Analysis on Current Situation and Optimization Strategies of Industrial Workers in Chongqing's Modern Industrial System: A Case Study of Nan'an District

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Abstract: As a pivotal stronghold in the Western Development Strategy of the new era and a comprehensive hub for inland opening-up, Chongqing occupies a strategic position in the establishment of a modern industrial system. The evolution and maturation of this system hinge critically on the availability of a robust and skilled talent pool. To bolster the workforce and ensure its competitiveness, it is imperative to cultivate a substantial cohort of industrial workers who not only possess firm ideals but also have a deep understanding of technology and innovation. These workers must be willing to undertake responsibilities, embrace challenges, and make significant contributions to the industry. This study, utilizing Nan'an District of Chongqing as an empirical case, conducts an in-depth analysis of the current status of modern manufacturing and strategic emerging industries within the region. It identifies notable gaps and challenges in adapting to the rapidly changing industrial landscape and proposes comprehensive optimization strategies aimed at enhancing the roles and contributions of these industries in the future development of Chongqing and the broader western region. By addressing these issues, the study aims to provide valuable insights and recommendations for policymakers, industry leaders, and educators to foster a thriving industrial ecosystem in Chongqing.

Keywords: Modern Industrial System; Industrial Workers; Optimization Strategy; Nan'an District

1. Introduction

On April 23, 2024, President of China presided over the Symposium on Promoting the Western Development Strategy in the New Era and delivered a pivotal speech in Chongqing. He emphasized the importance of developing new productive forces tailored to local conditions, exploring the growth of modern manufacturing and strategic emerging industries, planning and constructing future industries, and fostering new drivers for regional development. In the context of Chongqing's economic development trajectory towards high quality in recent years, the construction of a modern industrial system stands as a cornerstone. Based on the provisions of the *Labor Law of the People's Republic of China* (2022), it is clear that nurturing a large contingent of industrial workers with a blend of ideals, technological acumen, a sense of responsibility, and a commitment to contribution is crucial (Zhao, 2024) [1-2]. This paper, from the vantage point of enhancing enterprise innovation capabilities and solidifying skilled talent support in the modern industrial system, takes Nan'an District as an exemplary case to explore the current situation, challenges, and developmental needs of workers in modern manufacturing and strategic emerging industries. Consequently, it proposes reform and optimization strategies to bolster the industrial workforce's construction — a pressing issue that necessitates thorough examination and resolution [3-5].

2. New Advancements and Accomplishments in the Reform of Industrial Workforce Development in Nan'an District

As the location of Chongqing's national-level economic and technological development zone, Nan'an District boasts a permanent resident population of 1.21 million, with 185 industrial enterprises above a certain size, employing a total workforce exceeding 400,000, including 160,000 industrial workers, among whom 11,000 are enterprise R&D personnel. Over the five years since the

implementation of the "Reform and Development Plan for the Industrial Workforce in Nan'an District in the New Era" [6-7], Nan'an District has continuously deepened the reform and development of its industrial workforce, ranging from strengthening ideological guidance to enhancing their skill levels, improving their treatment and status, and promoting their role. These efforts have effectively contributed to the modernization of production capacity.

2.1 High-Level Promotion, Enhanced Matrix Efficiency, and Significant Improvements

The district's commitment to industrial workforce reform is evident in the high-level promotion and institutional support it has received. The Standing Committee of the CPC Nan'an District Committee's special reports on relevant initiatives, coupled with the incorporation of industrial reform into the 14th Five-Year Plan, underscore the district's strategic approach. This top-down promotion has not only provided a robust policy framework but has also facilitated the implementation of targeted reform measures.

2.1.1 Strengthening Organizational Leadership

A key aspect of this reform has been the strengthening of organizational leadership. By convening promotion meetings, on-site sessions, and experience exchanges, the district has fostered a collaborative environment where stakeholders can share insights and best practices (Chen, 2024). This coordinated promotion system, which includes classified guidance and support for both state-owned and non-public enterprises, has significantly enhanced the efficiency and effectiveness of the reform efforts.

Furthermore, the district's emphasis on ideological guidance has been crucial in aligning the workforce with the district's vision and goals. Through in-depth theme education activities and the leveraging of local revolutionary resources, workers have been inspired to contribute to the district's development while upholding socialist core values (Jin, 2024).

2.1.2 Ideological Guidance Enhancement

The district has diligently implemented the *Implementation Opinions on Strengthening and Improving Ideological and Political Work for Industrial Workers in the New Era.* In-depth theme education activities have been conducted across various industries and sectors to reinforce ideological and political guidance. Leveraging local revolutionary resources, such as the former residence of martyr Wang Pu and the Advance Newspaper, educational incentives and guidance have been provided. Additionally, the district has promoted the establishment of publicity and education platforms for the "Three Spirits," established night schools for young workers, and collaborated with social resources to undertake the education and training of industrial workers.

2.1.3 Grassroots Construction Reinforcement

In addition to strengthening organizational leadership and ideological guidance, the district has also focused on reinforcing grassroots construction. By facilitating the unionization of workers in new business forms and adopting flexible organizational structures, the district has broadened the reach of union organizations, ensuring that workers at all levels are represented and supported. This grassroots-level engagement has not only enhanced worker welfare but has also contributed to a more cohesive and dynamic industrial workforce.

2.2 Commitment to High-Quality Development and Team Building

Building on the foundation laid by organizational and ideological reforms, Nan'an District has also demonstrated a strong commitment to high-quality development and team building. This commitment is reflected in the expansion of the industrial workforce's scale and numbers, the widening of its coverage area, and the improvement of its status within the district.

2.2.1 Expansion in Scale and Numbers

Amid the rapid development of the "3+2" key industrial system, a growing number of workers have joined the industrial workforce. Currently, industrial workers account for 40% of the district's total employees and 13.2% of the total permanent population, injecting fresh vitality into Nan'an District's economic and social development.

2.2.2 Widening Coverage Area

The district's industrial workforce has undergone significant changes, with a notable shift from the secondary to the tertiary industry. This shift has been accompanied by the emergence of workers with new employment forms, who now constitute a vital part of the industrial workforce. This diversification has not only enriched the industry landscape but has also provided new opportunities for growth and development.

2.2.3 Status Improvement

Nan'an District has diligently implemented the master system and actively created opportunities for industrial workers to participate in political affairs and enterprise management. During the election of "two representatives and one member," emphasis was placed on recommending industrial workers. As a result, 84 were elected as deputies to municipal and district people's congresses, 81 became members of municipal and district CPPCC committees, and three became party representatives.

2.3 Efficient Safeguards and Service Level Enhancement

To further support the industrial workforce, Nan'an District has implemented efficient safeguards and enhanced service levels. This includes improving skills and qualities through vocational education, optimizing rights protection services, and strengthening demonstration-driven development.

2.3.1 Skills and Quality Improvement

Adhering to the principle of vocational education serving the industry, the district has explored a development model that integrates "school-enterprise cooperation, industry-education fusion, and practice convergence." Relying on institutions such as Chongqing Longmenhao Vocational Middle School and Electromechanical Engineering Technical School, the district annually provides over 5,000 vocational and technical talents to society. Currently, three national and municipal high-skilled talent training bases and 15 national and municipal skill master studios have been established, with a total of nearly 46,000 high-skilled talents. Furthermore, five individuals have been honored as National Technical Experts, 11 as Municipal Technical Experts, and three as Bayu Youth Skill Stars.

2.3.2 Optimization of Rights Protection Services

The district has gone to great lengths to ensure that workers' rights are protected. By improving diversified mechanisms for resolving labor disputes and providing mutual assistance guarantees, the district has created a supportive environment where workers can seek help and resolution without fear of retaliation. This commitment to workers' rights has not only enhanced their well-being but has also contributed to a more harmonious and productive workplace.

2.3.3 Strengthening Demonstration-Driven Development

The district has vigorously promoted the advanced deeds of winners of the "Chongqing May Day Labor Medal," such as Hu Wei, Li Yunpeng, and Xu Xiyan, who have contributed significantly to their fields. By sharing personal experiences, these individuals have educated those around them and inspired industrial workers to learn advanced skills and strive for model worker status. The district has continued to conduct in-depth publicity activities on the spirit of model workers and organized the "Model Workers Entry for Three Times" campaign, reaching 13,000 people. Additionally, 13 National Model Workers, seven National May Day Labor Medals, five National Worker Pioneers, 121 Chongqing Model Workers and Advanced Workers, 33 Chongqing May Day Labor Certificates, 78 Chongqing Worker Pioneers were recommended and selected. Furthermore, 72 Nan'an District "Jiangnan Experts" and 179 Nan'an District "Golden Workers" were recognized.

In brief, Nan'an District's new advancements and accomplishments in the reform of industrial workforce development are a testament to its commitment to progress and innovation. Through high-level promotion, enhanced matrix efficiency, significant improvements, and a focus on high-quality development and team building, the district has set a benchmark for other regions to follow.

3. New Situation and Challenges for the Reform of Industrial Workforce Development

As Nan'an District moves towards building a modern industrial system, it enters a transformative phase with both opportunities and challenges. This shift requires a thorough reassessment of its

industrial workforce strategy to match the changing industrial demands. With a focus on three key industries and two unique sectors, the district aims for high-end, intelligent, and green growth. However, this growth brings new requirements for the workforce, emphasizing the need for reform and adaptation. The section discusses the specific challenges in reforming Nan'an's industrial workforce, highlighting the importance of bridging the gap between the current situation and the goals of a modern industrial system.

3.1 Overview of Industrial Development in Nan'an District

In recent years, Nan'an District has prioritized the acceleration of modern industrial system construction as a pivotal breakthrough. Leveraging its existing foundation and enhancing its distinctive advantages, the district has pursued incremental growth through existing resources, benefits through reform, and new impetus through emerging pathways. It has concentrated on establishing three pillar industries with a value of over 100 billion each: intelligent terminals, software and information, and massive health, alongside two characteristic industries valued at over 50 billion: energy conservation and environmental protection, and automotive electronics. This strategic approach has continually promoted high-end, intelligent, and green industrial development. Consequently, new missions have been assigned, and fresh demands have emerged for the development and reform of the industrial workforce. Despite achieving positive outcomes in this endeavor, there remains a discernible gap between the current state and the new situation and challenges posed by the construction of a modern industrial system, necessitating further expansion in both depth and breadth.

3.2 Challenges Faced by Industrial Workforce Reform

As Nan'an District strives to align its industrial workforce with the demands of a modern industrial system, it encounters a multitude of challenges that must be addressed to ensure smooth progression. These challenges are rooted in various aspects of the workforce's current state and require comprehensive strategies for resolution.

3.2.1 Insufficient Overall Status and Vocational Identity

The vocational identity of industrial workers in Nan'an District is compromised by entrenched stereotypes, particularly among young individuals who exhibit reluctance to enter the industrial workforce. A notable manifestation of this issue is the disparity in student quality between the vocational education and general education tracks. Additionally, some private entrepreneurs lack a clear understanding of the role of industrial workers, resulting in inaccurate positioning and inadequate attention (Hu & Peng, 2024). The proportion of industrial workers receiving recognition for scientific and technological innovation, skill proficiency, and other accolades remains insufficient. This problem is especially pronounced in district- and municipal-level state-owned enterprises, which may encounter a vacuum in evaluation at these administrative levels (Feng, 2023).

3.2.2 Skill Proficiency Requiring Enhancement

The vocational skill levels of industrial workers in the district are characterized by inconsistency. The proportion of highly educated individuals, senior technicians, and skilled experts is relatively low, contrasting sharply with the demand for highly skilled workers in modern industrial clusters. Some enterprises lack long-term planning and systematic training for their employees' vocational skills, leading to sluggish skill improvement among workers. Furthermore, workers in traditional industries are confronted with technological advancements while their skills have not been timely updated. Currently, the practical skills of students graduating from vocational and technical schools are still deficient, rendering them unable to directly engage in practical work upon graduation and necessitating a transitional and adaptation period.

3.2.3 Impeded Development Pathways

In private enterprises, the emphasis on immediate economic gains often overshadows the importance of long-term employee training and career development. This results in inadequate focus on industrial worker training, vocational qualifications, and professional skill evaluation, coupled with the absence of effective incentive mechanisms. Moreover, the development pathway for skilled talents is not integrated with that of management talents, and there is a lack of seamless conversion and promotion channels between skilled talents and professional and technical talents. In state-owned enterprises, while the "mentoring" training mode is prevalent, it lacks an institutionalized training system, thus failing to provide continuous and stable career development support for workers.

4. New Perspectives and Strategies for Reforming Industrial Workforce Development

In response to the evolving needs of the modern industrial system and in alignment with the *Implementation Plan for the Reform of Industrial Workforce Development in the New Era*, the following four strategies are proposed.

4.1 Emphasizing Political Development as the Core

To strengthen the political foundation of the industrial workforce, three key aspects must be highlighted:

4.1.1 Reinforcing Party Leadership

By leveraging Party building, we can drive the reform of industrial workforce development. This includes intensifying Party membership recruitment among industrial workers, particularly prioritizing frontline workers, technical experts, and outstanding young workers.

4.1.2 Strengthening Ideological Guidance

Through thematic educational activities like "The Chinese Dream: The Beauty of Labor" and "Realizing the Chinese Dream," we can promote the integration of The Thought on Socialism with Chinese Characteristics for a New Era by President of China into workplaces. Additionally, utilizing the Nan'an District Internet Federation to enhance online ideological guidance will improve the effectiveness of internet-based promotion and service for industrial workers.

4.1.3 Highlighting Exemplary Leadership

By leveraging mainstream media and public platforms, we can promote the spirits of model workers and craftsmanship. Activities such as model workers entering schools, institutions, and communities will reinforce the message of creating happiness through labor. Furthermore, supporting the "3+2" key industrial system and enhancing the development of skill master studios and model worker innovation studios will foster a culture of excellence.

4.2 Fostering Skill Development as the Pillar

To enhance the skillset of the industrial workforce, three initiatives are proposed: deepening industry-education integration, enhancing practical skill training and leveraging digital transformation as the driver.

4.2.1 Deepening Industry-Education Integration

By strengthening ties with local universities and vocational schools, we can align educational programs with the "3+2" key industrial system. Promoting the "Double Excellence Plan" for vocational schools and encouraging "3+2" and "3+4" training models will address the disconnection between education and industry.

4.2.2 Enhancing Practical Skill Training

The "Bayu Craftsmen" lifelong vocational skills training program will be promoted, aiming to train over 5,000 individuals annually. Establishing high-skilled talent training bases and exploring "Tchnician + Egineer" cooperation models will further boost skill innovation.

4.2.3 Encouraging Competition Participation

Organizing and participating in national and international skill competitions will showcase the talent and image of skilled workers. Focusing on the "3+2" key industrial system, district-level competitions and innovative online competitions will be held to engage the workforce in new and emerging industries.

4.3 Leveraging Digital Transformation as the Driver

To harness the power of digitalization in workforce development, two approaches are outlined:

4.3.1 Advancing Network Carrier Construction

In the context of building a digital Chongqing, we will leverage big data analysis to enhance union services and establish a dynamic database of union members. The establishment of an "intelligence +

skills" digital talent training pilot area will facilitate the smart transformation of traditional industries and strengthen new training carriers like the iFLYTEK School of Artificial Intelligence.

4.3.2 Utilizing Online Learning Platforms

By relying on platforms such as "Yujiaoyun" and others, we can provide personalized learning resources for industrial workers. These platforms will help workers meet the demands of industrialization and informatization integration, improving their technical skills through online learning.

4.4 Consolidating Policy and System Foundations as the Support

To ensure the sustained development of the industrial workforce, three systemic measures are proposed:

4.4.1 Improving Political Rights and Benefits Protection

Strengthening the recognition and cultivation of industrial workers in various awards and honors will ensure equal treatment across state-owned and private enterprises. Incorporating high-skilled talent training into the "Jiangnan Elite" plan and considering outstanding workers in talent management will further enhance their status.

4.4.2 Enhancing Economic Rights and Benefits Safeguards

Guiding enterprises to establish skill-value-oriented salary systems and providing various allowances will improve workers' economic well-being. Ensuring adequate housing for industrial workers, especially in key industries, will address their living needs.

4.4.3 Strengthening Rights Protection Services

Improving the rights protection mechanism led by the Party and government, reforming labor-related policies, and establishing a diversified labor dispute resolution mechanism will enhance workers' protection (Ma, 2024). Protecting the life and health of workers is an important livelihood project (Wang, 2024). Strengthening safety and health education, organizing "Work Safety Month" activities, and promoting healthy enterprise construction will safeguard workers' life safety and occupational health.

5. Conclusion

The reform and development of the industrial workforce in Nan'an District of Chongqing face both opportunities and challenges in the context of building a modern industrial system. Through high-level promotion, enhanced organizational leadership, ideological guidance, and grassroots construction, Nan'an District has made significant advancements in expanding the scale and improving the status of its industrial workforce. However, challenges such as insufficient vocational identity, skill proficiency issues, and impeded development pathways persist. To address these challenges, the district must adopt new perspectives and strategies, emphasizing political development, fostering skill development, leveraging digital transformation, and consolidating policy and system foundations. By implementing these strategies, Nan'an District can further strengthen its industrial workforce, align it with the demands of the modern industrial system, and contribute to the overall economic and social progress of Chongqing.

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