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Application of Big Data in the Banking Sector of Kazakhstan

Abstract. *With the development of science and technology, the production of various data has begun to increase dramatically. While our use of the Internet has become more frequent, we have also left behind our various data in the process of using the Internet. Now the unit used to record these data has become a large unit of measurements such as terabytes or even exabytes. There are so many contents available for browsing on the Internet, which has benefited thousands of social media users. At the same time, we have quickly left a huge amount of data in the interaction with various machines and sensors. People call this kind of massive and quickly generated data-big data. With the help of all kinds of enterprises, public institutions, and scientists who hope that these data can better reflect its value, scientific research work on big data is increasing day by day. More up-to-date research shows that 90% of the data currently generated on a global scale was generated in the last two years, which is a huge amount. Big data analysis can make it easier for us to make personalized profit analysis, instead of general assumptions and averages. Predict the behavior of consumers and sell the right products to the right consumers, predict the spread and flow direction of diseases to achieve real disease prevention, and conduct more accurate predictive analysis of the financial market to bring more users benefits, forecasting and analyzing weather conditions can all reflect the advantages that can be obtained more conveniently by analyzing big data. In this regard, the view that the analysis of big data can get more benefits has begun to be widely recognized in many fields such as marketing, healthcare, banking, insurance, and public services. And the banking industry is the best industry that contains this massive amount of data. It is obvious that opening up the use of big data can get more rewards for the banking industry. In addition to the definition of big data, the research paper will also discuss the connection between the banking industry and big data and the problems that the industry will generate and face in the application of big data.*
Keywords: *banking; big data; unstructured data; fraud; security.*

Introduction. Today, with the development of information and communication technology, the amount of data created, stored and processed is increasing every day. A large amount of data is generated through smart devices (mobile phones, computers, cameras, etc.) connected to the Internet and Internet applications (social networks, emails, etc.). The complexity of using classic methods to store and analyze large-scale data has led to the concept of «big data». Understanding the value of data forces them to store and analyze data obtained from different fields.

The banking industry also produces large amounts of structured or unstructured data at high speeds. All transactions conducted through bank channels are analyzed in accordance with current legal requirements. Device information in the banking system, for example, which users have made transactions, which channels have been passed, and when the customer's transaction has been completed. The detailed information of the equipment, such as the server used, all software, if there is any error record, will record the fault status. All the data needs to be saved.

This information is then analyzed and used to improve and track banking software. In addition to customer information and bank transactions, records of visits to the bank's customer service center are also stored for reasons including security, analysis, and legal obligations. Similarly, bank branches, ATMs, and work are all controlled by security cameras, which can be used to improve customer service.

Images on alternative channels used to process images such as XTM may be a factor in increasing the capacity of unstructured data. Employee access time, file system access information, Internet access information, e-mail information, hardware and system logs can be used as other available information [1].

This article discusses the importance and location of big data as a concept and the use of big data analysis in banking services. Also studied the potential benefits and problems of commercial big data.

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Concept of big data. One of the most popular terms in English today is «big data». This is the first concept in the field of astronomy and genetics. It has been popular since the advent of the Internet.

Big data is a term used to describe a set of data that goes beyond the storage, management, and processing capabilities of widely used applications. The combination of large amounts of data and the complexity of analysis required to obtain benefits from the data has led to the development of new types of technologies and tools to manage them. In practice, large data describes the data types and technologies used for storage and processing [2] .

Nowadays, many organizations not only need to release new information from the database, but also need to analyze different external sources and use it in the organizational process. On the other hand, traditional and traditional database management systems do not provide enough support to use external source data to control internal data. This is because data from external sources cannot be easily transferred or organized into their operational database. Because of this, many large technology companies are now investing a lot of money on large-scale data.

S chenberger and the Z- uckier that big data is not clearly defined. In the beginning, if the information capacity is too large, it is impossible to process the data because the data does not fit the computer memory. Therefore, tools for analyzing all data need to be updated. Today, as Google released MapReduce and Hadoop source of new technologies, etc. These tools can be used in Yahoo's open source software, and are more than ever before. These techniques do not require storing data in fixed strings or classic data tables. Through a large amount of data, most of the data that could not be measured, saved, analyzed and shared before has become «useful data.» Most of these technologies can be found on Google, Amazon, Facebook, and LinkedIn . When

companies deal with incredible big data on social networks, they create technology developed for themselves .

Big data technology. Cloud computing, Internet of Things , M aadoop , MapReduce , data extraction, artificial intelligence concepts such as artificial neural networks and increasingly effective, laid the foundation for big data storage and analysis, become an important part of our lives.

One of the most basic concepts recognized by big data is cloud computing. Network services, virtualization and network computing play an important role in the emergence and survival of cloud computing, providing shared information for Internet information equipment, and providing necessary infrastructure for big data storage and processing [4] .

Another related concept is the « Internet of Things «. The core idea of this concept is that bar code readers, sensors, mobile phones and other related devices are connected to each other and share information at the same time. Understandably, the Internet of Things reveals a lot of information at a rapid growth rate. At present, the data collected by the Internet is much higher than the analysis technology, so it cannot control big data, but it is expected that changes will occur in 2030 , and Internet data will become an important part of big data [5] .

The last century 90 end of the decade, Google created a unique file system GFS , since the existing system fails to meet the recording and storage requirements of large amounts of data.

GFS (Google File System) is a system that can be distributed on multiple hardware and devices. The system does not store data on a central server, but on a large number of small servers connected to the central server . In addition GFS , there are other of the big data system. HDFS (Hadoop File System) and Koskosfs also by Google were a file system code system. In order to meet the needs of Microsoft, Facebook uses the Haystack system [5] .

In traditional methods, data is usually stored in relational databases, while for big data, non-relational databases appear, such as «not only SQL (NoSQL)». NoSQL database is based on extensive scalability, modeling flexibility, application development and storage logic, allowing the storage / management of big data [7] .

Traditional data analysis uses corresponding statistical methods to analyze primary data and secondary data. Therefore, when trying to analyze the sensitive and useful data in the cluster, the purpose is to give a general idea of the analysis topic . Big data analysis can be regarded as a special kind of data analysis. Cluster analysis, factor analysis, correlation analysis, regression analysis, A/B testing, data search and t . Statistical analysis can be used as part of big data analysis in different ways.

The benefits of big data. The benefits of big data can be divided into three categories. National development, industrial development and scientific development [9]. Although difficult to measure the efficiency of the public sector,

Table 1

Overview of Big Data Technology

Technology	Description
Hadoop	An open source program that processes large amounts of data on multiple parallel servers
MapReduce	Building infrastructure for Hadoop work
Scripting language	Large-scale data programming languages (such as Python, Pig, Hive)
artificial intelligence	Software to quickly search for the best model for your data set
Visual analysis	Visual or graphical format analysis result mapping
Natural language processing (NLP)	Software used for analysis of text and frequency values.
Memory analysis	Process large amounts of data in computer memory for faster results

but anywhere in the world, both in terms of efficiency in the public sector to lag behind the private sector.

Analyzing large amounts of national development data may have a significant impact on the public sector. Studies have shown that any European country that develops effective data utilization strategies can save 15-20% of administrative expenditure each year . In the future, big data will be regarded as an indicator of economic growth, and cross-border competition will revolve around big data rather than traditional issues [9].

The benefits of big data to industry or industrial development vary. In general, big data has made a significant contribution to the development of commodities and markets, operational efficiency, demand forecasting, decision-making, and consumer dependence. The views and comments on the pros and cons of big data are as follows:

- consumption data: 49%
- operation Optimization: 18%
- financial management and risk management: 15%
- new business model: 14%
- employees Cooperation: 4%

As you can see, the most important advantage of big data is the ability to predict customer behavior, determine customer needs, and thereby determine the production / development of products and services . Big data provides business opportunities, such as customer behavior analysis, business process optimization, decision support system development, effective business strategy definition, and creation of new business models to create new business processes. At the same time, by changing the business structure, new departments and professional data analysis groups can be created [6].

Generally speaking, the benefits of big data to enterprises are as follows:

- to enhance decision-making system through low-cost, high-quality analysis.
- to improve business efficiency by improving the efficiency of internal business information exchange.
-the development of business thinking has improved cooperation within the enterprise by

reaching a consensus on recognized business opportunities.

- measurement test and create value-based situation, through research and in-depth analysis.

Big data is also expected to have a significant impact on the academic world. It is believed that big data is changing the model, forcing scientists to reorganize the current research process. The first stage of scientific research is based on experiments, then theoretical science has the upper hand, and finally research methods based on modeling, because theorems cannot solve problems in practice. The concept of scientific research requires data as the fourth example of scientific research, which has also changed people's thinking ability [9].

However, some researchers believe that big data «distracts the attention of the research process and only understands the cause of the event by determining the relationship between variables». On the other hand, those who oppose this view believe that the causal relationship between variables is more comprehensive and larger data is clearly defined.

The difficulty of big data. In addition to the benefits of big data, there are some disadvantages. Divide them into two groups; big data can be regarded as problems that users may encounter, and problems that may affect third parties due to the use of big data.

Data transmission seems to be the first problem. This is because data transmission includes the process of retrieval, retrieval, conversion and storage. These processes are still expensive. As mentioned earlier, large data is mainly unstructured data. This uneven data structure requires modification and modification of the data for proper analysis and results. You may need to repeat this process to use the data twice and a third time. Another problem is high-performance real-time data analysis [5].

Another problem related to big data is the lack of a business culture that makes full use of big data. Companies that want to benefit from big data need a decision-making method that combines the knowledge and experience of managers and employees with business literature, business literature analysts, business literature analysts, and technologies that require big data.

One problem with big data is security and privacy. The resulting problems can be divided into two categories. The first is the invasion of privacy, because people's knowledge (personal interests, physiological characteristics, etc.) is related to consent, especially related to the secondary use of data. Secondly, due to operator error, even with human consent, it may appear when recording, exchanging or using data.

Using large amounts of data to predict the future may cause people to worry about information abuse. Researchers who believe that analyzing big data is an infringement of people's privacy say that if personal recognition and information are fully protected, the power of big data will eventually become a «weapon»/

Large amounts of data are used in banking. Non-linear relationships and regressions can be extracted from different data sets through non-system modeling rather than descriptive statistics in big data business analysis. Banking is one of the most profitable areas in this concept, because it is directly related to meeting customer needs. In this field of wide diversity and large amounts of data, proper data analysis can simplify the acquisition and management of information.

Bank – as the marketing and product development departments have limited access to information, he will use traditional methods to analyze consumer needs, such as tracking account flow and segmentation. However, thanks to big data technology, banks can analyze life patterns and track people's daily lives through a simple mobile phone application. Using these data to develop new products or services, they analyzed how they convert non-consumers into potential consumers and improve the satisfaction of existing consumers [12].

Just like customer satisfaction, customer dissatisfaction can be analyzed faster due to the increase in data. Complaints and comments about banks can be filtered and disseminated through customer comments on social networks. Bad customer experience can spread quickly through social media. According to Ernst & Young accounting firm, 63 percent of American customers rely on the private network to get to the people's views on banking products, 45% of

customer service they receive a share on social networks. By combining these unstructured data with the bank's structured data, they can reach agreements with customers and services. Although banks may not be able to resolve customer complaints, claims, and suggestions in real time, this will be achieved through massive data technologies in the future. Therefore, after the customer complains, the bank can provide solutions according to individual needs. Banks can also attract ideas about competitors and products on social media.

With the rapid flow of funds, many frauds occurred in the banking industry. Therefore, exposing fraud in the banking industry requires more in-depth analysis. Because any bank has the risk of fraud at any time. When fraud is discovered, it is important to use information about when and where the customer made the transaction. However, when it comes to information security, it is not enough to simply track the main activity of the customer. Big data technology can prevent real-time fraud by analyzing large amounts of data and special tools from different databases and vendors. Through branch surveillance video analysis, threats such as theft or theft can be quickly detected. You can also track images from cameras in branches and compare them with transactions in these offices. If the account is fraudulent, all images related to the account can be analyzed to see who is performing whose transaction and whether these people are related to other accounts. Automatic identification of customers into the bank branch, like automatic identification provides an implementation is XTM customers such video streams, but also to create a video analyst's function, as the superstructure [13].

One of the main goals of banks is to retain existing customers and attract new customers. Comprehensive predictive analysis of bank customers will provide new products, services and services with competitive advantages, as well as new revenue opportunities. Although banks understand customers by transferring and splitting accounts, they can use big data technology to deeply analyze customer actions and needs to optimize supply and distinguish

between cross-selling, individual products, and real-time services [14].

In the traditional banking system, product marketing and development departments can only obtain limited customer information. For example, when you need to create a new credit card, it is difficult to determine which customers have credit cards. If these customers have other credit cards that are more valuable than other banks, it is difficult to determine whether the database contains Hadoop 5- byte data. Big data can even answer which channels customers use (mobile banking and branches) to verify cash, and establish a lifestyle model that displays digital customers by monitoring network activity.

The customer service center is one of the inseparable channels of the bank. It is used as a distribution channel to provide customers with required information and banking services, and is well received by customers. For banks, it is important to analyze unstructured data, such as call records in the call center , and the average response time and average call time used to determine the effectiveness of the call center . Traditional analysis tools provide information about specific issues from structured data, but any information about structured and unstructured data can be obtained through big data technology. When you notice a change in tone or use certain words, angry customers will be spotted and additional actions will be taken to meet their needs. This information will be automatically recorded. When these customers call the customer service center again, The screen will show past conversations with customers. In this case, the staff of the customer service center can start the call with preparations in advance.

In the call center to provide customer history information represented on the screen, providing customers with past conversations, customer preferences, customer behavior in all channels of information, social network information, the questionnaire information, social networking information to complete transactions more quickly and improve efficiency. Smart customer service centers can be created by merging stocks and necessary vision. Obtaining all this information enables representatives of the call

center to carry out the necessary marketing for consumers. Another option is to meet the needs, needs and satisfaction of consumers and develop a business plan to obtain information from the product marketing and development department.

In addition, many data in the banking system are stored: customer personal data , access to the file system, information security online, e-mail, magazines, system log creation applications and equipment, change logs and access and other items . At present, it is complicated and it may take a long time for traditional database tools to obtain archive data. Using big data technology, it is easier to store large amounts of data and get the information you need faster, so you can control the quality of all data. For example, MasterCard analyzed the transactions of 65 billion users in 210 countries and identified different business and consumer areas. According to the analysis of big data, customers come to the gas station at around four o'clock in the afternoon,and then trade in restaurants or supermarkets for 35 to 50 dollars. Then value this information by sending sales coupons to these people and increasing their sales. At the same time MasterCard also can this information be sold to other companies.

Conclusion. The increase in the amount, variety and speed of data worldwide has brought greater concepts and technologies. Traditional database management systems are not enough to store, manage, process and extract large amounts of data from applications in different industries and banking industries. The vast amount of information from countless sources has prompted banks to look for innovative data management methods. It is also important to understand and satisfy customers, and to reduce risk and fraud through regulatory requirements. Big data is a major step forward in the development of the banking industry. Although people are worried about the security of data, big data is good for banks and customers.

Big data analysis runs quickly, shortens the bank's analysis time, and provides opportunities to combine external and internal data. This will not only improve the operational efficiency of the bank, but also meet the changing needs of customers and further strengthen their position

in this field. One of the biggest problems in the banking industry is fraud. Large amounts of data guarantee that banks will not conduct unauthorized transactions, which provides a security standard for the entire industry. Banks can use large amounts of data to meet the needs of millions or even billions of customers. By analyzing data, banks can easily find risks and rewards. Nowadays, fast and rapid information exchange is essential for banks, because they must pay close attention to changes in the big data field and analyze them according to strategy.

References

1 Khalilov M.C.K., & Gündebahar M. XTM: An alternative delivery channel in Turkish banking sector // Procedia-Social and Behavioral Sciences. – 2012. – V. 57. – P. 373-380.

2 Ghani N.A., Hamid S., Hashem I. A.T., & Ahmed E. Social media big data analytics: A survey // Computers in Human Behavior. - 2019. – V. 101. - № 6. - P. 417-428.

3 Mayer-Schoenberger V., & Cukier K. Big data. A revolution that will transform how we live, work, and think. - London: John Murray, 2013. - 208 p.

4 Yang C., Huang Q., Li Z., Liu K., & Hu F. Big Data and cloud computing: innovation opportunities and challenges // International Journal of Digital Earth. - 2017. – V. 10. - № 1. - P. 13-53.

5 Chen M., Mao S., Zhang Y., & Leung V.C. Big data analysis. In Big Data. - Springer, Cham, 2014. - 51-58 p.

6 DEMİRAL D.G. AĞ BİLİMİ VE MODELLERİ // Uygulamalı Ekonomi ve Sosyal Bilimler Dergisi. - 2016. – V. 2. - № 2. - P. 36-55.

7 Elgendy N., & Elragal A. Big data analytics: a literature review paper. In Industrial Conference on Data Mining. - Springer, Cham, 2014. - 214-227 p.

8 Hurwitz J.S., Nugent A., Halper F., & Kaufman M. Big data for dummies. - John Wiley & Sons, 2013. - 45-52 p.

9 Jin X., Wah B. W., Cheng X., & Wang Y. Significance and challenges of big data research // Big Data Research. – 2015. - V. 2. - № 2. – P. 59-64.

10 Yin S., & Kaynak O. Big data for modern industry: challenges and trends (point of view) // Proceedings of the IEEE. – 2015. - V. 103. - № 2. – P. 143-146.

11 Morabito V. Big data governance. In Big data and analytics. - Springer, Cham, 2015. - 83-104 p.

12 Srivastava U., & Gopalkrishnan S. Impact of big data analytics on banking sector: Learning for Indian banks // Procedia Computer Science. – 2015. - V. 50. – P. 643-652.

13 Rajdeepa B., & Nandhitha D. Fraud detection in banking sector using data mining // International Journal of Science and Research. - 2015. - V. 4 - № 7. - P. 1822-1825.

14 Lim M.A. Customer relationship management with big data enabled in banking sector // Journal of Scientific Research and Development. – 2016. - V. 3. - № 4. – P. 7.

15 Hassani H., Huang X., & Silva E. Digitalisation and big data mining in banking // Big Data and Cognitive Computing. - 2018. - V. 2. - № 3. - P. 385-392.

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Қазақстанның банк секторында Big Data-ны қолдану

Аннотация. Қазіргі таңда әлемде ғылым мен техниканың дамуымен әртүрлі мәліметтер өндірісі күрт өсе бастады. Ақпаратты өңдеу мен алмасуда ақпараттардың көлемі артуда. Қазіргі таңда Big Data деректерді жазу үшін қолданылатын өлшем бірлігі терабайттар немесе эксабайттар сияқты үлкен өлшем бірлігіне айналды. Интернетте және әлеуметтік желіде пайдаланушылардың мәліметтері олардың суреттері ақпарат ағынында пайдаланушыларға оң әсер береді. Мәліметтердің ауқымдылығы, оны пайдаланушылардың күрт артуы, ақпарат алмасудың жылдамдығы өмірге Big Data деректерін алып келді. Адамдар жаппай және тез пайда болатын деректердің бұл түрін үлкен деректер деп атайды. Бұл де-

ректер қолданушыға құндылығын жақсы көрсете алады, себебі Big Data пайдаланатын барлық кәсіпо-рындар, мемлекеттік мекемелер саны артуда. Ғылымның дамуының арқасында, ғалымдардың көмегімен үлкен деректер бойынша ғылыми-зерттеу жұмыстары күннен-күнге жетілдіріліп, қолданушылардың қарасы көбеюде. Қазіргі таңда Big Data деректердінің қажеттілігін анықтау барысында, зерттеулер көр-сеткендей, жаһандық масштабта алынған мәліметтердің 90%-ы соңғы екі жылдың еншісінде. Үлкен де-ректер қолдану арқылы кәсіпорындар мен мекемелер уақыттарын үнемдейді, деректердің негізіне сүй-еніп, ағымдағы ахуалды талдауға жалпы болжамдар жасауға мүмкіндік береді, жеке кірісті талдауды жеңілдетеді.

Big Data қазіргі таңда барлық салаларда қолданысқа ие деп айта аламыз. Үлкен деректер арқылы маркетингтік зерттеулер жүргізу, тұтынушылардың мінез-құлқын болжау және дұрыс өнімдерді дұрыс тұтынушыларға сату, медицина саласы бойынша аурудың нақты түрін анықтауға қол жеткізу, аурудың алдын алуға, аурудың таралуы мен бағытын болжау, сондай-ақ, пайдаланушыларға көбірек пайда әкелу үшін қаржы нарығына, соның ішінде, банк секторында нақты болжамдық талдау жүргізуге, ауа-райын болжау және талдауды үлкен деректерді талдау арқылы қол жеткізуге болады және үлкен деректердің артықшылықтарын көрсете алады. Осыған байланысты «үлкен деректерді талдау көп пайда әкелуі мүм-кін» деген пікір маркетинг, денсаулық сақтау, банк, сақтандыру және мемлекеттік қызметтер сияқты көп-теген салаларда кеңінен танымал болды. Банк индустриясы-бұл көптеген деректерді қамтитын, сонымен қатар, біздің елімізде цифрландырылған салалардың бірі. Осы негізде банк секторында атқарылатын жұмыстарды, үлкен деректерді пайдалану арқылы жүргізу банк саласына көбірек пайда әкелетіні анық. Бұл мақалада Big Data үлкен деректердің мүмкіндіктері мен қолдану аясымен қатар, банк саласында ақпарат алмасу, тұтынушылардың жеке тұлғалаларына қажетті сақтық шаралары, орындалатын банктік операцияларды жүзеге асыруды жылдамдату, деректерді қорғау сияқты жұмыстардың нәтижелері зерттеледі. Сонымен қатар, банк секторында үлкен деректерді қолдану кезінде кездесетін немесе жұмыс барысында орын алатын мәселелерді шешу жолдары талқыланады.

Түйін сөздер: банк ісі; Big Data үлкен деректер; құрылымданбаған деректер, алаяқтық, қауіпсіздік.

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Использование Big Data в банковском секторе

Аннотация. Сегодня, с развитием науки и технологий в мире, производство различных данных на-чало быстро расти. Для информации, уровень использования Интернета растет, объем обработки и обмена информацией увеличивается. Сегодня единица измерения, используемая для записи больших данных, стала более крупной единицей измерения, такой, как терабайты или эксабайты. Информация пользователей в Интернете и социальных сетях, их фотографии положительно влияют на поток инфор-мации к пользователям. Масштаб данных, резкое увеличение числа их пользователей, скорость обмена информацией воплотили в жизнь Big Data. Этот тип данных, который появляется массово и быстро, на-зывается большими данными. Эти данные могут показать ценность для пользователя, потому что коли-чество предприятий и государственных учреждений, использующих большие данные, растет. Благодаря развитию науки, с помощью ученых исследования в области больших данных улучшаются день ото дня, а количество пользователей растет. В настоящее время при определении потребности в больших данных исследования показывают, что 90% данных получены во всем мире за последние два года. Использование больших объемов данных экономит время предприятий и учреждений, позволяет делать общие прогно-зы для анализа текущей ситуации на основе данных, упрощает анализ личных доходов.

Можно сказать, что большие данные сейчас используются во всех сферах. Маркетинг с использовани-ем больших данных, прогнозирование поведения потребителей и продажа нужных продуктов нужным потребителям, определение точного типа заболевания в области медицины, предотвращение заболева-ния, прогнозирование распространения и направления заболевания, предоставление дополнительных преимуществ пользователям на финансовом рынке, включая точный прогнозный анализ в банковском секторе, прогнозирование и анализ погоды могут быть достигнуты с помощью анализа больших данных и демонстрируют преимущества больших данных. В этом отношении идея о том, что анализ больших

данных может принести большую пользу, получила широкое распространение во многих областях, таких как маркетинг, здравоохранение, банковское дело, страхование и государственные услуги. Банковская индустрия - одна из самых цифровых в нашей стране. Исходя из этого, очевидно, что работа в банковском секторе с использованием больших объемов данных принесет больше пользы банковскому сектору. В данной статье рассматриваются возможности и применение больших данных, а также результаты такой деятельности, как обмен информацией в банковском секторе, необходимые меры предосторожности для физических лиц, ускорение банковских операций, защита данных. Также обсуждаются способы решения проблем, возникающих в банковском секторе при использовании больших данных, встречающихся или возникающих в процессе работы.

Ключевые слова: банковское дело, Big Data (большие данные), неструктурированные данные, мошенничество, безопасность.

References

1 Khalilov M.C.K., & Gündebahar M. XTM: An alternative delivery channel in Turkish banking sector, Procedia-Social and Behavioral Sciences, 57, 373-380 (2012).

2 Ghani N.A., Hamid S., Hashem I.A., & Ahmed E. Social media big data analytics: A survey, Computers in Human Behavior, 6(101), 417-428 (2019).

3 Mayer-Schoenberger V., & Cukier K. Big data. A revolution that will transform how we live, work, and think (London: John Murray, 2013, 208 p.).

4 Yang C., Huang Q., Li Z., Liu K., & Hu F. Big Data and cloud computing: innovation opportunities and challenges, International Journal of Digital Earth, 1(10), 13-53 (2017).

5 Chen M., Mao S., Zhang Y., & Leung V.C. Big data analysis. In Big Data (Springer, Cham, 2014, 51-58 p.).

6 DEMİRAL D. G. AĞ BİLİMİ VE MODELLERİ, Uygulamalı Ekonomi ve Sosyal Bilimler Dergisi, 2(2), 36-55 (2016).

7 Elgendy N., Elragal A. Big data analytics: a literature review paper. In Industrial Conference on Data Mining (Springer, Cham, 2014, 214-227 p.).

8 Hurwitz J.S., Nugent A., Halper F., & Kaufman M. Big data for dummies (John Wiley & Sons, 2013, 45-52 p.).

9 Jin X., Wah B.W., Cheng X., & Wang Y. Significance and challenges of big data research, Big Data Research, 2(2), 59-64 (2015).

10 Yin S., & Kaynak O. Big data for modern industry: challenges and trends, Proceedings of the IEEE, 2(103), 143-146 (2015).

11 Morabito V. Big data governance. In Big data and analytics (Springer, Cham., 2015, 83-104 p.).

12 Srivastava U., & Gopalkrishnan S. Impact of big data analytics on banking sector: Learning for Indian banks, Procedia Computer Science, 50, 643-652 (2015).

13 Rajdeepa B., & Nandhitha D. Fraud detection in banking sector using data mining, International Journal of Science and Research, 4(7), 1822-1825 (2015).

14 Lim, M.A. Customer relationship management with big data enabled in banking sector, Journal of Scientific Research and Development, 3(4), 7 (2016).

15 Hassani H., Huang X., & Silva E. Digitalisation and big data mining in banking, Big Data and Cognitive Computing, 2(3), 385-392 (2018).

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