Optimization Strategies for Enterprise Economic Management under the Background of the Internet

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Abstract: With the continuous development of internet technology and applications, traditional enterprise economic management models have faced many challenges. How to use Internet means and thinking to carry out innovation management and improve enterprise efficiency and competitiveness has become an urgent problem for enterprises. This article aims to explore various innovative economic management strategies and tools for enterprises, in order to provide scientific and feasible optimization solutions for enterprises. This article proposes optimization strategies for the Internet era. Firstly, improving information collection and analysis capabilities, strengthening performance management and evaluation, and introducing a sharing economy model and new technological means are important means to optimize enterprise economic management. These strategies can help enterprises better obtain and process information, improve management efficiency and employee motivation, improve resource utilization and service quality, and enhance economic benefits of the enterprise. At the same time, specific operating methods and application scenarios were analyzed, and actual case studies were conducted.

Keywords: Enterprise Economic Management, Internet Background, Optimization Strategies, Data Mining

1. Introduction

With the continuous development and popularization of internet technology, the internet has become an indispensable and important resource in the development of enterprises. In this context, enterprise economic management has also begun to shift towards digitization, networking, intelligence, and other directions. Traditional economic management methods focus on managing enterprises from a material perspective, but in the era of the Internet, information technology construction has become a core element of enterprise development. Enterprises must fully utilize internet technology, build their own information platform, integrate various information resources, comprehensively improve their information management level, and better meet market demand. The development of internet technology has accelerated the pace of market competition. Enterprises must continuously improve their innovation capabilities in economic management, and constantly seek new growth points and opportunities through technological innovation, marketing innovation, and business model innovation, in order to achieve sustainable development of enterprises. Traditional economic management methods focus on managing enterprises from a macro perspective, while in the era of the Internet, enterprises need to pay more attention to refined management and deeply implement refined management models in production, marketing, human resources, and other aspects to improve their economic efficiency, operational efficiency, and customer service level. With the popularization of internet applications and the continuous maturity of data technology, data has become an important resource for enterprise management. Enterprises need to establish data centers, promote data sharing, and cultivate data analysis talents to achieve rapid data collection, processing, analysis, and mining, in order to better drive enterprise management decisions, improve decision-making efficiency and management quality. Therefore, in the context of the Internet, the research on optimizing enterprise economic management strategies has very important background significance, which would also help promote enterprises to move towards a more stable and sustainable development path.

With the deepening of economic system reform, the scale of enterprises is also rapidly expanding. Both in terms of overall scale and growth rate, there have been significant breakthroughs. However, economic management is an indispensable part of enterprise production and operation activities, and it

plays a crucial role in the safety production and management of enterprises. Under the new historical conditions, exploring and analyzing the innovation and optimization strategies of enterprise management is a very meaningful work. The purpose of Wang Z. is to investigate the current situation of enterprise economic management and propose targeted solutions for the existing problems, providing practical and feasible methods for the further development of enterprises in economic management [1]. High tech enterprises in innovative industrial clusters urgently need an automated information system that can support their economic decision-making. Batova M. constructed a set of objective functions to achieve the efficiency of innovative project business process management based on the existing economic and mathematical models that can reflect the characteristics of enterprise project activities. Batova M. has established a method for evaluating the credibility of the relationship management system between high-tech enterprises, customers, and suppliers based on this [2]. How can green computing technology meet the long-term needs of society without destroying and consuming natural resources. Liu J. explored how to achieve sustainable socio-economic development through innovation in green computing technology [3]. However, these scholars did not conduct a detailed exploration of enterprise economic management in the context of the Internet, but only analyzed it at a shallow level.

In order to address the drawbacks of traditional enterprise economic management, this article explores the economic management methods of enterprises in the context of the Internet. In terms of information collection and processing, enterprises can use technology such as search engines, social media, and the Internet of Things to obtain real-time market information and consumer feedback, deepen their understanding of market demand and competitive situation, and better formulate decisions and adjust strategies; In terms of internal collaboration and efficiency, enterprises can achieve process collaboration and information exchange among departments through Digital transformation and information sharing, and improve the speed and quality of decision-making; In terms of business models and profit points, enterprises can leverage new business models such as sharing economy and platform economy to create digital platforms, provide convenient services or products, and gain greater profits and market share; In terms of interacting with consumers, enterprises can directly interact and connect with consumers through tools such as social media and mobile devices, understand consumer needs and feedback, optimize products and services, and improve customer satisfaction and loyalty; Therefore, in the process of optimizing enterprise economic management, it is necessary to fully utilize internet technology and thinking, continuously follow market changes and consumer demands, and achieve the improvement of enterprise efficiency and competitiveness.

2. Economic Management Methods for Enterprises in the Context of the Internet

2.1. Optimization Strategy Discussion

(1) Improve information collection and analysis capabilities

In the era of the Internet, information has become very rich and complex, and enterprises need to collect and analyze this information through effective means. To this end, enterprises need to improve their information collection and analysis capabilities [4-5]. Specifically, a systematic and comprehensive information collection mechanism should be established to integrate existing data resources and form a complete information database. In addition, it is necessary to deeply mine and process these data through methods such as big data analysis and artificial intelligence technology, extract valuable information, and apply it.

(2) Strengthen performance management and evaluation

In the era of the Internet, the market environment is changing rapidly, and enterprises need to adjust their business strategies and goals in a timely manner to maintain a competitive advantage. In order to achieve this goal, enterprises need to strengthen performance management and evaluation. Specifically, enterprises should establish a comprehensive KPI (Key Performance Indicator) system, track and analyze various indicators, identify problems in a timely manner, and make adjustments [6-7]. In addition, quantitative evaluation of employee performance is also necessary to motivate employees to actively work.

(3) Introducing innovative business models and operational methods

The Internet era has brought about emerging business models and operational methods, and enterprises need to introduce these models and methods appropriately according to their own situation

to innovate business models and improve efficiency. For example, a sharing economy model can be adopted to share some idle resources to reduce costs and improve efficiency; New technologies such as online payment and mobile devices can also be used to improve transaction efficiency and customer experience.

2.2. Enterprise Economic Management Based on Data Mining

With the rapid development of the Internet, enterprise economic management is gradually shifting towards data-driven and intelligent directions [8-9]. Data mining, as an effective data analysis technology, is widely applied in the field of enterprise economic management to improve decision-making efficiency, reduce risks, and enhance enterprise competitiveness [10-11].

Association rules are a frequent pattern mining algorithm that identifies frequent itemsets in a dataset to identify association rules between data. In enterprise economic management, this algorithm can be used to achieve tasks such as market basket analysis and user behavior analysis.

Support formula:

$$\text{supp}(x) = \frac{\text{count}(x)}{N} \tag{1}$$

Among them, $\text{supp}(x)$ represents the support of itemset x, $\text{count}(x)$ represents the number of data records containing itemset x, and N represents the total number of data records. Based on the optimization strategy research of enterprise economic management, the above equation can be used to evaluate the sales volume of different products or services, and thus formulate corresponding sales strategies.

Linear regression is a method used to establish relationships between variables in a dataset. In enterprise economic management, this algorithm can be used to analyze the impact of different factors on enterprise economic performance and explore the best business strategy [12-13].

Linear regression formula:

$$y = \beta_0 + \beta_1 c_1 + \beta_2 c_2 + \cdots + \beta_p c_p + \omega \tag{2}$$

y represents the dependent variable, β_i represents the coefficient of the independent variable c_i, and ω represents the Error term. Combining the optimization strategy research of enterprise economic management, the above equation can be used to establish a linear relationship model between enterprise economic performance and different factors, identify key factors that affect enterprise economic performance, and formulate corresponding strategies [14].

Decision tree is a method of decision analysis based on tree structure. The algorithm is widely used in market segmentation, user clustering, product classification and other fields. In enterprise economic management, this algorithm can be used for tasks such as customer analysis and market forecasting [15-16].

Information entropy formula:

$$H(u) = -\sum_{o=1}^{n} p(c_o) \log_2 p(c_o) \tag{3}$$

$H(u)$ stands for information entropy, and $p(c_o)$ stands for the probability of occurrence of event c_o. In combination with the optimization strategy research of enterprise economic management, this formula can be used to measure the information entropy of different customer groups or market segmentation, so as to achieve the goal of customer refined marketing, market forecasting, etc. [17-18].

Data mining technology has important application value in enterprise economic management [19-20]. By using data mining technology, enterprises can better understand market demand, optimize product pricing, improve customer satisfaction, and predict market trends. These applications can help enterprises make more accurate decisions, improve production efficiency and profit margins, and enhance market competitiveness.

3. Experimental Results on Optimization Strategies for Enterprise Economic Management

The Internet has had a profound impact on enterprise economic management. On the one hand, the application of internet technology has improved the level of informatization and digitization of enterprises, providing more refined data support for enterprise management; On the other hand, the

rapid development of the Internet has brought about emerging formats and business models, making enterprise economic management face more complex market environments and competitive pressures. In this context, how to adapt to the challenges of the Internet era by optimizing economic management has become a problem that enterprises need to pay attention to.

3.1. Impact of Information Collection and Capabilities on Enterprise Economic Management

Among 10 similar enterprises, 5 of them have adopted intelligent data mining solutions based on the internet background based on existing information collection and analysis; The other five companies still use traditional data processing methods. This article analyzes the impact of intelligent data mining solutions on enterprise economic management by comparing the comprehensive economic benefits and competitiveness levels of 10 enterprises. Figure 1 shows the impact of information collection and analysis capabilities on enterprise economic management. Figure 1 (a) shows the intelligent data mining group, and Figure 1 (b) shows the traditional data processing group.
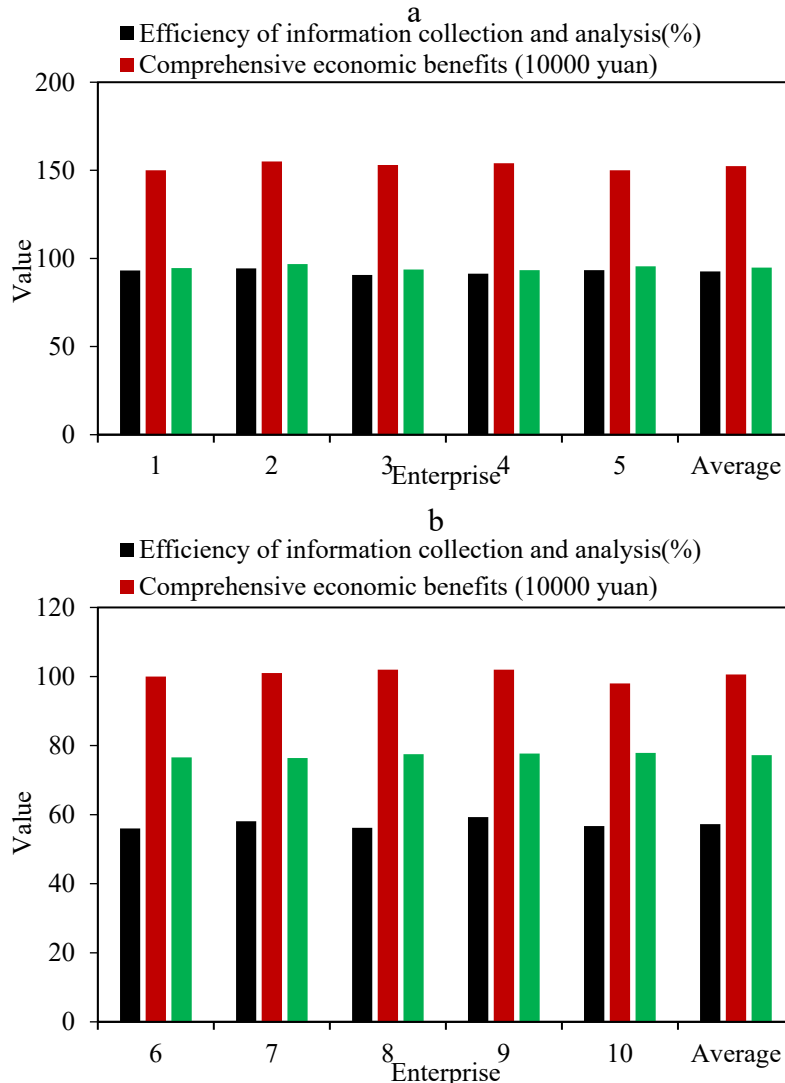
(a) shows the intelligent data mining group
*(b) shows the traditional data processing group*

Figure 1: The impact of information collection and analysis capabilities on enterprise economic management.

From the figure, it can be seen that in the intelligent data mining group, the efficiency of information collection and analysis is 92.6%, the comprehensive economic benefit is 1.52 million yuan, and the competitiveness level is 94.8%; In the traditional data processing group, the efficiency of information collection and analysis is 57.3%, the comprehensive economic benefit is 1.01 million yuan, and the competitiveness level is 77.2%. This indicates that intelligent data mining solutions based on

the Internet background can improve the information processing efficiency and competitiveness level of enterprises, thereby improving their economic management level.

3.2. Impact of Performance Management and Evaluation on Enterprise Economic Management

Among 10 similar enterprises, 5 of them have adopted intelligent performance management solutions based on artificial intelligence technology based on existing performance management and evaluation; the other five companies still adopt traditional performance management methods. Analyze the impact of intelligent performance management solutions on enterprise economic management by comparing the integrity of KPI systems, employee performance evaluation results, and profit growth rates of 10 enterprises. Figure 2 shows the impact of performance management and evaluation on enterprise economic management, Figure 2 (a) shows the intelligent performance management group, and Figure 2 (b) shows the traditional performance management group.
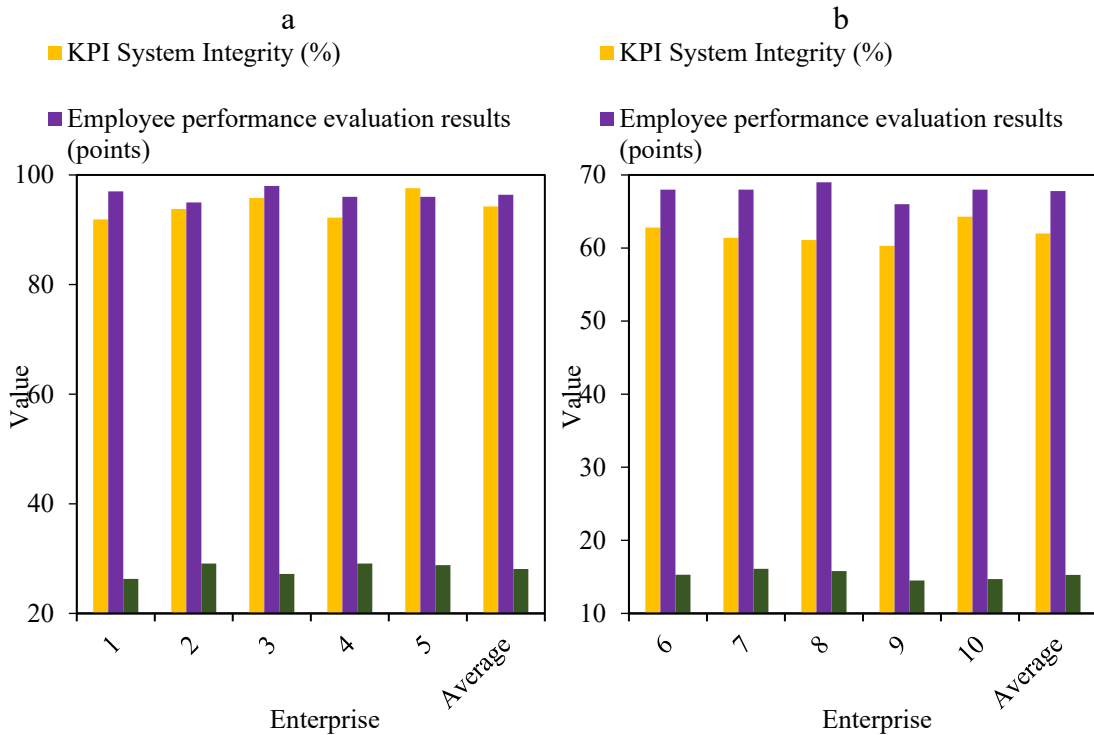
(a) shows the intelligent performance management group
(b) shows the traditional performance management group

Figure 2: The impact of performance management and evaluation on enterprise economic management.

From the graph, it can be seen that in the intelligent performance management group, the KPI system integrity is 94.3%, the employee performance evaluation result is 96 points, and the profit growth rate is 28.1%; In the traditional performance management group, the integrity of the KPI system is 62.0%, the employee performance evaluation result is 68 points, and the profit growth rate is 15.3%. This indicates that intelligent performance management solutions based on artificial intelligence technology can improve internal management efficiency and employee motivation, thereby optimizing the level of economic management in enterprises.

3.3. Impact of the Sharing Economy Model on Enterprise Economic Management

Among 10 similar enterprises, 5 have introduced a sharing economy model and made improvements in the sharing of internal and external resources; the other five companies still adopt traditional business models. This article analyzes the impact of the sharing economy model on enterprise economic management by comparing the cost control, service quality level, and brand influence of 10 enterprises. As shown in Table 1, the sharing economy model group is represented, while Table 2 represents the traditional business model group.

Table 1: Sharing economy model.

Enterprise	Cost control situation	Service quality level	Brand influence (%)
1	Low cost	Good service	88
2	Low cost	Good service	93
3	Low cost	Good service	96
4	Low cost	Good service	89
5	Low cost	Good service	91
Average	Low cost	Good service	91.4

Table 2: Traditional business model groups.

Enterprise	Cost control situation	Service quality level	Brand influence (%)
6	Higher costs	General services	65
7	Higher costs	General services	68
8	Higher costs	General services	62
9	Higher costs	General services	71
10	Higher costs	General services	69
Average	Higher costs	General services	67

From Table 1 and Table 2, it can be seen that the cost control situation of the sharing economy model group is significantly better than that of the traditional business model group, and the service quality level has also improved, with a 24.4% increase in brand influence. This indicates that the sharing economy model can improve resource utilization and service quality in enterprise economic management, providing better economic benefits for enterprises.

3.4. Impact of New Technological Means on Enterprise Economic Management

Among 10 similar enterprises, 5 have introduced new technological means such as online payment and mobile devices to improve transaction efficiency and customer experience; The other five companies still use traditional technological means. By comparing the transaction efficiency, customer satisfaction, and customer retention rate of 10 enterprises, analyze the impact of new technological means on enterprise economic management. Figure 3 shows the impact of new technological means on enterprise economic management, Figure 3 (a) shows the group of new technological means, and Figure 3 (b) shows the group of traditional technological means.

(a) shows the group of new technological means
(b) shows the traditional technical means group

Figure 3 The impact of new technological means on enterprise economic management

From the graph, it can be seen that in the new technology group, the transaction efficiency is 9.4 seconds per transaction, customer satisfaction is 94.7%, and customer retention rate is 83.6%; In the traditional technology group, the transaction efficiency is 59.8 seconds per transaction, customer satisfaction is 78.3%, and customer retention rate is 61.3%. This indicates that new technological means can further improve transaction efficiency and customer satisfaction in enterprise economic management, thereby enhancing the competitiveness of enterprises in the market.

In summary, optimizing economic management strategies has a positive impact on enterprise economic management. Enterprises need to appropriately introduce innovation management means such as information technology, sharing economy model and new technological means according to their own conditions to improve economic management level and enterprise competitiveness.

4. Conclusions

The Internet has profoundly changed people's production and lifestyle, and has also brought many challenges to enterprise economic management. In the new economic situation, with the rapid development and application of internet technology, the informatization, digitization, and intelligence of enterprises have become a necessary trend in enterprise management. At the same time, market competition is becoming increasingly fierce, and enterprises need to continuously explore more advanced management strategies and means to improve economic efficiency and competitiveness. This article found through experiments that improving information collection and analysis capabilities can significantly improve the comprehensive economic benefits and competitiveness level of enterprises; Strengthening performance management and evaluation can improve internal management efficiency and employee motivation, thereby optimizing the level of economic management in enterprises; Introducing the sharing economy model can improve resource utilization and service quality in enterprise economic management, providing better economic benefits for enterprises; New technological means can further improve transaction efficiency and customer satisfaction in enterprise economic management, thereby enhancing the competitiveness of enterprises in the market. Therefore, enterprises should appropriately introduce these innovation management means in combination with their own conditions to improve the level of economic management and enterprise competitiveness, so as to adapt to the challenges of the Internet era. At the same time, it is necessary to establish a systematic and comprehensive data collection and analysis mechanism, and use data mining techniques and other means to extract valuable information and apply it to provide support for enterprise decision-making.

References

[1] Wang Z. "Analysis of Enterprise Economic Management Optimization Strategy Based on Ant Colony Algorithm." IPPTA: Quarterly Journal of Indian Pulp and Paper Technical Association 30. 7(2018):657-663.
[2] Batova M., V. Baranov, S. Mayorov. "Automation of Economic Activity Management of High-Tech Structures of Innovation-Oriented Clusters." Journal of Industrial Integration and Management 06. 01(2021):15-30.
[3] Liu J., Y. Peng, X. Wu. "A novel heuristic approach for sustainable social and economic development based on green computing technology and big data." Journal of Enterprise Information Management 35. 4/5(2022):1233-1250.
[4] Kai W. "Restricted Factors and Countermeasures of Enterprise Economic Management Informationization Based on Data Interaction Analysis." IPPTA: Quarterly Journal of Indian Pulp and Paper Technical Association 30. 6(2018):227-233.
[5] Mihalachi, R., N. Bancila. "A Systemic Approach to Enterprise Crisis Management in the Current Economic Conditions." MEST Journal 9. 1(2021):135-145.
[6] Lomovskykh L., M Ponomarova, L Chip, E Krivosheya, O Lisova. "Management and Organizational and Economic Conditions of Strengthening the Marketing Activity of the Enterprise And Maintaining Efficient Agro Business." Financial and Credit Activity Problems of Theory and Practice 2. 37(2021):263-270.
[7] Harbar Z., O Selezneva, O Litvinov, S Kaptalan, V Gonchar. "Strategic Marketing Management of Innovative Activities in Ensuring Enterprise Economic Security." REICE Revista Electronica de Investigacion en Ciencias Economicas 8. 15(2020):298-313.
[8] Pasko M. I. "The Economic-Philosophical Fundamentals of Management of the Enterprise's

Marketing Activities.” Business Inform 1. 504(2020):373-382.

[9] Sosnovska O. O., M. O. Zhytar.”The Elements of Methodology of the Economic Security Management of Enterprise.” Business Inform 10. 513(2020):204-213.

[10] Boiarynova K., K. Kopishynska, N. Hryhorska.”Economic and management approach to defining effective projects for enterprise development under risks and uncertainty.” Problems and Perspectives in Management 17. 4(2019):299-313.

[11] Doroshenko M. V., I. A. Kudryashova.”Process approach to enterprise management as a factor of the increase in economic stability.” World of Economics and Management 20. 1(2020):67-85.

[12] Matviyets O., M. Koshivska.”Sales Management as Part of Economic Activity of Enterprise.” Modern Economics 11. 1(2018):116-121.

[13] Solomina H., O. Mahnitskiy, Oleh Gavrish.”Formalization of the Mechanism of Improvement of Personnel of Risk Management in the System of Economic Security of Enterprise.” Young Scientist 1. 65(2019):511-515.

[14] Vovk M. V., O. V. Kindrat, I. B. Franchuk.”Technology of Management of Economic Potential of the Enterprise.” Scientific Messenger of LNU of Veterinary Medicine and Biotechnologies 21. 93(2019):3-7.

[15] Vasilenko Marina E., Natalya Yu Titova.”Accounting Policy the System of Enterprise Economic Security.” Amazonia Investigation 8. 22 (2019): 254-260.

[16] Kwilinski Aleksy.”Mechanism of Formation of Industrial Enterprise Development Strategy in the Information Economy.” Virtual Economics 1. 1 (2018): 7-25.

[17] MacDonald Robert, Andreas Giazitzoglu.”Youth, enterprise and precarity: or, what is, and what is wrong with, the ‘gig economy’?” Journal of Sociology 55. 4 (2019): 724-740.

[18] Ndiaye Ndeye, Lutfi Abdul Razak, Ruslan Nagayev, Adam Ng. ”Demystifying small and medium enterprises’ (SMEs) performance in emerging and developing economies.” Borsa Istanbul Review 18. 4 (2018): 269-281.

[19] Dey Prasanta Kumar, Chrisovaladis Malesios, Debashree De, Pawan Budhwar, Soumyadeb Chowdhury, Walid Cheffi.”Circular economy to enhance sustainability of small and medium-sized enterprises.” Business Strategy and the Environment 29. 6 (2020): 2145-2169.

[20] Loginovsky Oleg V., Alexander L. Shestakov, Alexander A. Shinkarev.”Supercomputing technologies as drive for development of enterprise information systems and digital economy.” Supercomputing Frontiers and Innovations 7. 1 (2020): 55-70.