Theoretical Logic and Practical Path of High-Quality Development of University Logistics from the Perspective of New Quality Productive Forces

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Abstract: *Centered on the leap of workers, means of labor, objects of labor and their optimized combination, new quality productive forces provide a brand-new theoretical framework and practical guidance for the high-quality development of university logistics. Based on the theory of productive forces, this paper systematically interprets the internal correlation between new quality productive forces and university logistics, analyzes the logical starting point and practical dilemmas of fostering new quality productive forces in the field of university logistics, and proposes practical paths to advance the development of new quality productive forces in logistics from three dimensions: upgrading workers, innovating means of labor, and expanding objects of labor. The study shows that the essence of developing new quality productive forces in university logistics lies in realizing the optimized combination and leap of the three elements of productive forces, with scientific and technological innovation as the core driving force and the in-depth realization of the value of service education as the fundamental goal.*

Keywords: *new quality productive forces; university logistics; high-quality development; workers; means of labor; objects of labor*

1. Introduction

At the 11th collective study session of the Political Bureau of the CPC Central Committee, General Secretary Xi Jinping pointed out that new quality productive forces are spawned by revolutionary technological breakthroughs, innovative allocation of production factors and in-depth industrial transformation and upgrading. Taking the leap of workers, means of labor, objects of labor and their optimized combination as the basic connotation, they take the substantial improvement of total factor productivity as the core symbol, feature innovation, focus on high quality, and are essentially advanced productive forces. This important exposition provides fundamental guidelines for the high-quality development of various fields including university logistics.

As a basic system supporting the operation of higher education, university logistics undertakes the material guarantee task of maintaining the order of teaching and scientific research, as well as the operation and management responsibility of serving the daily life of teachers and students. As higher education enters a new stage of connotative development, logistics services are facing the epochal transformation from "quantity availability" to "quality excellence" and from "basic guarantee" to "premium supply". Teachers and students' demands for logistics services have shifted from "scale sufficiency" to "quality, superiority and comfort", which poses brand-new challenges to logistics support capacity.

Nevertheless, the current field of university logistics is generally plagued by aging facilities and equipment, unbalanced talent structure, low management efficiency and other problems, and the traditional development model can hardly adapt to the requirements of the new situation. How to lead the high-quality development of logistics with new quality productive forces has become a theoretical proposition and practical subject to be urgently addressed. From the perspective of the three elements of productive forces — workers, means of labor, objects of labor and their optimized combination, this paper systematically elaborates the theoretical logic and practical path of developing new quality productive forces in university logistics.

2. Internal Correlation Between New Quality Productive Forces and University Logistics

2.1 Theoretical Connotation of New Quality Productive Forces

To understand the relationship between new quality productive forces and university logistics, it is necessary to first grasp the core essence of new quality productive forces. Driven by innovation as the dominant factor, new quality productive forces represent an advanced productive force form featuring high technology, high efficiency and high quality, which conforms to the new development philosophy. Its basic connotation can be interpreted from three levels.

From the perspective of constituent elements, new quality productive forces emphasize the "optimized combination and leap" of the three elements: workers, means of labor and objects of labor. Different from the linear growth model of traditional productive forces relying on single factor input, new quality productive forces focus on the synergistic effect and structural upgrading among factors. The organic integration of high-quality workers, intelligent means of labor and data-based objects of labor forms the core support of new quality productive forces.

From the perspective of driving mechanism, new quality productive forces take scientific and technological innovation as the core driving force. Revolutionary technological breakthroughs bring fundamental changes to production modes, the innovative allocation of production factors improves resource allocation efficiency, and in-depth industrial transformation and upgrading spawn new business forms and models. In the field of university logistics, this means coordinated reforms at multiple levels including technology, management and systems.

From the perspective of value orientation, new quality productive forces pursue substantial growth in total factor productivity and ultimately serve the all-round development of human beings. This is highly consistent with the fundamental purpose of service education in university logistics: technology is a means while education is the goal, and human beings rather than equipment or facilities should be put at the center.

2.2 Special Stipulations of New Quality Productive Forces in University Logistics

New quality productive forces in university logistics share common characteristics with general new quality productive forces, while bearing special stipulations unique to the education sector.

First, service attributes take precedence over technical attributes. The essence of university logistics lies in service, and technology serves as a means to improve service quality. The application of new quality productive forces in logistics must always center on improving teachers and students' experience and service efficiency, and technology shall not be alienated into an end in itself.

Second, the function of education service is embedded in the whole process. The new quality service capacity of university logistics shoulders the mission of "service education"[1]. This means logistics workers are not only service providers but also implicit educators; logistics means of labor are not merely service tools but also educational carriers; logistics objects of labor cover not only material resources but also educational scenarios. The development of new quality productive forces must serve the realization of educational value.

Third, dynamic balance between public welfare and marketization is required. University logistics services are quasi-public goods with public welfare as their fundamental attribute. The advancement of new quality productive forces shall not come at the cost of public welfare; instead, it should guarantee the accessibility and fairness of services while improving efficiency.

2.3 In-depth Requirements of Developing New Quality Productive Forces for Logistics Reforms

Based on the above analysis, developing new quality productive forces puts forward three layers of in-depth requirements for university logistics reforms.

First, transform workers from "experience-based" to "knowledge-based, skill-oriented and innovative". New quality productive forces require logistics staff to adapt to modern advanced technologies and equipment with the capacity for rapid knowledge iteration, which necessitates the reconstruction of the logistics talent training system and career development channels.

Second, upgrade means of labor from "traditional tools" to "intelligent equipment + data platforms". Digital transformation serves as a vital approach to implement new quality productive forces in logistics,

which demands the transformation of traditional logistics production modes via the Internet of Things, big data, artificial intelligence and other technologies.

Third, expand objects of labor from "material resources" to the dual category of "materials + data". Data has become an increasingly important object of labor in logistics work. Through in-depth mining of data such as consumption, energy consumption and usage preferences, services can shift from "large-scale supply" to "precision targeted provision".

3. Practical Dilemmas of Fostering New Quality Productive Forces in University Logistics

Despite the important opportunities brought by developing new quality productive forces to university logistics, the cultivation of new quality productive forces in this field is still restricted by multiple practical constraints.

3.1 Cognitive Dilemma: Insufficient Strategic Positioning and Value Recognition

The understanding that educational logistics serves as a crucial support for educational modernization remains inadequate. Most universities prioritize teaching and scientific research, marginalizing logistics as a non-core department. The lack of macro vision in top-level design and policy orientation leads to insufficient innovation investment and development momentum in logistics. Under such circumstances, logistics staff tend to underestimate the importance of their posts, adopt a perfunctory working attitude, lose initiative and creativity, and thus reduce service efficiency.

3.2 Conditional Dilemma: Inadequate Facilities, Equipment and Capital Investment

Insufficient capital investment results in severely aging and malfunctioning hardware facilities in many universities, forming material barriers to the development of new quality productive forces. Even for schools that have updated facilities and equipment, they often merely replace hardware without scientific facility management and sustainable operation and maintenance capacity. New equipment fails to deliver its due functions, causing resource waste and new potential safety hazards. Weak digital infrastructure and limited data collection and sharing capacity hinder the construction of smart logistics.

3.3 Talent Dilemma: Mismatch Between Team Structure and Competence Quality

The logistics teams of universities present a structural contradiction summarized as "four more and four less": more low-educated staff and fewer highly educated ones; more senior employees and fewer young talents; more ordinary workers and fewer professional specialists; more simple laborers and fewer technical workers. Such a personnel structure fails to meet the requirements of new quality productive forces for new-type workers. Meanwhile, restricted by the traditional stereotype that logistics is a non-core sector and insufficient funding, logistics posts lack appeal for high-quality talents, with imperfect talent introduction and training mechanisms and poor team stability.

3.4 Institutional Dilemma: Absence of Innovation Incentives and Collaborative Integration

Innovation activities in logistics lack systematic incentive mechanisms, and frontline staff's improvement proposals and technological innovations can hardly gain effective recognition and promotion. In addition, imperfect collaborative mechanisms exist among various logistics business segments, between logistics and other university departments, and between universities and social enterprises, resulting in scattered innovation resources, redundant construction and insufficient joint efforts. The prominent problem of information silos during digital transformation impedes effective data sharing and comprehensive utilization.

3.5 Conceptual Dilemma: Tension Between Technology Application and Service Education

In the process of promoting new quality productive forces, some universities fall into the tendency of "valuing technology over service" and "prioritizing construction over education", simplifying new quality productive forces into equipment renewal and system launch while ignoring service experience and educational effects. The core value of new quality service capacity lies in better realization of the service education philosophy, and technology is merely a means rather than an end. Deviation from this orientation may render technological investment counterproductive.

4. Practical Paths to Develop New Quality Productive Forces in University Logistics

4.1 Worker Upgrading: Cultivating Knowledge-Based, Skill-Oriented and Innovative Logistics Teams

Workers constitute the most fundamental element of productive forces. To develop new quality productive forces in university logistics, the primary task is to realize the quality leap of logistics workers.

First, strengthen ideological and political guidance and value recognition. Help logistics staff understand the epochal significance of new quality productive forces, establish professional identity centered on "service education", and recognize that they are not only service implementers but also vital educators. Every logistics worker should grasp the profound implication that "you are not merely cleaning the ground, but creating an educational environment".

Second, build a hierarchical and classified training system. Develop differentiated training programs targeting management personnel, technical backbones and frontline employees. Managers receive training on new quality productive forces concepts and digital leadership; technical backbones focus on new technology application and innovation capacity cultivation; frontline staff learn service standards and digital tool operation. Training shall be incorporated into continuing education credits and linked to post promotion to form a long-term mechanism.

Third, reform personnel systems and incentive mechanisms. Gradually eliminate identity gaps and implement "post-based salary and payment by labor contribution" to narrow the treatment gap among staff with institutional establishment, corporate employment and labor dispatch contracts. Establish dual promotion channels for management and technical positions, taking innovation capacity and educational performance as important promotion criteria. Create innovation incentive mechanisms to offer material and spiritual rewards to staff with outstanding performance in technological improvement and service innovation.

Fourth, foster a cultural atmosphere that respects innovation and tolerates trial and error. Stimulate logistics staff’s enthusiasm for innovation and sense of ownership through skill competitions, selection of innovative cases and publicity of advanced models, enabling frontline employees to become the vitality source driving the development of new quality productive forces.

4.2 Innovation of Means of Labor: Promoting Digital Transformation and Smart Logistics Construction

Means of labor serve as an important indicator measuring the development level of productive forces. To develop new quality productive forces, it is imperative to advance the intelligent and digital upgrading of logistics means of labor.

First, implement information infrastructure construction. Build a unified data platform to realize data sharing and interconnection across all logistics business segments; rely on advanced Internet of Things equipment to achieve real-time monitoring and intelligent control of campus water, electricity, heating, facility equipment status, environmental sanitation and other fields. Attach importance to information security guarantee and establish a sound information security management system.

Second, develop an all-in-one smart service platform. Integrate service functions including teacher and student maintenance reporting, payment, reservation and feedback into a unified platform to realize "let data run more and teachers and students run less". Draw on the "digital intelligent steward" model to construct a closed-loop mechanism covering demand submission to service response, facilitating the transformation of logistics services from "passive response" to "active service".

Third, promote technological application innovation in key fields. In catering services, develop smart canteens with self-service meal selection, contactless payment and nutritional analysis to improve dining experience and reduce food waste. In apartment management, adopt smart door locks, smart water and electricity meters, face recognition and other technologies to enhance management efficiency and safety. In energy management, conduct refined monitoring and management of energy consumption via Internet of Things equipment and data analysis platforms to support the construction of green and low-carbon campuses.

Fourth, build a unified operation and maintenance platform for smart campuses based on digital twin technology. Eligible universities may explore the construction of a twin digital campus for logistics support, covering multiple subsystems such as facility management, energy management, dormitory management, consumption management and smart irrigation, so as to comprehensively improve the

intelligence, precision and visualization of logistics work.

4.3 Expansion of Objects of Labor: Driving Precise Management and Services with Data

Data has become an increasingly important object of labor in the era of new quality productive forces. University logistics should take data as a core resource for problem research, demand satisfaction, service improvement and cost reduction and efficiency increase[2].

First, establish a data collection and governance system. Systematically sort out data sources and types in all links of logistics operation, standardize data collection criteria and quality requirements. Break departmental barriers to promote data sharing and resolve the problem of information silos.

Second, deepen data analysis and application. Create data management models through in-depth mining of consumption data, energy consumption data and usage preference data to support accurate prediction, scientific planning and operational optimization. For example, analyze teachers and students' dining data to optimize dish supply and canteen scheduling; identify abnormal electricity consumption through dormitory energy consumption data; predict facility maintenance demands via maintenance reporting data.

Third, drive the transformation of services from "large-scale supply" to "precision targeted provision". Based on data analysis results, realize personalized, customized and order-based services, replacing the traditional "one-size-fits-all" service model and enhancing the warmth, precision and effectiveness of logistics work. Meanwhile, protect teachers and students' data privacy to ensure legal compliance and ethical boundaries in data utilization.

4.4 Optimized Combination of Three Elements: Constructing a Collaborative Innovation Mechanism

New quality productive forces emphasize not only the independent upgrading of each element but also the leap of their optimized combination. University logistics shall promote the coordinated evolution of workers, means of labor and objects of labor from a systematic perspective.

First, build an open and collaborative governance pattern. Break the traditional isolated operation mode of logistics guided by the concept of new quality productive forces, and form a development ecosystem featuring "government guidance, university dominance, association coordination and enterprise participation". Promote linkage between logistics departments and student affairs, academic affairs, scientific research and other departments to form joint educational efforts.

Second, advance the innovative expansion of service projects and sectors. While introducing new technologies and methods into traditional sectors including catering, property management, apartments and energy, explore new service categories and business forms such as smart parking, shared spaces and green energy services to expand application scenarios for new quality productive forces.

Third, adhere to the fundamental principle that technology serves human beings. Throughout the development of new quality productive forces, always anchor the fundamental goal of "serving teachers and students and realizing education service"[3]. Technology acts as a means to improve service quality, and human beings rather than equipment or facilities should be the core concern. Avoid formalism of pursuing technology for technology's sake, and ensure all technological investment can be converted into tangible gains for teachers and students and better educational outcomes.

4.5 Institutional Guarantee: Supporting Environment for the Development of New Quality Productive Forces

The development of new quality productive forces requires synchronous reform and supporting guarantees of institutional environments.

First, improve the policy support system. Universities shall incorporate the development of new quality productive forces in logistics into institutional development plans, and allocate special funds, dedicated posts and supporting policies for new quality productive forces in budget formulation, post setting and resource allocation[4].

Second, establish innovation evaluation and incentive mechanisms. Incorporate innovation capacity, technological application effects and educational performance into the logistics performance appraisal system, forming a virtuous cycle of "innovation — evaluation — incentive — re-innovation".

Third, strengthen infrastructure guarantee and renewal. Increase investment in the renewal and transformation of logistics facilities and equipment to provide material foundations for the upgrading of means of labor. Establish a full-life-cycle management system for facilities to ensure sustainable utility of new equipment and avoid resource waste caused by simple replacement without follow-up maintenance.

5. Conclusion

New quality productive forces bring new concepts, new frameworks and new momentum to the high-quality development of university logistics. The essence of developing new quality productive forces in university logistics lies in promoting the optimized combination and systematic leap of the three elements of logistics workers, means of labor and objects of labor, with scientific and technological innovation as the core driving force and the in-depth realization of the value of service education as the fundamental goal.

At present, fostering new quality productive forces in university logistics is still trapped by multiple dilemmas including cognition, conditions, talent, institutions and concepts. To resolve these dilemmas, coordinated efforts shall be made from the three dimensions of worker upgrading, means of labor innovation and objects of labor expansion. Driven by the dual wheels of digital transformation and institutional mechanism reform, a logistics operation support system compatible with new quality productive forces shall be constructed.

Looking ahead, guided by new quality productive forces, university logistics shall realize the leap from "basic guarantee" to "premium supply", the transformation from "experience-based management" to "data-driven governance", and the sublimation from "single service function" to "integrated service education function", so as to provide strong support for the high-quality development of higher education and the construction of "Double First-Class" universities. This is an inevitable choice for university logistics to respond to the questions of the times, as well as a historic opportunity for the leapfrog development of the logistics sector.

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