Research on the Reform of Investigation Methods Guided by Dynamic Data Forecast

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Abstract—This article analyzes the constituent elements of dynamic data forecasting and guiding investigation. The research content of this article includes technical elements, resource elements, thinking elements, etc. The author combined with dynamic data to predict the attributes of guiding investigations, and studied content including dynamics, openness, diversity, and integrity. This paper studies the spatial analysis method, detection analysis method, matrix analysis method, predictive analysis method, risk assessment analysis method, node analysis method and so on. The purpose of this article is to guide the reform of investigation methods, speed up the development of investigation work, and improve the practicability of investigation results.

1. INTRODUCTION
Judging from the current social development situation, the importance of data information is constantly being highlighted. Moreover, the total amount and types of data that are gushing out every day are also showing diversified characteristics, and how to develop these application data reasonably has become a key concern of the society. At the same time, computer network crimes are increasing, directly threatening the security of personal and corporate information. The use of dynamic data to carry out corresponding investigations can not only broaden the thinking of cybercrime investigations, but also has a positive effect on improving the accuracy of investigation results.

2. DYNAMIC DATA PREDICTION GUIDES THE REFORM OF INVESTIGATIVE ELEMENTS

2.1. Technical Elements
The rapid development of various data processing technologies has caused a rapid increase in the amount of dynamic data. Due to changes in social life and production methods, the dynamic data generated by modern society refers to the sum of structured, semi-structured and unstructured data generated by industrial sensors, the Internet, mobile digital and other fixed and mobile devices. These dynamic data not only have the characteristics of massive quantity, complexity of types, and dynamic content, but also it is difficult to collect, process, mine and analyze them in real time using traditional conventional technical methods. And if we want to use these data, it requires us to have technical support for real-time collection, processing, warehouse construction, mining and analysis. The technical system of dynamic data prediction and guiding investigation covers the basic layer, technical layer and application layer of dynamic data guiding investigation. These data together constitute the data intelligence source in the dynamic data prediction and guided investigation.
2.2. Resource Element
In the practice of dynamic data forecasting and guiding investigation, dynamic data plays a vital role in it. This is also conducive to the comprehensive implementation and implementation of "proactive strikes, precision strikes" and "strong police with science and technology, guided reconnaissance with data". For one thing, the dynamic data prediction to guide the investigation is conducive to the accurate prediction of the category of criminal suspects. Enterprises can guide the collection and processing procedures of investigations through dynamic data prediction. At the same time, companies can use mining and analysis algorithms such as decision trees, neural networks, and association rules in dynamic data to build a risk prediction model for the category of suspects. In this way, an accurate prediction of the category of suspects in a crime situation can be achieved. For another, the dynamic data prediction to guide the investigation is conducive to the investigators to revise and adjust the investigation decision in a timely and effective manner according to the development of the investigation situation. According to the paradigm attributes of the data ecology of the crime situation in virtual cyberspace in the era of data-driven innovation, enterprises can use its data-based trend characteristics in the virtual cyberspace such as crime time, crime space, crime traces, crime tools, and crime methods. Investigators can use dynamic data to predict and guide the investigation's decision-making and command integrated platform according to the law of development and change of the criminal situation in different time and space of the case. This will help people make real-time and effective corrections and adjustments to the investigation decisions in the case.

2.3. Elements of Thinking
In the process of continuous technological innovation and change, the dynamic data used by people needs to be accumulated in the continuous practice process in the forecasting link. People need to continuously improve the content of the theoretical system and combine the practical data obtained in the pilots to gradually stabilize the preliminary drafted practice system and improve the reliability of the formulated system content. In the application of dynamic data, its thinking content has also changed accordingly. For example, traditional event analysis will use 10%-50% of data to sort out the corresponding events. At this stage, the degree of data accumulation will exceed 80%, which greatly improves the objectivity of data analysis results. Moreover, based on the pursuit of changes in the total amount of data and information in the past, the current thinking has also begun to advance in the direction of more precise applications. For example, at this stage, 30%-40% of the essential data will be extracted from 100% of the data, so as to provide a good application guarantee for the optimization and analysis of data information. As shown in Figure 1, it shows the specific source of a certain college student source, and the color depth indicates the change of the student source input. In addition, in the process of dynamic data analysis and processing, it will also bring necessary technical method support to structured data and unstructured data. This helps to ensure the use value of various data and information content, thereby providing a lot of innovative content for the adjustment of investigation thinking.
3. Dynamic Data Prediction Leads to Changes in Investigation Characteristics

3.1. Dynamic
In the process of investigative activities, compared with traditional analysis methods, the data and information required for computer network crimes are all 100 trillion or more than 10 trillion, and the workload is huge. At this time, the work efficiency can be increased by more than 150% with the help of the dynamic attributes of the dynamic data. This speeds up the development of related issues. Moreover, in the process of specific use, dynamic data requires a reasonable analysis of the case interaction data and the development trend of data information. In this way, the content displayed in the process of data analysis can scientifically evaluate the current development status. This also greatly improves the dynamics and reliability of the forecast data itself. Meanwhile, in the process of actual application management, the dynamics of its data guidance will also show a corresponding change trend as the investigation situation changes. In this way, in the actual processing process, not only can timely understand the situation of case investigation, but also facilitate the smooth progress of case investigation activities and improve the objectivity of evaluation results. The dynamic feature in the application can also help investigators in effective confrontation with criminal activities and help them seize the initiative in activities. Related worker need to quickly adjust response strategies according to the specific activities of the criminal suspect. The dynamic characteristics of the original countermeasures have increased by more than 70%.

3.2. Openness
In the process of investigative activities, compared with traditional analysis methods, there are very strong diversifications in the ways and purposes of computer network crimes, and the openness of the whole process is more significant than traditional crimes. At this time, with the help of the openness of dynamic data, it is possible to display the application characteristics of the current data, thereby improving the use value of all application data. Moreover, in this way, it is possible to conduct a reasonable analysis of the case interaction data and the development trend of data information. The police can smoothly handle crimes based on the law of data analysis. With the help of the application principle of dissipative science, we can understand that in the process of practical application management, there will be a certain correlation between data. This is also an important reference for data processing in the cooperative mode. When analyzing the strength of the investigative relationship with dynamic data, it is also necessary to analyze the effectiveness of the "cross-section" of the system application process, and scientifically evaluate the dynamic value of different types of data. In this way, various restrictive factors can be comprehensively guided in practical applications. In the process of use,
the police can also formulate corresponding handling measures for the specific changes in the investigative activities, thereby enhancing the dominance of the process of form changes. This can meet the basic needs of different application states.

3.3. Diversity
Analyzing the past investigation methods, we can understand that in the process of traditional static data information analysis, because the collected data types are small, the basic quantity is small, and the quality is poor. Therefore, in the actual analysis and processing process, the analysis content is often insufficient. In this way, in the process of data investigation, its efficiency is relatively low, and it cannot smoothly deal with the current situation of computer network crime. In the case of dynamic data information application, it can display the application characteristics of the current data. Moreover, there will be a certain correlation between the data. This is also an important reference content under the cooperative mode. In this way, you can refer to more data forms when analyzing it, and at the same time complete the storage and application of data information according to requirements. This also greatly reduces the confusion of data and information, and increases the efficiency of case detection by more than 150%. At the same time, in the process of using data and information, the breakthrough point will have diversity value. Moreover, this also has a very strong investigative practice. In this way, when predicting it, potential problem data can be found in time in the massive data. Using other tracking technologies to track and analyze the data is beneficial to reduce the burden of data and information sorting and improve the efficiency of data and information sorting.

3.4. Integrity
Except to the above application content, there are also overall application characteristics in the dynamic data application process. In the process of using traditional investigative methods, because the types of data collected are small, the basic quantity is low, and the quality is poor. Moreover, there is no effective way to deal with huge data. The police can only use random sampling to complete the analysis and processing of data information. This also improves the error tolerance rate of data analysis results, and cannot provide scientific data reference for relevant personnel. The integration of dynamic data information has effectively improved the comprehensiveness of the analyzed data. In the meantime, when conducting a comprehensive analysis of application parameters, the police can also combine their own cognitive abilities to conduct a holistic analysis of objective application conditions. The police can use this to obtain more integrated application data. And in this process, the police also need to comprehensively sort out a large amount of data information to clarify the use value of the data information. Otherwise, when rebuilding the investigative field, the police will further analyze the potential value data, thereby improving the reliability of the data analysis results.

4. Dynamic Data Prediction Leads to Changes in Investigation Methods

4.1. Spatial Analysis
The spatial analysis method mainly aims at the spatial data in the computer network, and uses the existing situation to complete the prediction management of dynamic data. It is also a processing method often used in the development of investigation activities. In the specific application process of this method, we can subdivide the data of the data intelligence source according to the timeline, so that it can be divided into different intelligence fragments. Subsequently, we can visualize or comprehensively analyze the data space analysis model according to the timeline marked content. The intelligence analysis results put forward in this process will also be summarized as a whole. In this way, when dealing with dynamic data, the police can make scientific predictions for its development route, thereby accelerating the efficiency of investigation. Judging from the current use situation, there are still three application branches of the spatial analysis method. They are statistical data analysis, nuclear density data analysis and spatial statistical data analysis. In specific applications, the police will conduct further development based on the corresponding fragments in the dynamic data. Simultaneously, the
police can also help investigators complete the analysis of different spatial states of data, thereby improving the reliability of the data analysis results [1].

4.2. Probing Analysis
The detection analysis method is mainly aimed at the time and space risk in the computer network, using the existing situation to complete the prediction management of dynamic data. This is also a processing method often used in the development of investigation activities. This method can be divided into two parts, crime time and crime space, to collect content during the analysis process. It can use the dynamic data analysis situation to classify the collected data and perform corresponding processing and analysis [2]. At the same time, in the process of sorting, it can also optimize the application rules in the spatial dimension. In this way, in the process of use, not only can we understand the main gathering areas of some criminal activities in the computer network space, and further reduce the scope of criminal activities, but also can scientifically predict the development route when processing dynamic data in order to speed up the efficiency of investigation. In the current application process, this method can optimize some cases with a high crime rate during use. Moreover, a good analysis and optimization of target content is conducive to improving the final investigation effect.

4.3. Matrix Analysis
The matrix analysis method is mainly aimed at the spatiotemporal hot spots in the computer network in the application process. The use of existing dynamic data can bring effective management to the current investigation activities. Moreover, when analyzing and processing it, the company will also perform applied analysis on some valuable data according to the processing goals drawn up in the current analysis process. This is also conducive to the smooth progress of various activities and speeds up the efficiency of investigation work. The types and volatility of dynamic data are relatively strong, and there is still a disconnection of data information analysis in practical applications. Moreover, as far as internal management departments are concerned, this will also sort out the disjointed situation of investigatory thinking and further narrow the scope of criminal investigations. Otherwise, enterprises can also reasonably optimize the bottleneck of the data information processing state when processing dynamic data. In this way, more scientific and effective evaluation results can be obtained, which can accelerate the efficiency of investigation. In the current application process, this method is mainly used for the sorting and summarization of crime data to find out the breakthroughs in the investigation activities to improve the reliability of the investigation results [3].

4.4. Predictive Analysis
The predictive analysis method is mainly used to analyze the spatial anchor points in the computer network to find a reasonable investigation route and accelerate the development of investigation activities. Based on previous investigation management experience, it can be understood that the space trajectory in the computer network is mainly used to sort out and evaluate the current law of space activities. At the same time, this can also conduct targeted investigations on the regular situation of space activities. In the entire application process, the main function of the space anchor is to complete the value data analysis of the space trajectory left by the criminal suspect after completing the crime. This is also conducive to the smooth progress of various activities and improve the efficiency of case detection [4]. Judging from the current use situation, this method is generally used in combination with other analysis methods in applications. In this way, the deficiencies of the predictive analysis method can be compensated in the analysis process, and the reliability of the investigation analysis results can be improved.

4.5. Risk Assessment Analysis
The risk assessment analysis method is mainly used to evaluate the criminal risk content in the computer network during the application process. Moreover, it can also make scientific predictions on data information, thereby improving the reliability of the analysis results. In the specific application
process, the investigative agency summarizes and sorts out the relevance of these data based on the various dynamic data of the suspect’s activities in the network. In addition, the police will also analyze the value data to obtain scientific and effective data evaluation results, determine the direction of the follow-up investigation process, and improve the detection efficiency of the case [5]. Judging from the current usage, this method generally establishes a corresponding processing model in the application. At the same time, the police will dynamically adjust the specific development direction of relevant data in the application of the model. This is also conducive to the smooth guidance of investigation cases and improves the reliability of data analysis results.

4.6. Nodal Analysis
In the application process, the node analysis method mainly analyzes the content of mutual relations in the computer network. In this way, in practical applications, the police can rely on the relevance of network information to sort out the processing ratio in the investigation process, so that it can have more reliable application value and meet specific application effects. In the specific application process, the investigative agency will sort out the content of network nodes. At the same time, the investigative agency can also complete the establishment of a social network relationship model during the combing process, and obtain scientific and effective data analysis results based on the model, and determine the direction of subsequent investigations. It should be noted that in the process of data analysis, investigative agencies need to mine the potential value of relevant data in network nodes. This is conducive to determining the development direction based on the guidance of value data and laying a solid foundation for the smooth development of investigation work [6].

5. CONCLUSION
In summary, in the context of accelerating the development of computer networks, the frequency of cyber crimes is also increasing. And how to detect such cases in a timely manner is also what institutions need to focus on. The application of dynamic data to investigation methods has a positive meaning for accelerating the speed of case investigation.

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