



Exploring the Application Value of Big Data in the Field of Financial Management in the Context of Digital Intelligence Take the Petrochemical Industry as an Example

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Abstract. Big data brings opportunities to enterprise financial management and also faces great challenges. This paper will analyze the role and value of big data in enterprise financial management, take petrochemical industry as an example, combine several types of big data application scenarios to propose the application strategy of big data in the field of financial management, hoping to effectively improve the quality and level of enterprise financial management, and then enhance the core competitiveness of enterprises.

Keywords: big data · financial management · application value

1 Introduction

When it comes to big data, many people are familiar with it, whether they are professionals or non-professionals. In the beginning, this “big data” was not very big, when the Internet was not yet emerging, the data is the books we read, newspapers and magazines, etc. How many bytes of books can be added up in a week? If you do not live in a big city, an ordinary school library books add up to not much information, and then with the arrival of the information society, the arrival of the Internet, only to let the data explosive growth, big data technology has also developed rapidly, and now big data has been integrated into all walks of life [1].

Since the “Thirteenth Five-Year Plan”, China’s vigorous development of big data, the integration of applications continue to deepen, the digital economy to enhance the quantity and quality of innovation-driven, integration-driven role of the economic and social industry and the Ministry of Information Technology Operation Monitoring and Coordination Bureau released data show that in 2019, China’s cloud computing, big data technology-based platform class operation technology Service revenue of 2.2 trillion yuan, including typical cloud services and big data services revenue reached 328.4 billion yuan, providing services to 2,977 enterprises, the development of big data industry is growing.

2 Application Value of Big Data in the Field of Financial Management

The development of business is inherently dependent on a large amount of data analysis to make decisions, data, in addition to the value it provides when it is first used, the accumulated ocean of data is not useless waste, it has an endless “residual value” [2], the value of the application of big data in the field of financial management is mainly reflected in the following three areas:

2.1 Improve the Efficiency of Financial Data Processing

Financial management is crucial to the development of enterprises. In the era of big data, through the network and data processing system, it is possible to quickly process a number of data, obtain a large amount of data through the network, innovate the financial management mode, continuously expand the financial management mode from linear to horizontal and realize cross management, and improve the efficiency and accuracy of financial management [3].

2.2 It is Conducive to the Avoidance of Corporate Financial Risks

In the era of big data, enterprises can analyze the future development tendency and situation of the market through the collection and collation of data, and make timely adjustments to the development strategy and direction of the enterprise. The traditional enterprise financial management tends to be more to the enterprise financial accounting and daily income and expenditure accounts, but in the era of big data, these can be collected through the data and completed by the data system, which greatly reduces the workload of financial management. In addition, along with the development of the big data era, enterprise data collection can provide managers with an effective basis for decision-making and avoid financial risks for the development of enterprises [4].

2.3 Improving Comprehensive Enterprise Budget Management

Under the background of big data, the use of modern technology for comprehensive enterprise budget management can improve the economic efficiency of enterprises and lay a solid foundation for the development of enterprises. At the same time, the use of big data can analyze the future market situation for enterprises, which has a positive impact on the scientificity and accuracy of budget formulation, and can develop more reasonable comprehensive budget data for enterprises, develop a budget that is more in line with the actual development of enterprises, improve the effect of budget management, and achieve the goal of enterprise production and operation [5].

3 Enterprises Face Financial Management Problems.

3.1 Lack of Information Support Means for Transition To Management Accounting

After financial sharing, accounting staff is reduced by 63%, and a large number of finance staff face transformation; accounting is an ex-post reflection of economic activities, finance has limited support for ex-ante prediction and ex-post analysis of tracking, and the role of financial value creation is not played.

3.2 Enterprise Development Does Not Adapt To the Changing Times

The traditional industry of refined oil sales faces problems such as redundant processes, slow decision-making, wasteful resource allocation and lack of suitable force, which cannot adapt to the rapid development of the Internet big data era [6].

3.3 High Information Cost and Low Data Utilization

Information maintenance costs are high, with 21 sets of information systems investing nearly tens of millions of dollars in annual maintenance costs: information orphans still exist, with nearly 3 million pieces of transaction data per day basically in a precipitated state and data utilization rate less than 30%.

3.4 High Number and Low Quality of Statements

In addition to the financial reports, there are a total of 341 internal statistical analysis reports for five professional lines, including transportation, marketing, management, non-oil and finance, and there is a lot of duplicated statistical work.

3.5 High Difficulty of Basic Data Governance

The caliber of data is not standardized enough, and the data standards managed by different departments are inconsistent; there is diversity in the sources of data collection, the content is not highly reliable, and the report data cannot be flexibly extended [6].

3.6 Low degree of system automation

The output is solidified and inflexible. Business needs change and the original system cannot achieve flexible query analysis. The preparation and analysis data collection of complex decision reports from cross-system sources mainly rely on manual work, and the data statistics take a long time.

4 Big Data Analysis Application Cases and Strategy Analysis

Here we will take the petrochemical industry as a case study and look at different dimensions in detail.

4.1 Strategy 1: Find the Right Bleeding Point and Precise Risk Monitoring

In the operation of gas stations, problems such as cashing out of gas cards and large deviations in oil storage losses and overflows are “bleeding points” that have been plaguing the development of the enterprise’s efficiency. The company combed through 23 types of risks in three categories: fuel card, single tank loss and overflow, and pump code of fuel gun, pinpointed the source of risks, and conducted real-time, point-to-point accurate audits. After the risk monitoring function was launched, the abnormal risk of card decreased by 39.6%, the abnormal loss of single tank decreased by 12.5%, and the abnormal pump code decreased by 25%, which is expected to reduce the cost by 23 million RMB per year [7].

Case 1: Monitor abnormal card spending on a daily basis, strictly control card cashing, and improve card risk prevention and control measures.

Wuhan Branch through the big data platform found that in just less than 3 h 17 consecutive gasoline consumption, which is extremely inconsistent with common sense, suspected the existence of card cashing behavior. Customers use gas cards to cash in, there are many risks, not only infringes on the rights and interests of the company, damage the public image of the gas station, disrupt the normal operation of the gas station order, but also brings the company the risk of false invoicing. In order to prevent similar things from happening again, the act of stopping customers from cashing out using gas cards should be included in the on-site management regulations of gas stations, and the accountability methods of the personnel on duty should be clarified; the unit card gas cards should also be included in the blacklist of units issuing VAT special invoices.

Case 2: Daily monitoring of abnormal loss of single tank, solving the risk of oil leakage and standardizing the management of oil machine stopping (starting).

Through the analysis of a single tank loss monitoring module of a gas station on the big data platform, Jiangnan Branch found that the loss of tank 4# at Wujing South Station on a certain day was abnormal, with an abnormal loss of 107 L of 93# gasoline. Through the big data platform to verify the sales volume, back to the tank and the corresponding refueling equipment, it was confirmed that the tank corresponding to the 6# gun had been temporarily deactivated and was suspected of leaking oil. The gas station immediately did the treatment: turned off the power supply of the dispenser and submersible pump, set a cordon, cleaned the oil sand from the bottom of the 6# dispenser, confirmed that the check valve was out of the closed state, and refilled the sand after lifting the gun to check that the pipeline connection was no longer leaking. In order to prevent similar things from happening again, we should improve the management system, set up the approval process for stopping (starting) the gun, and establish an electronic account for stopping (starting) the gun, and standardize the management of stopping the gun; we should also clarify the precautions for short-term stopping (starting) the gun: close the check valve of the submersible pump dispenser, and seal the gun; regarding the activation of the dispenser: approve and report first, and then unseal and empty it.

4.2 Strategy 2: Find the Pain Point, Precise Organization Marketing

Using the big data platform, we analyze transaction-level data, grasp customer consumption patterns, and design personalized models to help achieve more accurate, measurable,

and high-return marketing models. xBRL's big data platform provides correlation analysis from multiple dimensions, enabling business departments to quickly locate problems and take timely action to achieve quality, effective sales [8].

Case 3: Pay attention to customer oil purchase dynamics, pinpoint lost customers, and assist wholesale customers in secondary development.

Through the analysis of customer activity of a gas station by the big data platform, the Jiangnan Branch found that 36 diesel customers had not made any purchase for more than 6 months. The customer service center and the account manager combed and studied the list of 36 customers, fully grasped their current business conditions, purchase channels and reasons for not making purchases, and successfully recovered some lost customers through field visits. The actual application effect: Xiaogan Branch successfully developed Yunmeng County Jinhuang Ceramics Co. By paying attention to customers' oil purchase dynamics, we pinpointed the lost customers and took corresponding measures to successfully recover some of them.

Case 4: Multi-dimensional correlation analysis, accurate optimization of commodity structure, and promotion of non-oil quality and efficiency.

With the growth of non-oil sales scale, the cost of non-oil commodity inventory is also getting higher and higher. The adjustment and optimization of commodity structure has become a key point for non-oil efficiency. The branch company found through a multi-dimensional analysis of inventory, gross profit and sales contribution of a gas station on the big data platform that 45 kinds of lagging commodities with low contribution rate and slow inventory turnover were eliminated in the first quarter, 236 kinds of new products with high gross profit and fast turnover were introduced, and the commodity inventory dropped by 22.06 million yuan compared with the beginning of the year. In this regard, corresponding measures were taken. Non-oil single products that meet any two of the following conditions are recommended to do single product optimization processing: (1) revenue accounts for less than (less than or equal to) 3% of the non-oil revenue of the major category in which they are located; (2) profit accounts for less than (less than or equal to) 3% of the non-oil gross profit of the major category in which they are located; (3) inventory turnover days exceed 3 months (including 3 months). Through the analysis of multi-dimensional correlation, we can accurately locate to the commodity structure, so as to take corresponding measures and promote the non-oil quality and efficiency.

4.3 Strategy 3: Identify Growth Points and Accurately Support Decision-Making

The big data platform integrates multi-dimensional and three-dimensional data resources, and provides data support for business decisions by analyzing data, mastering laws, establishing forecasting and decision-making models, and promoting the transformation of the decision-making process from experience-led to data-led.

Case 5: Scientific prediction of single station size, rational allocation of resources, and stimulation of endogenous power of gas stations.

Through the analysis of the five-year historical sales of a gas station by the big data platform, the time series method, cluster growth method and researchable sales method were used to design the forecast model, and objective factors such as gas station shutdown and maintenance, weather changes and road reconstruction were taken into account to establish a bottom-up automatic derivation system for the single-station

budget (analysis of history - automatic derivation - reasonable adjustment - budget confirmation). Reasonable adjustment - budget confirmation). For gas stations whose sales have been languishing for a long time and seemingly have no potential to be tapped, scientific clustering of gas stations is carried out using station traffic flow, station entry rate, and diesel-to-carbon ratio, and historical data is analyzed and corrected by combining the clusters, taking into account factors such as actual years of operation, clustering characteristics, and researchable sales volume. Stimulate the endogenous power of gas stations.

Case 6: Scientific analysis of the sales characteristics of inefficient stations and development of a reasonable management plan for inefficient stations.

Huang gang Branch through the big data platform on a gas station business hours, business volume, the number of times to carry the gun and other correlation analysis, for some remote provincial roads, township stations, for the number of times to carry the gun at night reached 25% of the number of times to carry the gun for the whole day, or the number of times to carry the gun at night reached 90 times, the implementation of the duty stay; 22:00 at night to 6:00 a.m. the number of times to carry the gun less than 10 times, the implementation of intermittent business, through the inefficient station Through the management program of this inefficient station, there are obvious results: (1) the staff is full of spirit, the average daily sales increased by 0.7 tons, 19% higher than last year; (2) the use of equipment and facilities is fully utilized, the electricity bill is reduced by 35 yuan per month, 4% lower than last year; (3) the employment is reduced by 1 person, the total annual salary is reduced by 20,000 yuan; (4) the per capita monthly retail volume is increased by 7.7 tons, 43% higher than last year. After identifying the sales characteristics of inefficient stations, we formulated corresponding management plans to achieve double improvement in per capita labor efficiency and asset generation.

5 Conclusion

With the advent of the era of big data, any industry has a close relationship with big data, the core business of the industry is also mainly in the form of big data to reflect, especially in the field of financial management work, the effective use of good big data can be financial personnel from the heavy data statistics free, so as to better achieve the processing of financial-related work and services. Through the big data analysis will be the traditional database of fragmented financial information comprehensive presentation in front of the financial staff, can be better and more accurate implementation of personnel financial data, business operation analysis, so as to better promote the efficient conduct of financial work. At the same time, the relevant personnel of the enterprise need to understand that big data is only data, so in the analysis and decision-making, do not be confined by big data, but need to give full play to the human subject position, effectively enhance the objectivity of decision-making, scientific, global, and thus the core competitiveness of the enterprise has been significantly improved, laying a solid foundation for the future development of the enterprise [9].

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