Research on the Role of Computer Security Management in Preventing Financial Technology Risks

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Abstract: The role of computer security management technology in preventing financial technology risks is very important, but there is a problem of inaccurate assessment of risk judgment results. The intrusion detection method cannot solve the problem of result judgment error in fintech risk prevention management. Therefore, a computer security management scheme based on meta-network method is proposed to prevent financial technology risks Analyse. Firstly, the concept of trust domain is adopted to determine different entity sets according to different levels of security requirements, and divide the levels according to the risk prevention annotation to reduce the interference factor of the error of determining the risk level. Then, through the information interaction properties within the meta-network structure, the computer network with specific needs and functions can be described, and the results of preventing financial technology risks can be comprehensively analyzed. The results of MATLAB simulation experiments show that under the background of unified judgment standards, the meta-network is based The computer security management technology of the method is applied to financial technology risk prevention, and its accuracy and timeliness are better than that of the intrusion detection method.

1 INTRODUCTION

With the rapid development of Internet technology, computer networks, especially securities, futures and banks and many other enterprises have also been widely used, and the business of enterprises is basically based on computer networks (Agustina, and Subagyo, et al. 2022). Although the maintenance and security of computer networks of financial and securities companies will be periodically managed, there are still certain network security incidents (Rahmattullah, and Suman, et al. 2021). Some scholars believe that applying business process-based computer security methods to enterprise fintech risk detection can effectively detect the security problems existing in enterprise networks and provide corresponding support for enterprise network security prevention (Marandi, and dogra, et al. 2022). On this basis, this paper proposes a meta-network method to optimize the risk scheme of enterprise fintech and verify the effectiveness of the model (ALMahadin, and Hiari, et al. 2022).

2 RELATED CONCEPTS

2.1 Mathematical Description of the Meta-Network Approach

The meta-network method uses the concept of trust domain to optimize the security system, and finds the insecure factors in the security system according to the indicators in the security system and integrate the security precautionary scheme to finally judge the feasibility of computer security management (Chenniappanadar, and Gnanamurthy, et al. 2022). The meta-network method combines the advantages of trust domain theory, and uses the characteristics of information interaction within the meta-network structure to describe the specific functions of the computer network, thereby enhancing the risk of fintech of the quality of prevention.

Suppose I. Fintech risk prevention requirements are x_i, computer network security management scheme is fit_i, computer network security management scheme satisfaction is N_i, The

judgment function of the computer network security management scheme is $T(x_i \approx 0)$ as shown in Equation (1).

$$T(x_i) = \sum fit_i \xrightarrow{\wedge} \bigcup N_i \qquad (1)$$

2.2 Selection of Computer Network Security Management Scheme

Hypothesis II The fintech risk prevention function is $Q(x_i)$ and the weight coefficient is w_i, then, the security management requirements are not applied, the fintech risk prevention model as shown in Equation (2):

$$Q(x_i) = K_i \cdot \prod F(x_i, N_i) - \int w_i \otimes \tau \qquad (1)$$

2.3 Analysis of Fintech Risk Security Management Program

Before the meta-network method, a multi-dimensional analysis of the enterprise fintech risk prevention scheme should be carried out, and the risk prevention requirements should be mapped to the computer network security management database to eliminate unqualified risk prevention Scheme. First, the fintech risk prevention scheme is comprehensively analyzed, and the threshold and index weights of the risk prevention scheme are set to ensure the accuracy of the meta-network method. Financial technology risk prevention management is a system test security management plan, which needs to be optimized and improved. If the fintech risk is in a non-normal distribution, its computational network security management scheme will be affected, reducing overall risk prevention management accuracy. In order to improve the accuracy of the grey correlation algorithm and improve the level of risk prevention management, it is necessary to select the risk security management plan, and the specific scheme selection is shown in Figure 1 shown.

The investigation of the risk and security management scheme shows that the risk security management scheme presents a multi-dimensional distribution, which is in line with the objective facts. Risk security management is not directional, indicating that the risk security management scheme
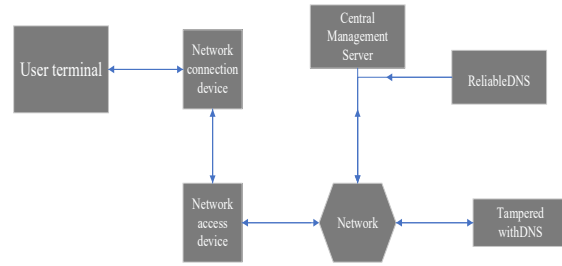

Figure 1: Results of selection of fintech risk prevention solutions

has strong randomness, so it is regarded as a high analytical study. Risk security management meets the normal requirements, mainly the meta-network method adjusts the financial technology risk prevention management, removes duplicate and irrelevant schemes, and supplements the default scheme, so that the whole The dynamic correlation of risk prevention management solutions is strong.

3 OPTIMIZATION STRATEGIES FOR FINTECH RISK PREVENTION MANAGEMENT

The meta-network method adopts a random optimization strategy for fintech risk prevention, and adjusts talent parameters to optimize the solution of fintech risk prevention management. The meta-network method divides fintech risk prevention into different management levels, and randomly selects different solutions. In the iterative process, the risk prevention schemes of different prevention management levels are optimized and improved. After the optimization and promotion analysis is completed, the prevention and management level of different solutions is compared, and the best financial technology risk prevention and management methods are recorded.

4 PRACTICAL CASES OF FINTECH RISK PREVENTION MANAGEMENT

4.1 Introduction to Risk Prevention and Management

In order to facilitate fintech risk management, this paper takes fintech risk management in complex situations as the research object, with 12 paths and a

test time of 12h The evaluation scheme of fintech risk management is shown in Table 1.

Table 1: Fintech risk management requirements

Scope of application	Management level	Manage effects	Manage quality
Bank	I	64.38	61.74
	II	63.74	62.41
Securities companies	I	62.75	64.64
	II	63.09	62.55
Futures companies	I	65.05	62.16
	II	64.95	57.99

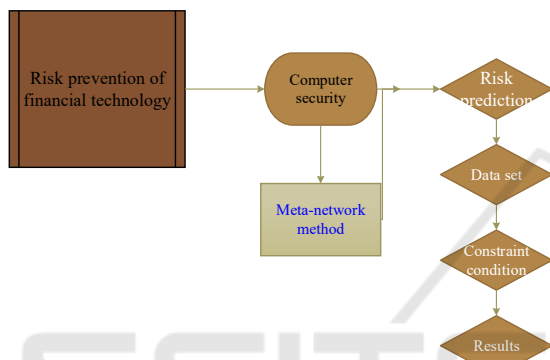The fintech risk management process in Table 1 is shown in Figure 2.

Figure 2:The analysis process of fintech risk prevention management

Compared with the intrusion detection method, the computer security management scheme of the meta-network method is closer to the actual fintech risk prevention management requirements. In terms of the rationality and fluctuation range of financial technology risk prevention management, the meta-network method is better than the PLD teaching mode. The changes in the fintech risk prevention management scheme in Figure II show that the meta-network method has better stability and faster judgment speed. Therefore, the meta-network method's fintech risk prevention and management scheme has more advantages in the speed and stability of the judgment of security issues.

4.2 Fintech Risk Management

The financial technology risk prevention program for computer security management includes non-structural, semi-structured, and structural information. After the pre-selection of the meta-network method, a preliminary fintech risk prevention scheme for computer security

management is obtained, and the computer security management is obtained Analysis of the feasibility of fintech risk prevention solutions. In order to more accurately verify the effect of financial technology risk prevention and management, select different risk prevention levels of financial technology risk prevention solutions to prevent the management effect This is shown in Table 2.

Table 2: The overall situation of the fintech risk prevention management plan

Level of protection	Manage satisfaction	Risk determination
Class I	85.73	74.21
Class II	85.47	79.38
Grade III	83.41	76.82
Class IV	82.65	74.42
Class V	85.95	76.17
	P=4.15	

4.3 The Effect and Stability of Financial Technology Risk Prevention in Computer Security Management

In order to verify the accuracy of the meta-network method, the fintech risk prevention scheme is compared with the intrusion detection method, and the prevention evaluation effect is shown in Figure 3.
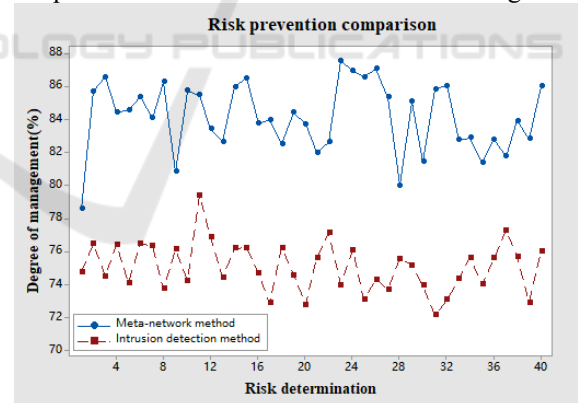

Figure 3: Fintech risk prevention results of different algorithms

It can be seen from Figure 3 that the fintech risk prevention effect of the meta-network method is higher than that of the intrusion detection method, but the error rate is lower, indicating that the meta-network method is based on it   The risk prevention effect of computer security management of fintech is relatively stable, while the risk prevention detection of intrusion detection method is uneven. The average

preventive effect of the above methods is shown in Table 3.

Table 3. Comparison of risk prevention accuracy of different methods

Algorithm	Quality of risk prevention	Magnitude of change	Error
Meta-network methods	90.58	91.87	1.29
Intrusion detection	79.09	83.26	4.17
Network antivirus detection	64.38	61.27	3.11

By Table 3, it can be seen that the intrusion detection method has deficiencies in the prevention effect and stability of financial technology risk prevention effect, the quality of risk prevention has changed significantly, and the error rate is high. The general results of the meta-network method have a higher quality of risk prevention than the intrusion detection method. At the same time, the quality of financial technology risk prevention management of computer security management is greater than 90%, and the accuracy has not changed significantly. In order to further verify the superiority of the meta-network method. In order to further verify the effectiveness of the proposed method, the meta-network method is generally analyzed by different methods, as shown in Figure 4.
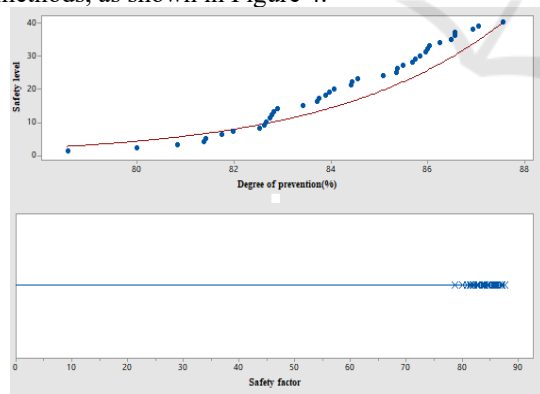

Figure 4: Fintech risk prevention based on meta-network approach

By Figure 4 It can be seen that the fintech risk prevention quality of the meta-network method is significantly better than that of the intrusion detection method, and the reason is that the meta-network method increases the financial risk prevention Adjust the coefficient, and set the threshold of talents, and eliminate risk prevention plans that do not meet the requirements.

5 CONCLUSIONS

Aiming at the problem that financial technology risk prevention is not ideal, this paper proposes a computer security management scheme based on meta-network method, and combines the trust domain theory to optimize the risk prevention management of financial technology. At the same time, the risk prevention management requirements and threshold sets are analyzed in depth, and the requirements of different information are constructed. The research shows that the meta-network method can improve the accuracy of fintech risk prevention and management, and stability can prevent and manage fintech risks Conduct general effect judgments. However, in the process of meta-network method operation, too much attention is paid to the analysis of risk prevention quality evaluation, resulting in irrationality in the selection of financial technology risk prevention management indicators.

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