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BIG DATA OF BIG COMPANIES: A CONTENT ANALYSIS FOR HOW ISO-500 LISTED FIRMS USE BIG-DATA*

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Abstract

As its name suggests, big data, which gives an idea of the data size, contains other mysteries behind it. Indeed, besides its size, its speed and diversity are also highlighted by researchers. For this reason, it is suggested that it cannot be studied with traditional statistical methods. Due to its conceptualization as a new type of fuel, it attracts attention of both businesses and researchers. In this study, statements on big data of the first 250 companies ranked by ISO-500 list for the year 2019 are examined and classified in terms of perceptions of big data and purpose of usage. However, due to limited amount of data obtained, the research has a descriptive and exploratory nature. According to the findings from the qualitative research, it can be stated that most of the big companies, except for a few, are at the stage of development or discussion phase regarding collection, use, and analysis of big data and its' inclusion in business processes and marketing stages. The limitations of the study include limited amount of texts collected through companies' subjective self-reporting.
Keywords: big-data, ISO-500 list, content analysis

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BÜYÜK ŞİRKETLERİN BÜYÜK VERİSİ: ISO-500'DE LİSTELENEN ŞİRKETLERİN BÜYÜK VERİ KULLANIMINA YÖNELİK BİR İÇERİK ANALİZİ

Öz

Adından da anlaşılacağı üzere verinin büyüklüğü konusunda bir fikir veren büyük veri, ardında başka gizemleri de barındırmaktadır. Nitekim büyüklüğünün yanı sıra, büyük verinin hızı ve çeşitliliği de araştırmacılar tarafından öne çıkarılmaktadır. Bu nedenle geleneksel istatistiksel yöntemler ile incelenemeyeceği ileri sürülmektedir. Büyük veri, yeni bir yakıt türü olarak kavramlaştırılması nedeniyle de hem iş dünyasının hem de araştırmacıların dikkatini çekmektedir. Bu çalışmada 2019 yılı için ISO-500 listesinde yer alan ilk 250 şirketin büyük veri konusunda yapmış oldukları açıklamalar, büyük verinin nasıl algılandığı ve şirketlerde kullanım amacı bakımından incelenmiş ve sınıflandırılmıştır. Bununla beraber elde edilen veri miktarının sınırlı olması nedeniyle, araştırma tanımlayıcı ve keşfedici bir nitelik taşımaktadır. Nitel araştırma sonuçlarına göre, büyük şirketlerin birkaçı dışında çoğunun, büyük verilerin toplanması,

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kullanılması ve analiz edilmesi ile bu verilerin iş süreçleri ve pazarlama aşamalarına dahil edilmesi ile ilgili olarak geliştirme veya düşünce aşamasında olduğu değerlendirilmektedir. Şirketlerin kendileri ile ilgili raporlamalarına yönelik öznel yaklaşımları ile sınırlı miktarda metinlerin toplanması çalışmanın sınırlılıklarını oluşturmaktadır.

Anahtar Kelimeler: büyük veri, ISO-500, içerik analizi

Introduction

Big data, which typically involves traditional organizational data, machine-generated data and social data (Opresnik & Taisch, 2015), is one of the emerging concepts that attracted interest both from academia, practitioners and legal authorities. This growing interest is mainly due to its becoming one of strategic assets for companies. It is considered by many researchers (i.e. Wamba et al., 2017; Akter et al., 2016; McAfee & Brynjolfsson, 2012) that, capability of companies usage of big data by its analytics to be the main driver of organizational performance.

Big data refers to too large (from terabytes and exabytes) and complex (from the sensor to social media data) data sets and analytical techniques in applications, for such large and complex data it requires technologies of advanced and unique data storage, management, analysis and visualization (Chen et al., 2012: 1166). It has been argued that big data denotes to other concepts which had been used before. Sharda et al (2018) summarized the historical evolution of big data concept for a period covering five decades. According to the authors, big data is the final concept that evolved from "decision support systems" of 1970s, "enterprise or executive information systems" of 1980s, "business intelligence" of 1990s and "analytics" (including data mining, cloud computing) of 2000s. As put forth by Wang et al (2018), the 2001-2008 period is the evolutionary stage for big-data and the period starting from 2009 is defined as the revolutionary stage. Since then, there had been a growing interest in big data; it became "the buzz-word of the decade" (Schöch, 2013) which is everywhere (Gerard et al, 2014). This is mainly because that, in today's digitalized marketplace, it is considered as an opportunity that provides a competitive advantage for companies (Schroeck et al, 2012) with value creation in terms of new products and services (Gantz & Reinsel, 2012) and new innovative business models (Wamba et al, 2015). Big data is mostly applied and could leverage opportunities in many critical and high-impact application areas such as science and technology, e-commerce and market intelligence, e-government and politics, smart health and well-being and security and public safety (Chen et al, 2012).

Although it seems like to be based on technology and analysis, Boyd and Crawford (2012) claimed that big data is about the interplay of not only technology and analysis, but also includes mythology. The authors indicate that "with the aura of truth, objectivity and accuracy; large datasets offer a higher form of intelligence and knowledge that can generate insights that were previously impossible", representing mythological wiseness. Big data by enabling companies for insight discovery, enhanced decision making and process optimization (Beyer & Laney, 2012), and even by replacement of human decision making (Wamba et al, 2015) provides substantial benefits to companies. These benefits are accurate and applicable information, creation and storage of data in digital form which provides more precise

information, enhanced decision making quality, segmentation of populations by customization, innovation of next-generation models, products and services (Manyika et al., 2011).

Since big data is known as "the new oil of the new economy," many companies throughout the world started to apply big data to their systems. Big data is not applied only by data-driven companies such as Google and Amazon; it creates advantages in each industry and domain of life. It is projected that big data and analytics will reach to 203 billion US dollars until 2022 (inside big data[1], 2019). Based on the four criteria (volume, usage, accessibility and complexity), the world's top "gross data product" producers were defined by Chakravorti et al. (2019) in an article of Harvard Business Review[2]. As a result of their analyses, United States, United Kingdom and China are found to be the first three countries in the world-order for new data producers; furthermore, Turkey ranks 29th among other countries. According to the forecasts of International Data Corporation (IDC), big data and analytics investments in Turkey was realized as 247 million US dollars in 2018, and besides until 2023 the big data market is expected to grow with 16% and will reach to a size of 520 million US dollars (DigitalAge[3], 2019). Within this frame, this study focus on the big data usage status of companies. Although it is essential for all companies to use big data in their systems, it is difficult for small-scale companies to apply big data for their operations due to costs associated with its development and implementation. Therefore, this study covers data of large-scale companies. In accordance, the aim of this study is to understand, companies' perceptions and usage status of big data; and besides for which purposes do top industrial enterprises listed by İstanbul Chamber of Industry (ISO-500 list) use big data applications. After this introductory part, the next section covers conceptual framework of big-data; second part of the study includes research methodology and findings; discussions of the findings and conclusion of the study are included in the final section.

A. CONCEPTUAL FRAMEWORK OF BIG-DATA

The trend of an unprecedented increase in the amount of data available in almost every course of our lives is either already being experienced or estimated (Chen et al, 2013). This growth is also perceived as new opportunities and obsolete value by individuals or enterprises ranging from web companies to traditional institutions, to both physical science and social science researchers. According to Bernsten (2018), the biggest reasons behind this increase, is the use of PCs, smartphones, tablets, Internet and sensors. Such an increase causes new challenges, which is called big data. These new systems' infrastructures are mostly spread across thousands of geographically diversified machines and it is necessary to improve new techniques and habits in mind by both programmers and users in order to communicate with them (Driscoll, 2012). Due to its complexity and wide usage in every place and domain, initially it is necessary to clarify conceptually what big data is, which is further discussed.

[1] https://insidebigdata.com/2019/04/17/if-data-is-the-new-oil-were-about-to-bust
[2] https://hbr.org/2019/01/which-countries-are-leading-the-data-economy
[3] https://digitalage.com.tr/turkiyede-buyuk-veri-pazari-2023te-520-milyon-dolara-ulasacak

1. Definition of Big-Data and Its Dimensions

Michael Cox and David Ellsworth (1997) were the ones who used the 'big data' phenomenon for the first time, to "explain the visualization of data and the challenges it posed for computer systems" (as cited by Wang et al., 2018). In one of the early definitions, Laney (2001) in Gartner company research note defined big data as *"high-volume, high-velocity and high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight discovery, decision making and process optimization"*. According to Kitchin (2013), big-data is enormous in volume, it is exhaustive in scope, it is both high and diverse in terms of velocity, fine-grained in resolution and uniquely indexical in identification, relational in nature, and flexible.

As put forth by Floridi (2012, p. 435), what exactly big-data means and refers to is unclear. There are different definitions of big data (Gandomi and Haider, 2015), and unified description hasn't been made yet to describe what is big data and what it refers to. Shi (2014) defined it according to two perspectives. For academics, big data is *"a collection of data with complexity, diversity, heterogeneity, and high potential value that are difficult to process and analyze in reasonable time"*, whilst for policy makers, big data is *"a new type of strategic resource in the digital era and the key factor to drive innovation, which is changing the way of humans' current production and living"*. The main reason for a lack of consensus on its definition might be because that big data to be a cultural phenomenon (Boyd & Crawford, 2012) apart from it being a scholar and technological phenomenon.

Lacking a consensus for its definition, most of the studies focused on key dimensions of big-data, after Laney's (2001) definition based on volume, velocity and variety of datasets, which is defined as 3Vs. According to Laney (2001), *volume* means big data masses, and *velocity* refers to "the timeliness of big data" and *variety* indicates various data types. Later on, the fourth dimension which is *veracity* indicating the uncertainty and unreliability inherited in some data sources was defined (Abbasi et al., 2016) and 4Vs were extended to 5Vs including *value* dimension representing the benefits associated with big data (Akter et al., 2016) and finally, the Vs inherited in big data definitions were even extended to 7Vs (Seddon & Currie, 2017), *variability* and *visualization* were added as the sixth and seventh dimensions. According to Constantiou and Kallinikos (2015), because of these characteristics, it is challenging to handle big data with traditional methods, processes, techniques and tools. The challenges which are mostly related to 3Vs of big data are summarized further below.

The challenge posed by the magnitude of the data is the most noticable one. Alongside with companies, scientists in the fields of astronomy, meteorology and biology face the limitations of computing because of growth in volume of data (Chen et al, 2013). Companies which are interested in exploratory activities to search for more information within raw data in vast amounts to enlarge their current knowledge are more likely to show a tendency towards volume of big data (Atuahene-Gima, 2005; Johnson et al., 2017). Moreover, high volumes of unstructured data such as audio, images, and video are generated by social media, e-commerce and sensors (Lee, 2017). Earlier estimates suggest that 260 billion photos using a storage space of over 20 petabytes were stored by Facebook (Gandomi & Haider, 2015). Considering one petabyte equal to 1024 terabfytes; the volume of such data is enormous.

In addition, big data in terms of its size will not meet the threshold in the future as the capacities of storage will increase and this will allow to capture even much bigger datasets.

Also types of big data representing variety dimension forms another challenge for companies. In real world, the data doesn't develop from one source. Handling data from different sources is the essential part of implementations of big data as data can be in different models or formats (Chen et al; 2013). Variety refers to different collected data types, such as "structured data, unstructured data, text data, numerical data, image data, and audio and video data" (Liu, 2015). "Text, images, audio, and video are examples of unstructured data", which sometimes lack the structural organization required by machines for analysis (Gandomi & Haider, 2015). According to Lee (2017), the specifications of relational database cannot be conformed by semi-structured data, but can be used to specify to meet some certain structural needs of applications. Additionally, due to the recent tapping of these sources for analytics, so-called structured data that previously held unchallenged hegemony in analytics, is now joined by unstructured data (text and human language) and semistructured data (XML, RSS feeds) (Russom, 2011). More complex and sophisticated big data analytics is required, as it is hard to categorize the data developed from various sources and different structural types. As Russom (2011) states, big data is not new as a subject, but the effective use of analysis of big data is.

Big data velocity can be described as the speed at which the companies processes and analyzes data (Johnson et al., 2017). The challenge of big data's velocity prevails to data which are machine generated and pretty much being deployed. In these applications, vast amount of newly updated data comes into the systems with a continous flow, whilst such systems are needed to make sense of the data right after its creation (Chen et al; 2013). According to Lee (2017), at the beginning, the expensive and relatively slow nature of big data guided companies to use batch processing systems for data analytics. Today, even institutional retailers are producing high frequency data. The data that comes from mobile apps and flows through mobile devices create streams of information that is used to generate customized offers in real-time for customers, everyday (Gandomi & Haider, 2015). Such data generate information that contains customers' location, and their past buying behavior or their purchasing patterns that can be analyzed in order to create competitive advantage in terms of customer value with personalized and real time offers.

2. Big-Data Analytics

According to International Data Corporation (IDC), 'big data analytics' is among the three characterictis of big data; which the other two characteristics are stated as 'data itself' and 'presentation of the analytics results'. Therefore, impossible to seperate from big data, big data analytics is critical for the management of big data within the companies. As indicated by, Gandomi and Haider (2015), since big data is worthless without any analyses, organizations need effective processes to leverage the potential value of big data to drive decision making and to turn tremendous volumes of dispersed and fast-moving data into meaningful grasps. The authors state that big-data analytics can be evaluated as a sub-process of 'insight-extraction' from big data, and it indicates the techniques that are used "to obtain and analyze intelligence from big data".

Since big data is useless if it is not used to gain insights from an extraction to derive a decision; as Vashisht and Gupta (2015) suggest companies need to process the immense volume of speedy and dispersed data to gain meaningful insights. Big data could not be handled by traditional analyses undertaken for simply data; it requires much sophisticated techniques. Hence, big data analytics includes "text analytics, audio and video analytics, social media analytics", and it is next-generation on sources of big data. Gerard et al. (2014: 321) describes big-data sources as "Internet clicks, mobile transactions, user-generated content, and social media as well as purposefully generated content through sensor networks or business transactions such as sales queries and purchase transactions." Such types of big data analytics are briefly discussed below.

Text analytics or text mining refers to "process of deriving important information from text data" (Verma et al; 2016). Text analytics support evidence-based decision-making by enabling businesses to convert large volumes of human generated text into meaningful summaries (Gandomi & Haider, 2015). Text analytics is generally used in research, business, security, and for governmental needs. With text analytics, businesses make sense of text-rich information such as customer surveys, insurance and warranty claims, or the growing streams of customer comments on social networks (Ularu et al, 2012).

Audio analytic or speech analytic techniques are used to analyze and extract information from unstructured audio data (Vashisht & Gupta, 2015). It is also called speech analytics as it's applied to human spoken language. Health-care institutions and call centers are the current application areas of audio analytics. These techniques helps to measure agent performance, gain an understanding of consumer behavior, develop customer experience with real-time offers, clarify the issues of product and service among other tasks such as increasing sales turnover rates or identifying the conformity with different policies (Gandomi & Haider, 2015). Video analytics which is also called "video content analysis" (VCA) has various techniques to monitor and analyze for meaningful information extractions from video streams. For example, satellites could monitor and analyze weather patterns, troop movements or grass fres. Or on the other hand, a video analysis system by watching for possible intruders could monitor a sensitive or valuable facility, and then could alert authorities in real time (Russom, 2011).

Social media analytics refer to the analysis of unstructured and structured data obtained from social media channels, blogs, microblogs, social news, wikis, and websites (Zeng et al., 2010). With significant interest from the application's perspective and the associated unique technical and social science challenges and opportunities, research on social media has intensified greatly in the past few years. The essential application area of web-based media examination is marketing field where the associations can dissect the information from web-based media stages to discover people's opinion of their products or services, what they like and dislike about their image, they can likewise compare their brands with their rivals' brands (Barbier et al, 2011; Vashisht & Gupta, 2015).

B. RESEARCH METHODOLOGY AND FINDINGS

The purpose of this research is to reveal how the concept of big data, which has attracted the attention of many researchers in the last decade, is used and perceived by large-scale companies, operating in different sectors. For this purpose, the explanations, announcements or news in the press

about big data among with companies' activity and sustainability reports written both in Turkish and in English, of the top 250 companies in the ISO-500 list for the year 2019 were analyzed with content analysis. According to our analysis, of the first 250 companies in ISO-500 list, 203 (81,2% of total) are from manufacturing sector, 27 (10,8% of total) are from energy sector and 20 (8% of 250) are from automotive sector. The companies included in the sample which are operating in manufacturing sector produce various types of products including pharmaceuticals, food, white goods, iron and steel, clothing, electronics and textiles. 27.6% of the companies in the sample are multinational companies or companies with foreign partnerships; others are owned by Turkish shareholders.

In this study, within the framework of a qualitative research method, a phenomenological research design was chosen. With this method, it is aimed to reveal the unique meanings of persons regarding the phenomena belonging to himself/herself and the outside world (social situation/event) (Sığrı, 2018). In terms of research method, the text analysis method was chosen and, the text gathered via Internet search on big data was analyzed. In the qualitative analysis, known office software can be used as well as qualitative analysis software, which provides a more natural way to examine the relationships between the concepts found by counting and visualizing the words and ideas. In this research, Nvivo 12 Plus software was used for the analysis. The data was obtained by Internet search with big data concepts together with the company name in the first 250 companies ranked in ISO-500 list. However, for only 45 (18%) out of 250 companies, news or descriptions of big data were available. Nevertheless, within the scope of this descriptive research, the data obtained were enough to lead more prominent future research.

In the analysis, descriptive statistics of descriptive type and the information obtained were first examined. For this purpose, the phenomenon considered with word frequencies and word trees tried to be comprehended. Next, content analysis was performed to understand how the phenomenon was perceived by the sample. There are three different approaches for content analysis rather than a single method (Hsieh and Shannon, 2005). In this research, the summarizer content analysis method was used to count the keywords or content and compare them and interpret the meaning under it. In qualitative research, numerical data are less, and more qualitative data are used. However, in many studies, preliminary information about data can be obtained by methods such as word frequencies or word cloud. The word frequencies in this study are demonstrated in Table 1. While, as expected, data is in the first place in the top 10 most repeated words, it is observed that 'industry' and 'production' and 'digital' words are other most repeated concepts. Other repeated words are in general about the industries that companies operate.

Table 1. Word Frequencies of Statements

Word	Count	Weighted %	Word	Count	Weighted %
data	171	1,75	Project	22	0,23
industry	127	1,31	company	22	0,23
production	74	0,76	system	21	0,22
digital	47	0,48	efficiency	21	0,22

steel	44	0,45	information	20	0,21
technology	44	0,45	new	20	0,21
Turkey	29	0,30	big	19	0,20
food	27	0,28	smart	18	0,19
iron	26	0,27	analysis	17	0,17
automotive	25	0,26	electric	17	0,17
artificial	24	0,25	energy	17	0,17
digitization	23	0,24	activity	17	0,17
analytical	22	0,23	process	17	0,17
conversion	22	0,23	product	17	0,17
integrated	22	0,23	model	16	0,16

Word trees can be used to analyze the text contents in summary. A word tree briefly shows the semantic structure formed in the form of sentences around one or more words searched in text content. With the help of the word trees, it is easier to navigate semantically in the data containing unusually voluminous texts. By the conducted Internet search to obtain data, it was observed that big data was used mostly in Turkish and rarely in English. Figure 1 shows "big data" word tree in English, as in the texts.

Figure 1. Word Tree for "Big Data"

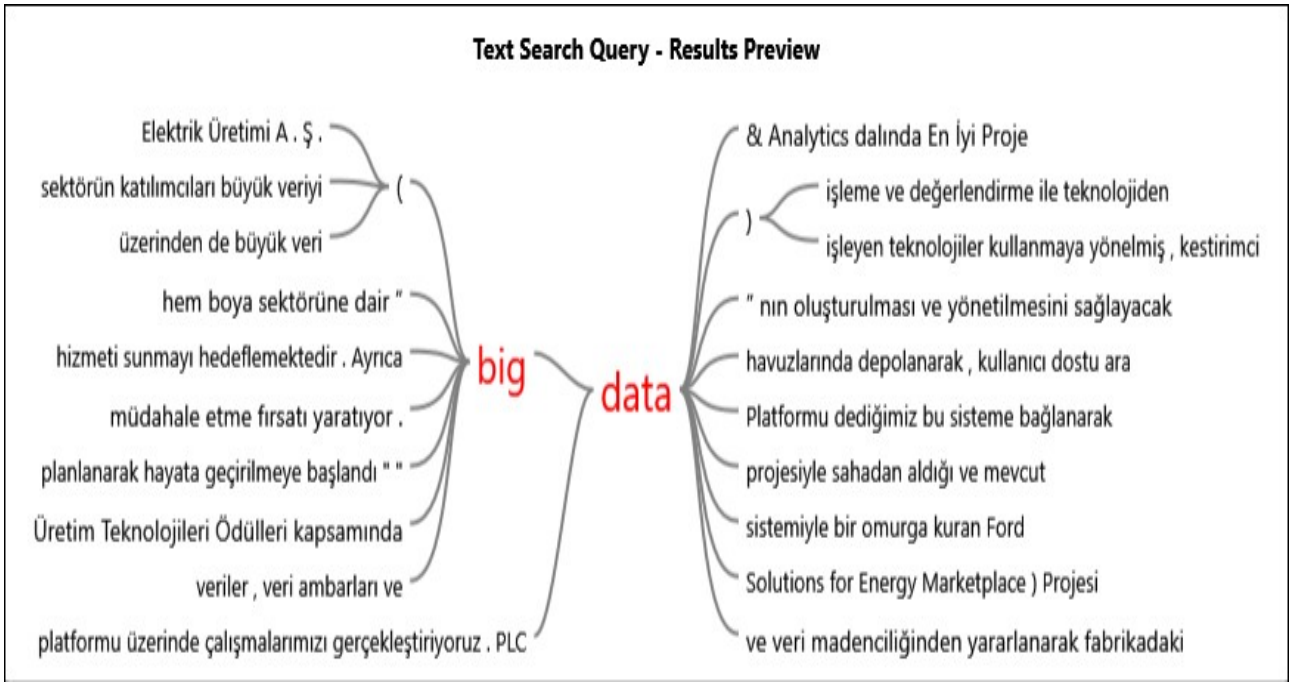
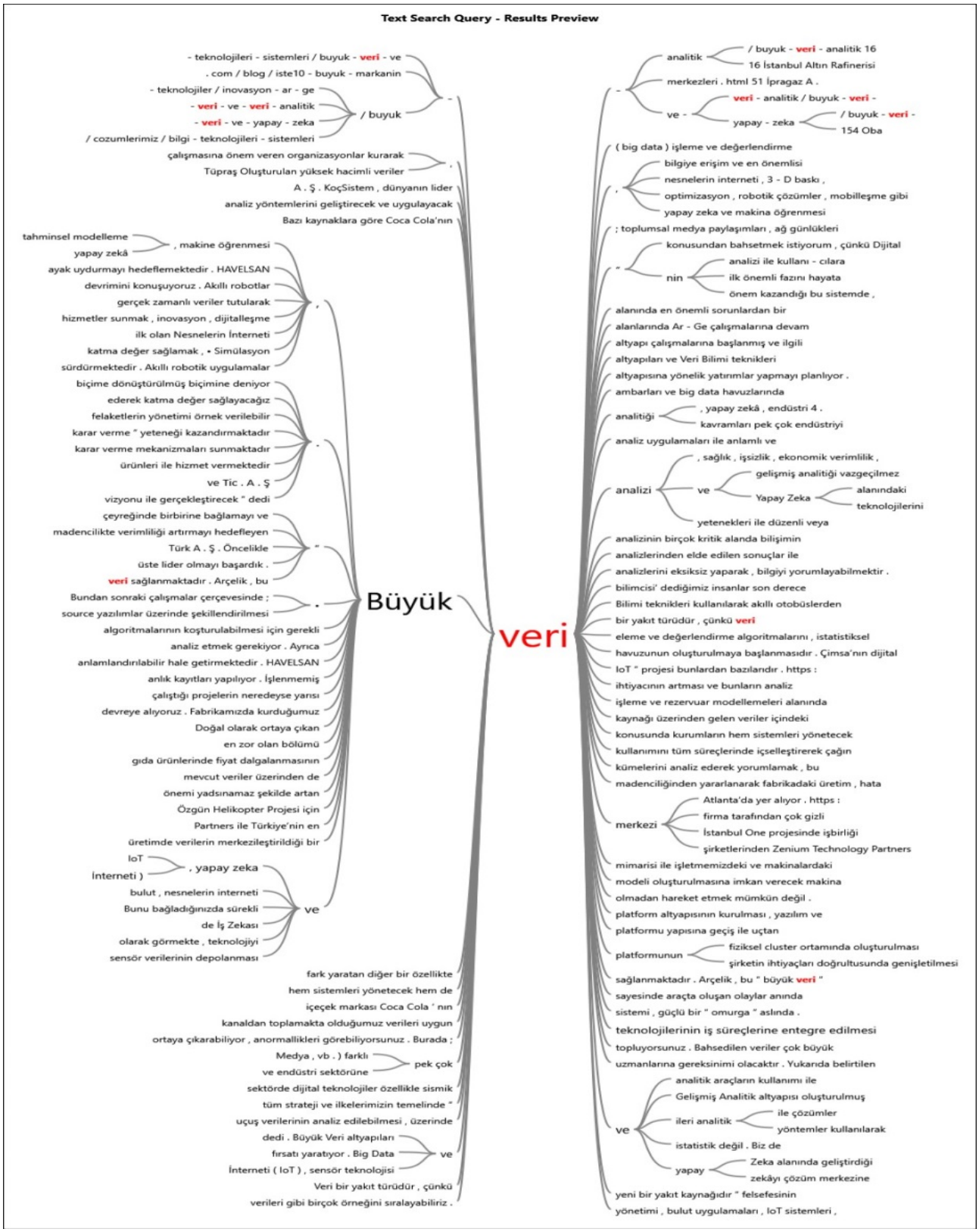


Figure 2. Word Tree for "Büyük Veri" (Big Data, in Turkish)



The word tree for the concept of "büyük veri" (big data) in Turkish is shown in Figure 2. When the concept of big data in the texts is analyzed in context, it is seen that companies mostly mention the importance of big data. In this way, it is understood that for their strategic progress in the future, companies understand the significance of big data and they want to include its applications in their business processes. However, it has been observed that very few of the scrutinized texts provide information about the use of big data in the current sense. Moreover, the information provided has a minimal scope. Of course, the use of big data is not expected to be given in detail, revealing the company's secrets. However, it would still be possible to reach more concrete examples of the use of big data in business processes, which indicates that the companies in the sample do not widely use big data.

It is observed that the concept of big data in the analyzed texts based on the news and sustainability reports both in Turkish and English, is mostly in the form of commemorating the importance of big data or showing a planned activity in the future. It was found that it refers to a minimal amount of action or event. Table 2 contains information summarizing this situation. As demonstrated, the statements for the current activities about big data are only ten, eight of which belong to multinational companies.

Table 2. News/Plan or Action/Activity Distinction for Big Data

	Mention	
	news/plan	action/event
big data	8	0
büyük veri (big data)	40	10

Some of the brief statements about big data in the examined texts belonging to the first 250 companies in the ISO-500 list are shown in Table 3. It is observed that companies are generally operating in sectors such as energy, automotive and manufacturing, where large amounts of data are used in production and after-sales. However, it is understood that the statements of the companies for big data are descriptive and most of them are in the development phase of big data usage processes and systems. Moreover, even "product tracking with barcode or QR code" is perceived as big data management by some companies; indicating a low level accurate perception for big data. Furthermore, it can be stated that multinational companies or companies with foreign partnerships are more conscious of big data management.

Table 3. Some Company's Brief Statements on Big Data

Industry	Company	Brief Statements about Big Data
Automotive	B	Creating a backbone with big data in the transition to Industry 4.0, a method where each facility designs and defines itself, its future and its future in production.
Automotive	D	We try to reach the resources that will ensure not only to be limited with the data obtained with the existing possibilities but also to obtain new data with our investments. In this context, we present the data we collect from many different channels both on a global scale and in our market to our business units by making them meaningful and usable data with appropriate data analysis applications.
Energy	A	Big Data monitoring in a fully customizable structure with simple or interactive graphics, status indicators, pivot tables, measurement indicators and customized reports with user-friendly interfaces.
Energy	E	We aim to achieve flawless decision-making processes through artificial intelligence and machine learning algorithms that will enable the use of big data, a significant increase in operational excellence and production efficiency.
Energy	I	We have taken steps to collect big data with the new technologies we use, and we want to be a pioneer in improving the business processes in the sector in the future.
Energy	L	As a result of today's technological developments, the Internet of Things, Big Data and Advanced Analytical infrastructure, which is the first in the industry, has been created in order to receive the data as fluid as needed, to process and interpret this data in real time, and to use it in many different projects.
Manufacturing	C	With the analysis of big data, it is aimed to develop the services that benefit the users within the company.
Manufacturing	F	Our goal is to make all systems talk to each other with our technological competencies, to enable these systems and machines to manage and direct them.
Manufacturing	G	To meet the need of data experts in big data institutions that will both manage systems and develop and apply data screening and evaluation algorithms and statistical analysis methods.
Manufacturing	H	With our investments in areas such as big data analytics, artificial intelligence, industry 4.0, we are taking successful steps towards bringing smart connected products and digital service models that digital consumers expect today and tomorrow.
Manufacturing	J	To make digitalization an important part of the business culture by absorbing it as a company.
Manufacturing	K	Expansion of the big data platform in line with the needs of the company. Creation and commissioning of services for project needs. Development of solutions that allow modeling and machine learning methods to be run on the platform.

Big data usage types and purposes belonging to letter coded companies in Table 3 are shown in Table 4. According to the analysis, status of the companies that are within the sample in terms of big-data usage are classified as "under development", "in-use/launched" and "under discussion". For most of the companies (82.4%), there is no awareness for big data, and for others it is in under development (5.6%), under discussion (6%) and in use/launched (6%) stages. Although it is stated that some of the companies are currently using big data, it can be stated that the systematic use of big data throughout the companies do not yet started; only eleven of the companies are currently using big data in production (4,4%) or marketing processes (1.6%) mostly for customer interaction.

Table 4. Some Company's Purpose of Using Big Data

Status	Company	Purpose for Big Data Applications	USAGE
under development	A	Reports customizations	customer interaction
	B	Collectively monitor work on a software platform that connects all machines.	Operations
	C	To meet customer needs	customer interaction
	D	To realize projects that increase production and energy efficiency, improve processes and increase work safety.	operations
	E	Integration of artificial intelligence and big data technologies into business processes	operations
	F	Making technology and infrastructure improvements and bringing resources of different competencies to the institution	customer interaction
	G	Ensuring more effective control of products throughout their life cycle.	operations
in-use/launched	H	By better understanding customers and stakeholders, personalized products and services enable them to experience this process happier and contribute to the performance of the company.	operations
	I	In addition to hardware, software development, provision, installation, to provide consultancy and feasibility services on issues such as current situation analysis, team building, training.	customer interaction
	J	To better understand its customers, to provide uninterrupted, safe and high quality services from many different service channels, innovation, digitalization.	customer interaction
	K	Timely prevention of quality errors with advanced sensor systems and image processing technologies; optimizations to be made in the field of supply chain and planning.	operations
	L	To make big data meaningful to people and to provide organizations with the ability to make "data-based decision-making" by integrating with decision support systems.	operations

	M	To make more accurate predictions in the medium and long term by obtaining measurement data from satellites,and geographic information system.	operations
under discussion	O	Price volatility of food products to be followed closely using big data and forward analytical methods.	operations
	P	Analyzing and interpreting large data sets, making the right decisions as a result of these analyzes.	operations
	R	The network monitoring, operation, maintenance, planning, loss and leakage tracking, smart ecosystem, energy management and blockchain applications to be developed will serve the flexible market structure.	operations
	S	To provide quality and continuous electricity service by developing remote monitoring and control systems.	operations
	T	In addition to being able to respond to customers faster, to provide added value by saving time, effort and energy.	operations / customer interaction

Discussion and Conclusion

Regarding big data, which is expressed as a 'new type of fuel', and big data analytics as 'next management revolution' (McAfe & Brynjolfsson, 2012), according to the findings of this study, it can be stated that other than some leading companies, many large-scale companies could not even come to the crawling stage regarding how to analyze and include the massive amounts of data to their business processes. It is not difficult to observe that many of the companies are confused, even from a conceptual point of view. As a matter of fact, since the speed, density and diversity of big data change regularly, it should not be easy to understand and interpret the case quickly. It is due to the fact that the analysis of big data becomes more difficult because of the reasons such as its speed, volume and diversity, and it is fed more and more from relatively new sources such as social media. It is obvious that on the Internet there is a tremendous growth of social media and consumer-generated content; in accordance in order to understand and solve real-life problems, this had inspired the development of the so-called big data analytics (Xiang et al., 2015). But even for large scale companies, it can be inferred that big data analytics is at the initial stage.

With this qualitative research, where the explanations about big data usage of top 250 companies in the ISO-500 list are examined in a descriptive and exploratory manner, it is found that few of the companies are already in the process of using big data in areas such as business processes or marketing. However, it should be taken into consideration that strategic actions such as big data are not disclosed outside the company efficiently and obviously. Furthermore, although it is obvious that big data and its analytics help companies, provide value for their stakeholders and outperform their competitors (LaValle et al, 2011); there are challenges related with application of big data as well. First and foremost, storage and capture of data has a high cost (Chen et al, 2014). Other challenges of big data include data security, privacy of users due to their personal records; which are also costly. So, it is not easy for all companies

to benefit from big data due to its requirement of high investment. Nevertheless, the texts examined indicated that many companies are in the development phase of big data usage, while some perceive digitalization or the internet of things as big data management, which is far from the definition of big data.

The main limitations of this study include the limited number of texts collected via companies' self-reporting; besides the texts are for year 2019 representing a cross-sectional data. However, this study is significant since it is one of the initial studies about the state of big data application in Turkish businesses. Most of the studies about big data in Turkey are conceptual (i.e. Altunışık, 2015; Doğan & Arslantekin, 2016; Atalay & Çelik, 2017). With this study, it is aimed to shed light on future studies on big data within the framework of social sciences discipline and in a qualitative pattern. In future studies, the issue of how big data will be managed by companies in marketing, business processes or other areas, as a company or as a group in the industry, can be analyzed.

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