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**Technical specifications for intelligent prevention and control
of payment risks based on big data
(English Translation)**

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Foreword

This document starts from the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents" grass.

Introduction

With the rapid development of technologies such as big data, mobile internet, artificial intelligence, and biometrics, payment methods are undergoing tremendous changes.

Profound changes. New technologies have brought new hidden dangers while enriching payment methods and improving payment efficiency.

Risk prevention and control capabilities put forward higher requirements.

To standardize the application of big data and artificial intelligence technology in the field of payment risk prevention and control, and to improve the pertinence and effectiveness of payment risk prevention and control technology to ensure the safety of people's information and funds, this document is compiled.

Technical specifications for intelligent prevention and control of payment risks based on big data

1 Scope

This document specifies the technical framework and system implementation security requirements required for the prevention and control of payment risks based on technologies such as big data and artificial intelligence.

This document is applicable to payment-related commercial banks, non-bank payment

institutions and clearing institutions to carry out the construction and operation of payment risk prevention and control systems.

Use intelligent prevention and control technology to build an intelligent risk prevention and control system and provide payment risk prevention and control services.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated reference documents, Only the version corresponding to that date is applicable to this document; for undated references, the latest version (including all amendments) is applicable to this document Pieces.

JR/T 0071-2020 Implementation Guidelines for the Cybersecurity Level Protection of the Financial Industry JR/T 0171-2020 Personal Financial Information Protection Technical Specification

3 Terms and definitions

The following terms and definitions apply to this document.

Risk

The impact of uncertainty on goals.

Note: 1.Impact refers to deviations from expectations, which can be positive and/or negative.

2.Goals can be different aspects (such as finance, health and safety, environment, etc.) and levels (such as strategy, organization, projects, products and processes, etc.) goals.

3.Potential events, consequences, or a combination of both are usually used to distinguish risks.

4.The combination of the consequences of the event (including changes in the situation) and the possibility of the event is usually used to express risk.

5.Uncertainty refers to the lack of information or one-sided understanding of the event and its consequences or possibilities.

[Source. GB/T 23694-2013, 2.1] 3.2 Payment risk all kinds of risks faced by industry institutions when developing payment business.

Intelligent risk control A risk prevention and control method that enhances the ability to identify, evaluate and respond to risks through the use of related technologies such as big data and artificial intelligence.

Big data

It has the characteristics of huge volume, diverse sources, extremely fast and changeable generation, and it is difficult to use traditional data architecture to effectively deal with large inclusions.

The amount of data in the data set.

Note: Internationally, the four characteristics of big data are generally expressed directly in volume, variety, velocity, and variability without modification, and are divided into different categories.

Don't give it a definition in the context of big data.

a) Volume. The size of the data set that constitutes the big data.

b) Variety. Data may come from multiple data warehouses, data fields, or multiple data types.

c) Velocity. data flow per unit time.

d) Variability. Other characteristics of big data, namely the size, speed, and diversity, are all in a state of change.

[Source. GB/T 35295-2017, 2.1.1] 3.5 Big data technology Collect, process, store, analyze, mine, and manage big data to discover new knowledge, create new value, and enhance new capabilities A new generation of information technology.

Machine learning

Algorithms (technologies) that automatically discover laws in historical data and use them to apply (predict) unknown data.

Supervised learning

Use the marked limited training data set to establish a model through a certain learning strategy and method to realize the labeling of new data or instances (divided) Class) or mapping.

Note: The most typical supervised learning algorithms include regression and classification.

Semi-supervised learning in the training process, a small part of the labeled data and most of the unlabeled data are used for training and learning, which is between supervised learning (3.7) A learning method between unsupervised learning (3.9).

Unsupervised learning Use unlabeled limited data to describe the structure and laws hidden in unlabeled data.

Note: The most typical unsupervised learning algorithms include single-class density estimation, single-class data dimensionality reduction, clustering, etc.

3.10

Device fingerprint

It can be used to uniquely identify the device feature or unique device identification of the device.

3.11

Stream processing

For large-scale computing scenarios with high concurrency and high requirements for timeliness, it can be used for real-time, high-speed, borderless, and instantaneous Technology for real-time processing of streaming data with other characteristics.

Note: Stream processing has the characteristics of low latency, high availability, and high expansion.

3.12

Graph processing

An abstract expression of a kind of "graph" structure of data based on "graph theory", and the calculation mode on this data structure.

Note: In graph calculation, the basic data structure expression includes. nodes, edges, weights, etc.

3.13

In-memory processing A data processing technology that prioritizes the use of memory to store, calculate, and analyze data.

3.14

Batch processing

Decompose a large-scale job into multiple tasks and hand them over to multiple nodes to process separately, and summarize the results of multiple tasks after the decomposition.

The calculation framework for the final analysis results.

Note: Batch processing has the characteristics of high availability, high scalability, and high concurrency.

4.1 Overview

Intelligent payment risk prevention and control technology based on big data mainly includes three parts. big data technology, risk prevention and control technology, and risk types.

Use big data technology to analyze data online and offline to provide technical support for intelligent risk prevention and control technology, so that institutions can use Artificial intelligence and other technologies continue to iterate the risk control model to actively identify and prevent risks in the payment business process. The framework is shown in Figure 1 (the dotted box in the figure) the specific classification and method are divided by the business unit according to the actual situation).