The Natural Picture and Implementation Path of the Construction of Data-Driven Human Resources Agile Service Platform: Take a Case Study of Dalian Example

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Abstract: The advantage of urban talent competition is the embodiment of urban vitality, people go with the industry, the city depends on the industry, how to maximize the integrated efficiency of the "people-industry-city" model has become the key to systematically addressing urban talent challenges. At present, Dalian's "human resources agile service platform" is faced with problems such as insufficient integration of the existing employment information platform system, underdeveloped grassroots public employment service institutions, and unclear funding mechanisms for the construction and upgrading of grassroots information platforms. In order to accelerate the realization of an agile, intelligent and accurate "human resources agile service platform", it is urgent to build an integrated public employment service system, develop a precise human resource management platform, establish a collaborative and targeted employment cooperation mechanism, and improve the guarantee mechanism of the digital employment system.

Keywords: data-driven agile services; intelligent; human resources platform; public employment services

1. Introduction

With the continuous supply and iterative upgrading of Dalian's "high-tech and cutting-edge" talent policy, a whole chain of urban talent training, introduction, use, incentive and guarantee has been initially formed. In recent years, affected by the diffusion of talent policies in first-tier cities, Dalian has introduced a series of policies and measures to optimize the talent development ecology in terms of financial incentives, project support, housing and settlement incentives for talent introduction. However, due to the lack of a first-mover advantage and the absence of differentiated competitive strategies, Dalian still lags behind first-tier cities in attracting, recruiting, and retaining talent, revealing that a "homogeneous" talent policy is insufficient to prevail in the ongoing "war for talent". Amid the new trend of overseas talents choosing to work in China and domestic talents relocating to second-and third-tier cities, innovative measures are urgently needed to accelerate the city's talent recruitment, use, cultivation and retention. Therefore, building a data-driven, comprehensive, precise, and agile talent service platform is an essential pathway to advancing smart city development and digital governance [1]. On the one hand, the big data platform is used to break the barriers between talents at home and abroad

and urban industries, and to quickly, sensitively, actively and effectively match talent portraits and jobs; On the other hand, the all-round and precise intelligent platform integrates the talent policy system, optimizes opportunities and agile services through data flow and intelligent matching, plays a leverage role in creating policy value, improves service quality and efficiency, and stimulates the motivation for talent to flow into the city.

2. The Status Quo of the Construction of "Human Resources Agile Service Platform" in Dalian

The advantage of urban talent competition is the embodiment of urban vitality, and modern information technologies such as big data, cloud technology, artificial intelligence, and virtual reality provide great help for the integration of talent policy and talent resource system, and also better integrate talent services into the development strategy of "advancing into a trillion GDP city", providing new ideas and methods. Dalian Municipal Bureau of Human Resources and Social Security relies on the operation experience of the "Jinbao System" to lay a solid foundation for digital public employment services, the employment service "One Network Office" system docking has begun to take shape, the "Haiju Talents" smart recruitment service platform has become a characteristic brand in Northeast China, the human resources market has formed a "six-in-one" networked information service system, and the subordinate districts and counties have also developed "Zhongshan Cloud Employment", "Lushun Employment", "Pulandian Human Resources Market" and "Cloud Talent Introduction" with the help of new media means such as WeChat, Weibo, Douyin, Kuaishou and other new media means and other public employment service platforms. On the whole, the construction of Dalian precision human resources agile service platform has a good foundation, but there are still the following three problems, which restrict the pace of the comprehensive completion of the platform [2,3].

First, the integration of the existing employment information platform system is insufficient. Employment services involve multiple departments such as public security, civil affairs, marketing, education, taxation, veterans, and the Disabled Persons' Federation, which are extremely difficult to integrate, and the data across systems are often incompatible. In addition, the vertical connection function of the municipal employment system and the provincial employment system is lacking, and it is difficult to share information, collaborate in business, and the phenomenon of digital "divide" is prominent.

Second, the construction of grass-roots public employment service institutions is not perfect. The lack of full-time personnel in the grass-roots public employment service force not only hinders the development of the grass-roots employment service, but also restricts the construction of the public employment service network covering the urban and rural grass-roots level.

Third, the funding guarantee channels for the construction and upgrading of grass-roots information platforms are not clear. The existing platform has limited operating data, lacks channels for inter-departmental data exchange and sharing, and also has problems such as simple setting of functional plates, complex system operation procedures, unstable status, and poor operation and use experience of service objects [4]. However, Dalian still lacks unified standards for the purchase of services for public employment and entrepreneurship, and the scope of purchased jobs is narrow, resulting in the inability to guarantee the source of funds.

3. The Natural Picture of the Construction of "Human Resources Agile Service Platform" in Dalian

3.1. Agility: Employment Policy Information Should Not Hinder Intelligent Consultation Processes

First, we need to digitize policy knowledge and enhance data reserves. Establish a massive policy knowledge base to provide a complete knowledge reserve for the platform's intelligent matching function. Employment centers at the provincial, municipal,

district, county (city) levels are to sort out and summarize relevant business policies, and compile policy questions and answers one by one to ensure full coverage of employment matters. Second, realize the anthropomorphism of consultation and communication and reduce manual intervention. For routine consultations, 24 × 7 hours of all-scenario service is provided, and the AI intelligent service assistant can automatically identify the categories and conditions of service objects, gradually narrow down the target scope, and then guide to preset scenarios to complete multiple rounds of intelligent dialogue. For complex problems, the public can interact with video through content input and voice intercom (including manual and robot modes) to achieve accurate replies by robots or humans [5]. The AI intelligent service assistant can automatically reply to questions after identifying them, which can change the mode of traditional manual phone calls and multi-level voice consultations, which can not only improve work efficiency, but also enhance the satisfaction of the consultation group. Third, complete the precision of recommended positions to help achieve employment. When applying for unemployment insurance and unemployment subsidies, the platform will automatically and intelligently match the consultants according to their previous work history, and push the job information of the "Dalian Talents" website in a proactive, accurate and timely manner [6].

3.2. Intelligent: Employment Matters Are Handled Intelligently without Feeling

First, "respond to all calls" and focus on demand settings. Starting from high-frequency matters, such as unemployment insurance premiums, skill improvement subsidies, entrepreneurship guarantee loan qualifications, etc., mature one by one, so that each online item can achieve "non-sense intelligent handling". Second, "integrated collaboration" to integrate departmental data barriers. Make full use of the provincial and municipal big data platforms, horizontally promote data sharing among more than 10 departments such as public security, civil affairs, and education, and vertically integrate six sets of cross-level and cross-departmental system data of "national-provincial-municipal-county-township-village", realize the systematic integration of business collaboration processes and data sharing processes, and promote the transformation of employment services from "fragmentation" to "integration". For example, obtain information on professional and technical personnel vocational qualification certificates and vocational qualification certificates from the Ministry of Human Resources and Social Security; According to the urban streets where the local tax is paid, the provincial public security department obtains the area where the household registration is located, the provincial education department obtains the educational information, and the banking financial institutions obtain the loan information to generate a list of eligible entrepreneurial loan interest subsidies and enable seamless intelligent processing. Third, complete the precision of recommended positions to help achieve employment. When applying for unemployment insurance and unemployment subsidies, the platform will automatically and intelligently match the consultant's past work history through big data, and push the job information of the "Dalian Talents" website in a proactive, accurate and timely manner [7].

3.3. Precision: Unlimited Intelligent Governance of Employment Governance

First, we should focus on reducing the burden on the grassroots and promote the quality and efficiency of employment services. In view of the accelerated change of employment and entrepreneurship policies, the multi-faceted workload at the grassroots level, and the high pressure on grassroots business management, the platform system is loaded with business intelligence guidance scenarios, and the AI intelligent service assistant provides real-time guidance and accurate training to staff through business operation videos and precise policy interpretation and push without manual intervention [8]. Taking the PC business assistant as an example, in the process of business management, the business assistant provides functions such as real-time policy query, training videos, and one-click initiation of technical support. The "human resources agile service platform" has

transformed the manual operation mode of handwritten notes of staff into a "digital" service without manual intervention, which has reduced the burden and increased efficiency at the grassroots level. Second, focus on scientific norms and promote the wisdom and precision of service functions. The "Human Resources Agile Service Platform" has built a national participation channel in the digital era from the whole process of design ideas, system development to online use, and formed an intelligent management system that takes into account individuals and enterprises, ensuring that the city's employment policy implementation time is consistent, the policy interpretation caliber is consistent, and the business operation process is consistent, providing strong support for the precise expansion of the policy, and cashing the various Huimin funds to enterprises and the masses "steadily, accurately and quickly". Third, we should focus on promoting replication and comprehensively improving employment governance capabilities. Through the background management policy business knowledge base, unsolved problems can be solved, and an intelligent analysis page can be developed for the daily operation of the platform, which can comprehensively display the platform data, and implement early warning for high-frequency hot issues, so as to further optimize the employment service ecology of the external service public, enterprises and internal service business handlers [9].

4. The Implementation Path of the Construction of "Human Resources Agile Service Platform" in Dalian

4.1. Build an Integrated Public Employment Service System

4.1.1. Strengthen the Coordination of Internal Departments of Government Organizations and Break Down Barriers to Information Flow

From the perspective of vertical level cooperation, it is necessary to establish a labor big data platform and command system based on the multi-level linkage of "province-city-county-township-village" based on big data and the Internet, and build a government digital public employment service system based on the online operation team and offline labor broker network, to deliver a comprehensive service system that is structured, responsive, and efficient for both labor supply and demand. From the perspective of horizontal departmental cooperation, it is necessary to speed up the integration of public employment service resources related to human resource development by departments such as development and reform, industry and information technology, civil affairs, education, science and technology, finance, taxation, etc., establish a unified business coordination standard, further promote the horizontal coverage of "one network", and broaden the channels of public employment services.

4.1.2. Improve the Digital Service Capabilities of Staff and Build a Bridge between Humans and Machines

The construction of the government's digital talent team is an important foundation for the development of the "human resources agile service platform", and it is also an important communication bridge between job seekers and platforms, enterprises and platforms, and society and platforms. Therefore, we should focus on policy guidance, strengthen policy learning, strengthen business operations, establish standard concepts, and promote innovative models, cultivate a group of managers and business backbones who are familiar with business and proficient in information technology, establish a digital public employment service commissioner team, ensure full implementation of staffing and organizational requirements through strict compliance with the "six essentials" policy guidelines, and help the "human resources agile service platform" to operate smoothly.

4.2. Build a Precise Human Resource Management Platform

4.2.1. Establish a Human Resources Database

Relying on big data carriers such as Dalian's "Jinbao System", "Haiju Talents" and "Dalian Talents", through the tripartite approach of the society, enterprise and government, the labor force, recruitment information, policy information, etc. are collected in a full caliber, and the database is stored in a timely manner, dynamically updated, and managed in a sequential manner, so as to form a basic standing "human resources information database" that supports the integration of public employment services, so as to store all kinds of data collected and generated by the platform. It mainly includes the supply library, demand library, position library, basic database, integrity database, policy library, etc., which are established through questionnaire surveys, real-name registration and data exchange in the early stage, as well as the flow library and service library generated by the platform through big data cleaning, calculation, mining, etc., and the platform will establish a special database for data storage according to the classification catalog, so as to better provide support for upper-level applications.

4.2.2. Improve the Big Data Platform for Human Resource Management

The precise "human resources agile service platform" is a full-volume, full-time and global comprehensive application platform based on the human resources database, combined with the needs of job seekers, employers and government departments to develop various application scenarios, covering all kinds of talent resources, integrating various talent services, and summarizing various analysis and decision-making systems. Mainly through big data cleaning, big data computing, big data mining analysis and big data visualization and other functions, a comprehensive platform system focusing on job search and recruitment, entrepreneurship services, skills training and public employment and social security for different service groups has been formed, so as to continuously improve the efficiency of human resource element allocation, cultivate and expand human resource service force, and improve the quality and accuracy of public employment services.

4.2.3. Apply the Human Resource Management Platform

Relying on the human resources database and human resources platform to automatically generate information on job recruitment, entrepreneurship support, skills training, social security payment, etc., according to different service needs, to achieve accurate services of "job search", "skill search", "policy search" and "project search". Taking job search and recruitment as an example, firstly, through the analysis and modeling of talent big data, the talent model is constructed from the perspectives of recognizing people (competency model), selecting people (job competency model), and educating people (training model). Secondly, the built talent model will be put into the database for comparison and matching, and the platform will automatically match and generate visual results, and finally present them through the labeled user model of talent portraits, including basic information (age, gender, ethnicity, political outlook, household registration, education, degree, graduation time, graduation school, length of service, marital status, etc.), work experience (work field, position, years of engagement, skill level, achievements, rewards, salary, etc.), personal credit and other information; Finally, according to the employment needs of the employer, relying on the talent pool and talent model, the talent pool and talent model are automatically matched, and the talent recommendation results are visually displayed.

4.2.4. Analyze HR Big Data

Given the increasingly diverse recruitment needs of enterprises and personalized employment preferences of job seekers, the Dalian Municipal Human Resources and Social Security Bureau and relevant departments should focus on advancing employment informatization and intelligent service systems. By letting data "speak", they can better

understand the employment landscape and use technological means to address service challenges, collect and sort out all the underlying data such as enterprise users, recruitment positions, job resumes, delivery and invitation records of platforms such as "Dalian Talent Network", "Jinbao System", and "Haiju Talent", and establish a "cockpit" display mode for big data analysis visualization. Real-time monitoring of employers with recruitment needs in the region, the characteristics and conditions of the recruitment positions, salary and benefits, etc., monitoring the number of job seekers, educational skills and salary and welfare requirements of workers in the region, regularly carry out big data analysis, and regularly publish quarterly reports analyzing supply and demand in Dalian's human resources market. These reports include market index trends, real-time monitoring data, industrial comparisons, and talent supply-demand assessments across industries, to keep abreast of the dynamic changes in regional human resources, and to formulate employment policies, Adjustments to employment service measures provide reliable data support.

4.3. Establish a Coordinated and Precise Employment Coordination Mechanism

4.3.1. Introduce Market Mechanisms to Fill the Technology Gap

To construct and improve China's digital public employment service system, it is necessary to continuously adapt to the changes in the market economy, meet the needs of the state to establish a market-oriented long-term employment mechanism, and effectively make use of the functional advantages of relevant functional departments and social organizations. In view of the advantages and development orientation of the local big data industry, we will develop cooperative IT partners, learn from the experience of service outsourcing in the field of big data in developed countries and excellent provinces and cities in China, and create a crowd sourcing cycle system for the big data industry with local characteristics. In addition, in entrepreneurship, training, supervision and other links, we should also widely gather social resources, in accordance with the principle of "government-led, social cooperation", form a diversified, multi-level, complementary functions of the digital public employment service network, and build an organically unified, orderly, coordinated and effective governance mechanism.

4.3.2. Use the News Media to Expand Targeted Publicity

The current employment policy is very real-time in keeping with macroeconomic adjustments, so it is necessary to seize the policy advantage. It is necessary to make full use of various media and positions such as websites, microblogs, WeChat, mobile phone clients and seminars, give full play to the role of market mechanisms, vigorously publicize the concept of smart employment and the functions, characteristics, advantages and use methods of the agile service platform of human resources, actively mobilize the enthusiasm and creativity of job seekers and employers to participate, attract all social forces to participate in and carry out market operations, and ensure the timeliness of policy issuance and the efficiency of platform operation.

4.3.3. Visit the Masses on Time and Open Up Feedback Channels

The employment feedback mechanism is an important way to comprehensively reflect the employment status, quality and effect, and is also an important reference for governments at all levels and public employment service departments to make decisions and optimize services. On the basis of optimizing the statistical indicators of employment feedback, relevant departments should effectively use the big data smart platform to broaden the scope of statistical samples of employment feedback indicators, and establish a leadership and supervision mechanism for employment feedback. Try to achieve full sample statistics, especially for the number of employed people, employment status, unemployment status, number of people in demand, policy effects and other indicators in the region. At the same time, the scope of employment statistics should be broadened, and

comparative statistics and feedback should be carried out on the talent demand, employment personnel, and policy effects of key enterprises outside the region, so as to ensure that policy implementers can not only understand the employment situation in the region, but also conduct comparative analysis, so as to comprehensively evaluate the employment status outside the region.

4.4. Improve the Guarantee Mechanism of the Digital Employment System

4.4.1. Comprehensive Policy Support

Policy supports clearly reflects the government's commitment to building an agile human resources platform and also demonstrates the city's development philosophy and economic level through various measures. As a new thing, new forms of employment and employment models are still in the process of continuous development and change, so their policy support systems are also constantly updated and improved. First of all, we should sort out the existing policies, tap and expand the policy space, and continuously enhance flexibility, accuracy and pertinence, and secondly, in accordance with the principle of "urgent use first", we should pay close attention to making up for the policy shortcomings in credit finance, platform supervision, employment and entrepreneurship support, labor relations identification and rights protection, social security and other aspects. Local governments should be encouraged to take the lead in experimenting and gradually refining policies, with the aim of establishing a stable and long-term effective policy framework.

4.4.2. Rationalization of Capital Investment

A reasonable financial guarantee mechanism is the key to the construction of a digital public employment service platform. In the era of big data, it is difficult for traditional employment platforms to support the operation of the new "smart employment" model, and a lot of money needs to be invested in the process of information platform establishment, authority use, data maintenance, and system update. Therefore, it is necessary to consider the capital investment of the "human resources agile service platform" as a whole, make overall arrangements, highlight the key points, and ensure the effectiveness. This approach ensures that platform investment grows in tandem with fiscal revenue. Moreover, the growth rate of public financial input into the platform should significantly exceed the general fiscal revenue growth. so as to accelerate the realization of the equalization goal of human resource development and employment, social management and public service investment.

4.4.3. Democratize Data Security

Data security is one of the major issues facing the digital economy era. With the promulgation of the Data Security Law and the Personal Information Protection Law, the latest legal framework in the field of data security in China has taken shape. The "Human Resources Agile Platform" is a smart platform built on the basis of big data, which not only contains citizens' personal information and basic enterprise information, but also includes a large number of urban development information hidden behind the data. Therefore, finding a balance between the accuracy of service recommendation and user privacy protection is the top priority of the current personalized recommendation technology research, and at the same time, the existing privacy protection level should be improved and updated in combination with network technology and the network security law should be improved, so as to increase the cost of violating the law.

4.4.4. The Concept Is Updated and Innovated

In order to promote a full range of digital employment services, the Dalian Municipal Bureau of Human Resources and Social Security and relevant departments should update the employment service concept in real time, and on the basis of the "human resources

agile platform", they should further innovate the service model, broaden employment channels, and enhance the accuracy of supply and demand. For example, through the new recruitment model of "live broadcast with posts", the barriers to conventional online recruitment information docking can be broken, and job seekers can further enhance the tripartite linkage between the government, enterprises and the masses through the trinity of "job recommendation, online Q&A and background service", and create a new model of "smart employment".

5. Conclusion

Employment is a fundamental aspect of social well-being and plays a vital role in economic development and social stability. To fully leverage the digital economy's role in promoting employment and to establish a high-quality employment framework that integrates industrial, supply, value, and innovation chains, it is essential to ensure stable employment, financial operations, foreign trade, foreign investment, domestic investment, and market expectations (referred to as the "six stabilities"), and to implement employment, basic living needs, market entities, food and energy security, stable supply chains, and grassroots operations (known as the "six guarantees"). The Dalian Municipal People's Government, in collaboration with departments such as the Science and Technology Bureau, Housing and Urban-Rural Development Center, Employment Service Center, Public Security Bureau, and Education Bureau, has made concerted efforts to build a "human resources agile service platform". However, challenges remain, including underdeveloped grassroots public employment service institutions and a lack of clear funding mechanisms for the construction and upgrading of grassroots information platforms. To address these issues, it is crucial to build an integrated public employment service system by enhancing interdepartmental coordination and improving the digital service capabilities of frontline personnel. By establishing a comprehensive human resources database, enhancing the big data management platform, and leveraging advanced data analysis techniques, a more precise and efficient human resources management system can be developed. Additionally, through the introduction of market mechanisms to bridge technical gaps, the use of media to expand targeted outreach, and regular public engagement to ensure effective feedback channels, a collaborative and precise employment coordination framework can be established. Comprehensive policy support, rationalized capital investment, strengthened data security, and conceptual innovation are also key to enhancing the guarantee mechanism of the digital employment system. Collectively, these measures have contributed to the development of a human resources agile service platform in Dalian that is not only agile and intelligent but also precise in matching employment supply with demand.

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