simplifying cross-border trade. They use credit evaluation to screen partners, reducing transaction uncertainty [7]. Industrial internet platforms (e.g., Haier COSMOPlat) map the physical and digital worlds in real time. By aggregating industrial chain data, they turn tacit manufacturing knowledge into reusable models [8]. For example, after joining the platform, an automotive parts manufacturer improved capacity utilization and shortened delivery cycles using data-driven scheduling [9]. Logistics platforms (e.g., JD Logistics) convert discrete logistics resources into on-demand "logistics cloud services", shifting from owning to orchestrating resources [10].

The impact of platforms on supply chains is not unidirectional but rather generates profound restructuring effects across both globalization and localization dimensions.

In the globalization dimension, platforms enhanced the integration depth and resilience of global supply chains through three key mechanisms: First, at the resource integration level, platforms established global "digital procurement centers". For instance, some companies have rapidly connected with overseas suppliers through the platform, reducing procurement costs by 12% and shortening the supply cycle by 15 days, thereby achieving efficient allocation of high-quality resources on a global scale [11]. Secondly, at the operational synergy level, the platform serves as a "digital coordinator", leveraging its big data analytics capabilities to achieve real-time synchronization of global multi-node production and accurate demand forecasting, which effectively avoided supply-demand imbalances caused by supply chain misalignment [12]. Thirdly, in terms of risk management, the platform enhanced the global supply chain's ability to foresee and respond to risks by constructing a "digital immune system". For example, Walmart utilized blockchain traceability technology to reduce the time required for quality traceability processes from several days to under ten minutes, which significantly improved the traceability and trustworthiness of the supply chain [13].

In the localization dimension, the platform also demonstrates strong empowerment value: by building regional resource pools, it addressed the issue of "fragmentation" in local resources—a city logistics platform increased regional delivery efficiency by 40% and reduced costs by 18% through intelligent matching of transportation capacity [14]. Meanwhile, as an "industrial connector", the platform promoted the ecological development of local industrial clusters, which increased the local supporting rate of a regional equipment manufacturing industry from 65% to 88% [15].

Although the platform's value has gained widespread recognition, academic understanding of it still exhibits significant divergence and limitations. In terms of value assessment, research perspectives are divided into two camps: "efficiency-first" and

"risk-warning". The former emphasizes the efficiency improvements brought by platforms (e.g., manufacturing enterprises connected to industrial internet platforms saw an average 25% reduction in production cycles and a 30% increase in inventory turnover), while the latter focuses on potential risks such as platform monopolies and data security (approximately 30% of companies remain hesitant about platforms due to data security concerns) [16, 17].

A more fundamental research problem lies in the singular theoretical perspective. Most existing studies fall into the simplified thinking of "technological determinism", which generally overlooks the deep integration needs of platforms as "organizational technologies" with enterprise management systems. This theoretical blind spot precisely highlights the core concern of this paper: the synergy mechanism between digital economy platforms and HRM is a key theoretical gap in understanding how platforms facilitate the balanced development of supply chains.

4. The strategic transformation of HRM and its core role in supply chains

4.1. Paradigm reconstruction of HRM driven by the digital economy

The profound significance of the digital economy lies not only in its transformation of business operation models but also in driving a paradigmatic shift of HRM from a supporting function to a strategic core. Traditional HRM centered on transactional processing can no longer meet the demands of dynamic competition, as the core of corporate competition shifts from resource possession to the synergistic effectiveness of talent and data. This transformation manifests in dual dimensions: on one hand, HRM must cultivate versatile talent with data literacy, platform operation skills, and business acumen for companies; on the other hand, digital technology itself is reshaping the working methods of HRM. Digital infrastructures such as human resource information systems and AI recruitment tools not only automate processes but, more importantly, provide unprecedented scientific foundations for organizational decisions (e.g., talent planning, performance prediction) through data mining and intelligent analysis [18]. The role of human resource managers is evolving from being guardians of systems to becoming strategic designers who understand, inspire, and configure organizational creativity through data and algorithms.

4.2. The core empowerment mechanism of HRM in supply chain ecosystems

Within the intricate mesh of globally and locally interlaced supply-chain networks, HRM has outgrown its traditional talent-support remit to become a central empowerment system that secures resilience, agility, and innovation. This value is created through three intertwined mechanisms.

At the capability-building level, HRM serves as the forger of the supply chain's "digital IQ". It is responsible for systematically cultivating versatile teams capable of navigating global platform data, understanding local market characteristics, and making effective decisions in the blended virtual-physical supply chain environment. This requires the training system to shift from single-skill instruction to comprehensive competency development, integrating technology, business, and culture. At the organizational synergy level, HRM serves as a mediator between the tensions of globalization and localization. By designing cross-cultural incentive mechanisms, establishing virtual team collaboration norms, and implementing agile performance management systems based on platform data, HRM can effectively resolve the inherent conflict between globally unified processes and locally flexible responses, ensuring coordinated actions across distributed supply chain nodes. At the strategic support level, HRM acts as an incubator for supply chain dynamic capabilities. A talent pool with continuous learning ability, adaptability, and innovative spirit serves as the ultimate barrier for supply chains against uncertainties. Excellent HRM, through shaping organizational culture and leadership, ensures that the supply chain possesses intrinsic motivation for continuous self-renewal and evolution while pursuing a dynamic balance between global efficiency and local responsiveness.

5. Research on the synergy between digital economy platforms and HRM

5.1. The necessity of synergy and research gaps

The necessity for synergy between digital economy platforms and HRM stems from their inherent functional complementarity and symbiotic capabilities in empowering supply chains. Platforms constructed a digital nervous system for perception and response in supply chains through data, algorithms, and connectivity technologies, achieving global visibility and intelligent scheduling. Meanwhile, HRM cultivated decision-making and execution organizations within supply chains through talent selection, incentives, and cultural shaping, providing sources of adaptability and innovation. The deep synergy between them fundamentally aims to resolve the tension between the "rigidity" of technological systems and the "flexibility" of organizational systems, thereby building a supply chain system that is both efficient, agile, and resilient.

However, current research on this synergy mechanism remains at the "instrumental application" level, which leaves significant room for theoretical deepening. Most literature either treats platforms as efficiency tools for HRM (e.g., for online

recruitment or training) or views human resources as personnel support for platform implementation, which fails to reveal from a "capability symbiosis" and "strategic coupling" perspective how their interaction and mutual construction jointly foster supply chain capabilities for a dynamic balance between global efficiency and local responsiveness. The direct consequence of this core theoretical gap is that companies often fall into the dilemma of "prioritizing technology over organization" or "seeing systems but missing data" in practice, which makes it difficult to truly unleash the strategic value of digital investments. Therefore, constructing a systematic theoretical framework for "platform-HRM synergy" has become an urgent need to advance both supply chain management theory and practice.

6. Construction of the "platform-hrm synergy" theoretical framework

This framework is based on systems theory, synergy theory, and strategic HRM theory, which aims to reveal how platform technological capabilities and human resource organizational capabilities drive supply chain strategy implementation through systemic coupling. Systems theory establishes the perspective of supply chains as integrated systems; synergy theory explains how subsystem interactions produce "1+1>2" spillover effects; strategic HRM theory emphasizes the necessity of aligning HR practices with platform technology and supply chain strategy.

The framework includes three core synergy mechanisms: (1) The bidirectional empowerment mechanism of data and decision-making: Platform data empowers precise HR decisions (e.g., talent forecasting, performance incentives), while HR insights into employee and organization feedback optimize platform algorithms and human-machine interactions, forming a continuously improving intelligent loop. (2) The nested mechanism of business processes and management processes: Modularizing HR management activities (e.g., cross-cultural training, compliance reviews, performance tracking) and embedding them into platform-supported supply chain processes ensures rigid execution of management requirements through technical workflows, which can achieve operational rhythm consistency. (3) The co-evolution mechanism of technology and organization: The platform's technological architecture and the organizational architecture (skills, culture, leadership) cultivated by HR mutually shape and upgrade each other, which serves as the fundamental source of dynamic capabilities for supply chains to continuously adapt to environmental changes.

Based on the framework, the following research propositions were proposed:

P1: The degree of strategic synergy between platforms and HRM is positively correlated with supply chain globalization-localization balance performance.

P2: Process integration and capability co-evolution are key mediating pathways through which "platform-HRM synergy" influences supply chain resilience.

7. Conclusion

This paper systematically reviewed the literature related to supply chain globalization and localization, digital economy platforms, and HRM, analyzed the connections and gaps in existing research; and constructed a "Platform-HRM Synergy" theoretical framework. The main theoretical contribution of this paper lies in integrating technology-oriented platform research with humanistic-oriented HRM research, which provides a comprehensive analytical perspective and theoretical framework to address the challenge of balancing supply chain globalization and localization. At the practical level, this study enlightens managers that when advancing the digital transformation of supply chains, they must prioritize the upgrading and synergy of the human resource system as a strategic core, rather than treating it as an afterthought, in order to truly unleash the potential of digital platforms and build agile supply chains that combine global efficiency with local responsiveness.

Future research can be conducted in the following areas: validating the research propositions in the "Platform-HRM Synergy" theoretical framework through empirical studies (such as case studies and surveys), exploring the specific impact of synergy mechanisms on supply chain performance and resilience; delving into the characteristics and patterns of platform-HRM synergy across different industries (e.g., manufacturing, retail) and enterprise sizes (e.g., large corporations, SMEs); and paying attention to the dynamic development of the digital economy (e.g., the application of generative AI) to timely adjust and refine the theoretical framework, providing more targeted recommendations for companies to achieve a balance between supply chain globalization and localization.

Through further research, it is expected to deepen the understanding of the synergistic role between digital economy platforms and HRM, promote the development of supply chain management theory and practice, and help companies achieve an effective balance and sustainable development of supply chains in a complex and ever-changing global environment.

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