

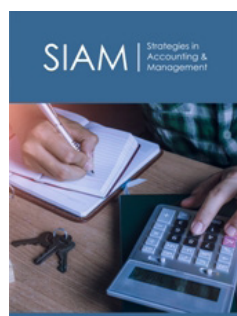
Data Mining: A New Direction for the Talent Training in Audit Informatization

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Abstract

The development of big data and cloud computing technology has brought new changes to the audit industry. This article analyzes the impact of social informatization and points out that emerging obscure problems have presented new challenges for auditing. It also puts forward some opinions, including audit based on data mining still lacks extensive application, colleges and universities should respond to social demand for compound talent and reform the training programs in time.

Keywords: Audit informatization; Data mining; Talent training program

Opinion

Fast development of social informatization sets higher requirements on the capacity of auditors

The development of big data and cloud computing technology has brought new changes to the mode of production and operation in various industries, mainly reflected both in the more automated and informatized production process, and in the massively generated and well stored business data and financial data. And these changes are also a great challenge to the audit industry. For instance, over the last 20 years, computer-aided auditing based on SQL queries has witnessed enormous popularity in the government audit in China. Nevertheless, more and more experienced auditors have found that some frauds can be easily discovered through database queries, while others cannot. Taking the medicine makeup rate in China's public hospital as an example, in the past, the rate can be easily calculated by retrieving the purchase price and sales price of various medicines from database, and audit conclusion can be obtained by referring to the regulations. However, with the enhancement of control mechanism of information system, such direct and blatant violations of the government price policy become increasingly rare. Nowadays, circumstances have become more obscure and the traditional method of querying has become more ineffective. For instance, doctors who received illegitimate funding from pharmaceutical companies would have the tendency to make improper treatment programs. Besides, problems like "large prescriptions", over treatment, abuse of health insurance funds, inefficient using of medical equipment would not result in obvious frauds, which can be easily examined through simple SQL queries in database. However, employing various data mining algorithms, valuable audit clues might be captured.

Data mining is the process of discovering interesting patterns and knowledge from large amounts of data. And, a pattern is interesting if it is (1) easily understood by humans, (2) valid on new or test data with some degree of certainty, (3) potentially useful, and (4) novel. Commonly used data mining algorithms include characterization and discrimination, associations and correlations, regression for predictive analysis, cluster analysis, and outlier analysis [1]. Using the above definition and description, we can tell that the essence of data mining coincides with the goal of auditing. Nowadays, pioneers of the audit industry have become aware of the implications of data mining algorithms on auditing and started recruiting related talents. We also believe that data mining is the most promising direction of audit innovation at the technical level. However, from the existing literature, in-depth study in this area is quite scarce [2]. For example, some literature mentioned outlier analysis, but what was exactly accomplished is no more than detecting outliers at the boundary, which is also

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called the extremum, such as point 1,2 in Figure 1 [3,4]. But actually, we need to discover the potential outliers as point 3 in Figure 1, and this is the true mining of valuable data.

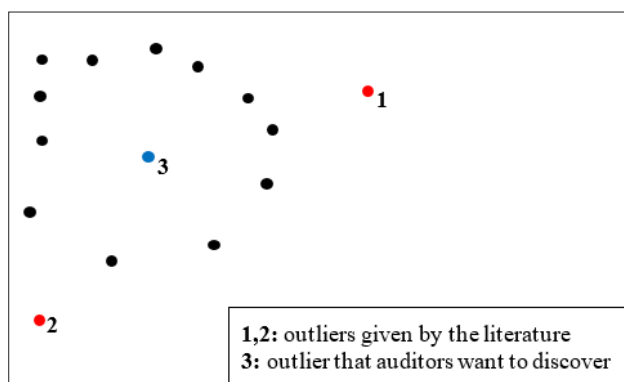


Figure 1: Illustration of valuable outliers in auditing.

Inspiration from other industries

Though auditing based on data mining is quite rare in this area, the similar methodology has been successfully carried out and applied in other industries. In fact, the idea of intelligent auditing is widely adopted in the identification of money laundering transactions in the financial industry, and in the tax inspections in the Fiscal & Tax industries. The nature of fintech, which has developed rapidly in recent years, is a combination of emerging technologies such as traditional finance and artificial intelligence. According to a survey by the Internet Finance Association of Jiangsu Province, China, the fintech industry has experienced explosive growth since “the First Year of Internet finance” in 2013.

The current annual gap for talents in fintech is 10 times that in the traditional financial industry [5]. Alibaba, a large e-commerce company, has applied data analysis algorithms to capture and punish groups of illegal merchants who artificially increase the trading volume of their online shop, and thus maintain the fairness of the virtual community. Though applied in different fields, the same idea of “discovering problems based on data” and its success in e-commerce, finance and other industries are convincing fact that data mining will become a brand-new highlight in the era of data-based auditing.

University's response

Zhejiang University of Finance and Economics is a university that transfers economic and management talents for local socio-economic development, and it has maintained good cooperation with the Audit Office of Zhejiang Province. To meet the demand of the audit authority department, the university designates teachers and outstanding undergraduates from major of accounting and auditing to participate in the co-audit task at public hospital. And this work has lasted for nearly 10 years. However, in recent years, the required skills from Audit Office have changed. They call for more personnel who understand and master computer technology and data mining technology, or personnel with dual major backgrounds in computer and accounting or auditing. In short, it is more popular to have a complex background to adapt to the new requirements of future audit task. In response to this situation, our university-initiated reform of talent training programs in Accounting School. In the training program (2018 version), the major of auditing focused on technology and competence development in the big data era, and set up a new direction of audit informatization, as is shown in Table 1.

Table 1: Details of the training program reform of ZUFE in 2018.

Course Platform	2018 Reform Initiatives	Descriptions
General Compulsory	Adjusting the content depth of 2 courses: Calculus B => Calculus A; Linear Algebra B => Linear Algebra A	Increasing academic challenges
General Compulsory	New Course: Python Programming	Meeting the demands of compound talent training in the big data era
Subject compulsory	New Course: Business Statistics and Software Applications	Meeting the demands of compound talent training in the big data era
Major Compulsory	Changing Course: Computer Audit => Database Principles and Computer-Aided Audit	Expanding course content and strengthen computer foundation
Personalized training (audit informatization)	New courses: Data Mining, Information and Network Security, Information System Audit	Setting up new training direction and introduce three courses to meet the demands of compound talent training

Concluding Remarks

A. Due to the advancement of informatization, the total value of fraudulent behaviors has been reduced to a relatively low level. On the other hand, emerging obscure problems have presented new challenges for auditing.

B. Audit based on data mining has caught auditors' attention, but it still lacks extensive application.

C. Colleges and universities should respond to social demand for compound talent and reform the training programs in time, including setting new courses and new directions.

References

1. Han J, Kamber M, Pei J (2012) Data mining: Concepts and Techniques. (3rd Edn).
2. Adrian G, Martina LK, Terrence JON (2018) Big data techniques in auditing research and practice: Current trends and future opportunities 40: 102-115.
3. Chen L (2009) About the application of data mining technology in information system audit.
4. Agostini M, Favero G (2017) Accounting fraud, business failure and creative auditing: A microanalysis of the strange case of the sunbeam corporation 22(4):
5. Wang G, Zheng W (2018) AI + Finance is rising, financial education urgently needs innovation.

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