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Research on Safety and Integrated Disaster Prevention System Based on Big Data Technology

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Abstract

Safety integrated disaster prevention systems, as a guarantee of national safety, especially to reduce the serious consequences of disasters, promote the steady development of the economic and social level, have important practical value for the comprehensive study of safety and disaster prevention systems. However, the current application and update of such systems by relevant government agencies and the social level cannot effectively follow the development needs of the society and the industry, and there is an urgent need for effective reform. Based on this, this paper first analyzes the problems existing in the research and construction system of big data technology in the security and integrated disaster prevention system, and then gives the construction strategy of the research system of safety and disaster prevention in view of these problems.

Keywords: Safety, Integrated Disaster Prevention System, Big Data Technology

1. Introduction

As a country prone to natural disasters, all industries in China are currently facing the key test and challenge of economic stagnation or recession caused by disasters [1-3]. As an important way to reduce the loss caused by disasters and avoid the regressive phenomenon of social and economic level, under the premise of big data technology, research on the construction of safety and comprehensive disaster prevention system has an important practical role and value [4]. And disaster prevention system as a national security, especially reduce the serious consequences brought by the disaster comes, social and economic level of steady development, comprehensive analysis of its related system research to promote the economic level of development and social stability matching industry demand, and the promotion of China's disaster, high level and high quality professional technology development are of great practical significance [5].

At present, there are still many deficiencies and problems in the construction of safety and disaster prevention system in the society, which are manifested in the dislocation and disconnection between the existing disaster prevention and safety system and the actual needs of the society in the aspects of reducing disaster risk, analyzing the structural level of disaster causes and the quality of real-time data of the system [6]. Such dislocation and disconnection lead to the problems that the final application system fails to meet the expected goals when the relevant institutions or departments study such systems [7-9]. Therefore, in the process of studying the disaster prevention and safety integrated system, especially in the process of risk category and assessment of the system, the relevant institutions should focus on the following aspects as shown in Figure 1, so as to lay a solid foundation for the construction of a perfect disaster prevention system.

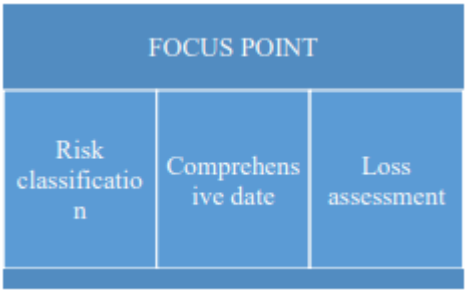

Fig. 1. Risk categories and focus points in the assessment process

In addition, disaster prevention and safety system loss is one of the widely used systems at all levels in China, and different institutions or departments have a variety of types based on the differences in their industry positioning and characteristics. However, although there are differences in the types of security systems applied by most departments, these security systems in their respective fields have not been able to effectively create their own characteristics and brands, leading to the research direction of such security disaster prevention systems gradually showing the trend of homogenization, the lack of its own distinctive characteristics. In this context, as a complex system engineering of disaster avoidance in China, the exploration and research on the construction of disaster prevention integrated systems needs to build a long-term, scientific and benign training system, which has important practical value.

2. Literature Review

2.1. The realistic dilemma of safety and integrated disaster prevention system based on big data technology research

The passage describes the challenges faced by local departments and institutions in disaster-prone areas, particularly in terms of talent acquisition, research system construction, and database needs [10]. Firstly, it is noted that these areas lack the necessary geology and computer systems professionals to fill positions, making it difficult to attract innovative and versatile talents. This is further compounded by the fact that remote mountainous areas are often difficult to access for field survey data collection, which increases the likelihood of brain drain [11].

Secondly, the lack of innovation in local institutions' disaster prevention system research system construction is highlighted as a major obstacle [12]. This is largely due to a lack of professional talent input in relevant departments and the absence of effective supervision mechanisms. Moreover, there is a mismatch between the construction of the system and the social demand for it, with the research orientation of the comprehensive system not being adapted to meet the needs of society [13].

In summary, the lack of professional talent input and effective supervision mechanisms has resulted in a shortfall in innovation in disaster prevention research and system construction in local departments and institutions. This is particularly evident in areas where data collection is challenging, and where geology and computer systems professionals are in short supply. Moreover, the current research orientation of the system is not aligned with societal needs, highlighting the importance of addressing this gap in talent acquisition and research direction [14].

2.2. The practical problems of safety and integrated disaster prevention system under the research of big data technology

The research conducted by relevant agencies and departments on the construction safety of the disaster prevention system addresses several realistic problems. The first problem is the pursuit of economic growth at the expense of scientific development by some agencies, resulting in an increase in the frequency and severity of disasters. This phenomenon is gradually becoming a norm in the country [15]. Secondly, the local departments and institutions responsible for developing risk classification, comprehensive data loss assessment, and comprehensive safety planning schemes face significant challenges. These schemes often lack clear goals and positioning, and as a result, the system construction system lacks its unique features, which further prevents it from meeting market demand in terms of application [16].

Thirdly, there is an imbalance in the structure of colleges and universities that train personnel for disaster prevention. Most of these institutions offer theoretical courses that do not adequately equip graduates with practical skills or the

ability to assume their roles quickly. As a result, the current undergraduate courses offered by these institutions lack practicality, which is not conducive to the industry's development.

The pursuit of economic growth without considering scientific development has contributed to the increase in the frequency and severity of disasters. Therefore, it is crucial to balance economic growth with scientific development. To achieve this, local departments and institutions must focus on developing clear goals and positioning when developing risk classification, comprehensive data loss assessment, and comprehensive safety planning schemes. This approach will ensure that the system construction system has its unique features and can meet the market demand in terms of application [17].

In addition, colleges and universities should restructure their programs to provide a balance between theoretical and practical courses. This move will ensure that graduates are equipped with practical skills and can assume their roles quickly. The disaster prevention industry will benefit significantly from graduates with practical skills [18].

In conclusion, the research conducted by relevant agencies and departments on the construction safety of the disaster prevention system has identified several realistic problems. These problems require a holistic approach that balances economic growth with scientific development, clear goals and positioning when developing comprehensive safety planning schemes, and a balance between theoretical and practical courses in colleges and universities. Addressing these issues will enhance the disaster prevention system and ensure that it meets the market demand in terms of application.

2.3. Reflection on the practical problems of safety and integrated disaster prevention system under the research of big data technology

At present, for disaster prevention and mitigation comprehensive research on security system because there is no incentive factors in the system development process on the set of too pay attention to the advantages and disadvantages of the existing system on the market, while ignoring the local characteristics, on the basis of not against disasters and reduce the loss of their respective corresponding system has occurred starting point [19]. For example, if the disasters in the area are mainly landslides, data should be collected from the perspective of geological exploration and topographic survey to study the construction of a disaster prevention system. Secondly, the current research on disaster prevention integrated systems ignores the in-depth development and application of big data technology, and fails to meet the personalized needs and characteristics of society and industry [5,20]. As a result, the research system lacks persuasion and high precision, and the researched system lacks personalized characteristics and is more like a uniform paste bar. In addition, the current security and comprehensive disaster prevention system to build, most agencies, departments, the lack of the unity of the research of the system construction goal and the correct understanding, many systems of blindly pursuing big research Angle, and ignore the foundation ability construction, lead to disaster prevention system is actually a "shell", do not have sexual.

2.4. Analysis on the root of the problem that the research system of safety and integrated disaster prevention system does not match the social demand

The disaster prevention and safety comprehensive system lacks innovation, which leads to a disregard for social and industrial needs. The construction of a large and comprehensive system is prioritized over personalized thinking and the improvement of the status of the main body of innovation. This has led to the homogenization of disaster prevention systems in most places, where the characteristics of individual regions are ignored [21]. Talent introduction is difficult in some areas due to geographic location, and lack of proper reward mechanisms results in low innovation. This is reflected in incomplete disaster data collection, lack of systematic research direction, and limited application of model development. It also affects the development of practice and business abilities of leaders and employees, as well as the cultivation of independent thinking, practice development consciousness, and ability of the comprehensive system research group.

The integrated system construction process neglects the balance between social and individual needs of the industry. The principal position of passive acceptance by employees and their balance, departments or institutions under market economy development and the introduction of professional talent long-term goals such as the balance between some objective problems and phenomena are not studied. The lack of innovation in the system is due to the absence of a reward mechanism for researchers in remote areas, where talent introduction is difficult. The comprehensive

system research group also lacks the ability to identify and address social and industrial needs due to the lack of innovation connotation.

These issues are the root of the problem with the research system of safety and integrated disaster prevention system, as it fails to match social demand. The homogenization of disaster prevention systems in most places ignores regional characteristics and personalized thinking [22]. The lack of innovation connotation has led to a focus on constructing a large and comprehensive system, rather than addressing the needs of the main body of innovation. Incomplete disaster data collection and lack of systematic research direction reflect the limited application of model development, affecting the practice and business abilities of leaders and employees. The neglect of the balance between social and individual needs of the industry further compounds the problem.

3. Construction Strategy of Safety and Disaster Prevention Integrated System Research System.

3.1. Enhance the application characteristics of the disaster prevention system studied by relevant departments or institutions

The integrated safety system is a crucial part of disaster prevention and response. To ensure its effectiveness, relevant departments and institutions should accurately determine the construction goals and directions of the system based on the types of disasters, avoidance measures, and relevant development needs of their regions. This requires a thorough understanding of the local context and an ability to tailor the system accordingly.

At the system innovation level, the focus is on enhancing the theoretical knowledge and professional skills of the staff involved in the integrated safety system. This includes both the cultivation of existing staff and the recruitment of new personnel with relevant expertise. It is also necessary to improve the engineering practice ability of the staff and their overall quality, as illustrated in Figure 2. This can be achieved through training programs, rewards systems, and welfare programs that incentivize innovation and excellence.

Different disaster factors require different approaches to the construction of the integrated safety system. Therefore, it is essential to develop corresponding ideas and thinking among the study team members. This can be achieved through hands-on experience, as well as through the promotion of an innovation-focused culture that values engineering application. By doing so, the integrated safety system can be developed and improved over time, ensuring long-term success in China.

Ultimately, the success of the integrated safety system depends on the ability of relevant departments and institutions to work together effectively. Collaboration and communication are essential, as are regular assessments of the system's performance and impact. By constantly seeking to improve and innovate, the integrated safety system can become a vital tool for disaster prevention and response, protecting lives and property across China.

In conclusion, the integrated safety system is an essential part of disaster prevention and response in China. Its success depends on accurate positioning, system innovation, and a focus on cultivating staff knowledge and skills. By promoting an innovation-focused culture and encouraging collaboration, the integrated safety system can continue to evolve and improve, ensuring long-term success in protecting lives and property.

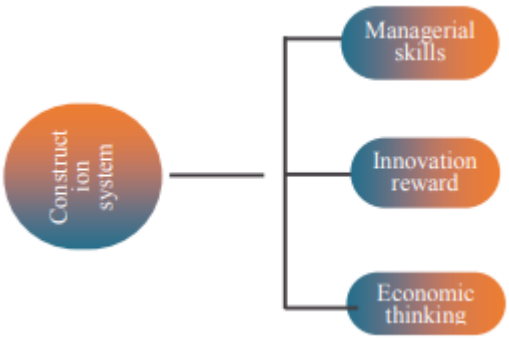

Fig. 2. The architecture of the staff management system

3.2. Relevant departments and research institutions should establish a sound talent introduction management system

The first step in reducing disaster losses and improving the development of disaster prevention and mitigation systems is to focus on enhancing system engineering application. This can be achieved by developing a scientific and rational top talent training plan and rewarding departments and agencies that actively contribute to the design technology of disaster prevention and mitigation systems, keeping in mind the latest concepts and trends in cutting-edge technology development. By doing so, the integrated system developed will be in line with the future development needs of the social industry.

The second step involves building a data practice collection system and evaluating the actual engineering practice efficiency of researchers. This will promote the steady development of the system research and development speed after the introduction of new talent. Moreover, it is important to strengthen the technology of applied talent training and provide necessary security and supporting measures in each link of the introduction, training, and research process. By setting up an innovation mechanism that promotes the high fusion of theoretical thinking and practical abilities of technical talents, the comprehensive disaster prevention system research system automation goal can be achieved while ensuring safety.

In summary, it is essential to focus on enhancing system engineering application and developing a top talent training plan to build a disaster prevention and mitigation system that aligns with the future needs of the social industry. Building a data practice collection system and evaluating the actual engineering practice efficiency of researchers will also promote steady development of the system research and development speed. Additionally, by strengthening the technology of applied talent training, providing necessary security and supporting measures, and promoting innovation, the high fusion of theoretical thinking and practical abilities of technical talents can be achieved, ensuring safety in the construction of the comprehensive disaster prevention system research system automation goal.

In conclusion, the development of disaster prevention and mitigation systems requires a comprehensive approach that encompasses various aspects such as system engineering application, talent training, data collection, evaluation, and innovation. By following these steps and focusing on the latest trends and cutting-edge technologies, a disaster prevention system that aligns with the future needs of the social industry can be built, while ensuring safety and security.

4. Methodology

The research methodology for the study "Research on Safety and Integrated Disaster Prevention System Based on Big Data Technology" involves the following steps:

1) Literature review: Conduct a thorough review of existing literature on safety and disaster prevention systems, big data technology, and integrated systems to gain a comprehensive understanding of the subject.
2) Data collection: Gather data from relevant sources such as government agencies, academic journals, and industry reports. This may involve conducting surveys, interviews, and focus group discussions with experts in the field.
3) Data analysis: Analyze the collected data to identify patterns, trends, and insights related to safety and disaster prevention systems and big data technology. This may involve using statistical tools and software to process and visualize the data.
4) Problem identification: Identify the problems and challenges faced in the current research and construction system of big data technology in the security and integrated disaster prevention system.
5) Solution development: Develop a construction strategy for the research system of safety and disaster prevention based on the identified problems and challenges.
6) Implementation: Implement the proposed construction strategy and evaluate its effectiveness in improving the safety and disaster prevention system. This may involve testing the system in a controlled environment or conducting a pilot study.
7) Conclusion: Summarize the findings of the study and draw conclusions on the effectiveness of the proposed solution for improving the safety and disaster prevention system. Suggestions for future research may also be made.

5. Conclusion

In short, in view of the current social various aspects in the security, the system of disaster prevention system construction level there are still many deficiencies and problems, the specific performance in the existing disaster prevention security system in reducing disaster risk, the structure of the analysis of the cause of disaster level and system real-time data quality level and social actual demand exists dislocation and disjointed phenomenon, this article through to the existing security and disaster prevention system under the big data technology applications for the construction of the analysis of the problems existing in the process of studying the security, the integrated disaster prevention system based on the practical difficulties and problems in the study of data technology root knot, and then, in view of this kind of disaster prevention system research system and the social development demand imbalance of the outstanding problems and the insufficiency, Safety of disaster prevention are given in this paper the construction of a comprehensive research system strategy, improve relevant departments or agencies of disaster prevention system applied in the study system characteristics, the relevant departments and research institutions should build up perfect talent introduction of management system, so as to multi-dimensional and multi-level comprehensive disaster prevention security system in the application after the big data research reached the goal of construction of system.

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