Exploration on the Application of Big Data Technology in Statistical Informatization

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Abstract: Under the influence of the technological transformation and innovation trend of big data, statistical work and information technology platforms have achieved close integration. The technical implementation scheme of statistical informatization not only effectively supports the improvement of the accuracy of statistical data, but also saves the practical resource cost of statistical work. The big data tools in statistical informatization will play a significant role in ensuring the innovative process of statistical work, innovating the steps and processes of statistical business. Therefore, this article explores the implementation path of big data technology in the process of statistical informatization, and reasonably improves the informatization process of statistical work.

1. Introduction

The essence of statistical informatization is embodied in adopting special statistical tools and software system platform to collect original information of statistical data comprehensively, forming statistical conclusions through automatic screening and integration measures of existing statistical data, and making accurate statistical business reports. At present, due to the infiltration influence of the network information technology of big data, it objectively promotes the widespread use of specialized technical tools of statistical informatization on a larger scale, which has a non-negligible impact on the guarantee of good quality of statistical data and broadening the collection range of statistical information. It can be seen that the implementation process of statistical informatization scheme must rely on big data technology to ensure that the intelligent and automated statistical management platform of big data is integrated into the practical field of statistical work.

2. The connotation and current situation of statistical informatization

2.1 The basic connotation of statistical informatization

In the transformation process of big data and networking, the connotation of statistical informatization is the comprehensive integration of information technology methods into various stages of statistical work, promoting the widespread sharing of statistical business resources, and ensuring the accuracy of statistical data. Therefore, fundamentally speaking, statistical

informatization aims to integrate modern information technology and statistical workflow, ensuring the comprehensive processing and integration of statistical data, and making necessary innovations in the original implementation mode of statistical work [1]. Under the current trend of informatization development, the practical role of statistical informatization is increasingly prominent, reflecting the important value of statistical informatization in the transformation of statistical work models.

2.2 The current progress status of statistical informatization

Up to now, the Bureau of Statistics and other statistical departments have built a network resource sharing platform of statistical database, and objectively achieved a good implementation effect of sharing statistical data and eliminating errors in statistical statements. The micro database of statistical informatization has shown a trend of large-scale coverage development. The statistical working mode based on the support of information sharing platform can ensure the information security of statistical data, thus preventing the risk of information resource loss of statistical data at the source. The statistical infrastructure support capability is constantly promoted to achieve the realization of improvement, so as to contribute to the full integration of statistical practice and network information technology.

3. The application of statistical informatization in the background of big data

3.1 Collection and processing of statistical information

Statistical staff must achieve complete collection of real-time statistical indicator data in order to ensure that the collected and integrated statistical data meets the basic requirements of comprehensive coverage. However, in the current practice of statistical work, statistical personnel have failed to adopt a professional technical platform for big data statistics as support, resulting in the omission of accounting information in the original statistical data. There are quality defects in the entire process of collecting statistical data and generating statistical account reports. It can be seen that comprehensive collection and processing of real-time statistical account information is a crucial component of statistical informatization. Ensuring the completeness and accuracy of statistical information collection should receive more attention from statistical staff [2].

3.2 Quality assurance issues of statistical data

At the present stage, statistical work is promoted by big data, and the good quality of statistical data is in urgent need of more protection [3]. The quality assurance of statistical data should be placed in the position of the core measures of statistical informatization. If the quality of statistical data is not guaranteed, it will bring significant adverse consequences to the statistical decision-making scheme in related fields. At the present stage, the personnel of the statistical department must deal with the huge scale of the original data processing task, so it is easy to lead to the business personnel of the statistical department ignore the quality supervision measures of the statistical data. The lack of quality assurance of statistical data will increase the risk of distortion of statistical data report, which violates the development purposes and objectives of statistical informatization and intelligence, and may even mislead the decision-making of statistical informatization.

If the integrity and reliability of statistical information are lost, the real-time changes in statistical assets will not receive accurate feedback. In the process of transforming big data statistical technology, the accounting data information of statistical assets is usually stored in the network

database of the statistical bureau. However, due to the security risks of information theft and data loss in the network system of the statistical bureau, it will not be conducive to obtaining more protection for the reliability of statistical assets. Once statistical information is lost or missing, the practical value of statistical accounts will be significantly weakened. Statistical information should be placed within the scope of strict security management protection. However, statistical personnel often lack supervision and constraints from within the unit and the public when fulfilling their responsibilities and rights. The lack of strict statistical information supervision and security mechanism will bury the potential trouble of statistical data distortion, and increase the loopholes of statistical information supervision and implementation. The comprehensive practical literacy of statisticians is fundamentally related to the effect of optimizing the allocation of statistical resources and also determines the implementation of the security guarantee of statistical assets. At present, statistical business personnel fail to give necessary familiarity to the statistical information management process of big data, and statisticians lack professional post skills training and participation.

3.3 Statistical resource sharing and system maintenance issues

The goal of statistical informatization serving statistical work will only be reflected when statistical data resources are fully shared. At present, statistical information resources have not been shared to a greater extent, and statistical departments are limited to a relatively narrow range of statistical resource utilization [4]. The statistical department neglects necessary comprehensive maintenance and management of the database system for storing statistical information, resulting in network vulnerabilities and data security risks in the statistical database. Once statistical data reports are stored in statistical databases, the statistical data resources connected to the network can easily cause losses. In severe cases, the information and data security of statistical departments may also face significant threats, which is not conducive to achieve the goal of integrating and sharing statistical resources.

4. The application and improvement of big data technology in statistical informatization

4.1 Expand the scope of collecting statistical data information

At present, the original data collection process in statistical work still has the defects of fragmentation and decentralization, so it is determined that the collection and management of statistical data should be promoted to improve the existing implementation. Specific in the in-depth implementation of statistical information practice, the important improvement measures at the present stage should be implemented in the expansion of the collection range of statistical data, so as to effectively prevent the shortcomings of fragmented collection of statistical data. The original data information in statistical work must be strictly guaranteed to meet the basic requirements of authenticity, and reasonable and perfect the data collection standard system of statistical informatization.

4.2 Regular maintenance and testing statistical database system

Statistical databases belong to the infrastructure support platform for network informatization. The network databases of statistical bureau must receive professional system maintenance and testing management, in order to achieve the goal of preventing security regulatory loopholes in statistical network resource inventory. On this basis, comprehensive maintenance and management work is urgently needed for the statistical database. By adopting firewalls, network antivirus software, and intrusion detection mechanisms in the statistical network resource library, system security threats from external intrusions are automatically identified. The dedicated network

resource library within the statistical department needs to receive regular system virus detection and killing to promote the sharing of statistical data resources within the statistical department.

The database of statistical informatization should get regular network vulnerability detection, so as to ensure that the security of the statistical database is enhanced. The collection, production and use of statistical information should be comprehensively managed and supervised, so the key is to promote the continuous improvement of the internal supervision mechanism of statistical information. The relevant information data involving statistical assets should be examined and managed in real time, and the internal control and supervision system of statistical finance within the unit should be perfected. It is necessary for statisticians to consciously accept the comprehensive examination and management of statistical assets accounts and build a three-dimensional and dynamic statistical information supervision and security mechanism. The operation and implementation process of the financial internal control of the unit should be incorporated into the core practice measures of the internal control management, so as to enhance the emphasis of the management personnel of the unit on the internal control supervision of statistics.

4.3 Improve the big data resource sharing guarantee mechanism for statistical informatization

The specific implementation of statistical informatization requires an indispensable network big data sharing guarantee system. Therefore, the data sharing mechanism for statistical network databases should be promoted to achieve necessary improvements [5]. The data resources of statistical informatization should be shared in real-time to avoid the defect of internal information silos in statistical departments. The security sharing mechanism of statistical data resources should form systematic institutional norms, and adopt a big data network system support platform to reduce the probability of statistical data errors. The business implementation process of statistical departments should be simplified as necessity to effectively save the practical cost resources of statistical informatization.

5. Conclusion

Through the above analysis, it can be seen that the current scope of statistical informatization is extensive. If the goal of statistical informatization is to be realized to the greatest extent, it must be established on the premise of statistical means of big data as the guarantee. In recent years, the scope of practice of statistical informatization has been gradually expanded. Statistical staff can correctly adopt the network support platform of statistical big data, comprehensively integrate and summarize to form accurate statistical data reports. Therefore, in order to achieve the functional goals of statistical informatization, we should attach importance to the maintenance of statistical network database and strictly examine the accuracy and integrity of statistical data. Statistical staff themselves need to have the practical application of big data literacy, and properly cope with the challenges of statistical changes and transformation.

References

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