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ROLE OF BIG DATA ANALYTICS IN MANAGING AND ORIENTING MEDIA ORGANIZATIONS; "CASE STUDY - ARABIC MEDIA ORGANIZATION IN ISTANBUL"

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(**Indicators**, this study is derived from **thesis** "Role of Big Data Analyticsin Managing and Orienting Media Organizations; a Study Arabic Media Organization in Istanbul").

ABSTRACT

In this thesis a discussion about the role of big data analytics results in managing and orienting media organizations is been conducted , in the last decade a new term appeared on the surface of technology and business world "Big Data ", Leading organizations and companies in various sectors of technology and business have begun to take an interest in this term and research to benefit more from it in developing their business and decision making process, at the end of last century business field by its organizations and leaders was the first to invest and motivate scientist to improve and develop the internet, because they believed that the internet will increase their opportunities in the business world , nowadays the same leaders and organizations mentality are motivating and pushing up scientist to improve and develop Big

Data analytics , more talks in recent years about AI (artificial intelligent) IOT (internet of thing) ML (machine learning) and more new terms like CHATBOTS that will lead business for a new era , this data revolution gives many opportunities for managers and decision-makers, at the same time they face the challenges of dealing with the data expanding, so the relation between big data and orienting and leading organization is one of the most important topics to be studied and discussed these days .

The study focused on managing and directing organizations and decision making depending on the big data analytics especially in media industry organizations, for this purpose Arabic media organizations have been chosen , two news platform (press) and two TV channels, four of them have offices in Istanbul, there main followers and audience is Arabs in the Arabic world, as a conclusion the study argue that there is an increasing role of using analytics results to improve decision making in media organizations, but it's still not the main factor in decision making process, also the intuition and experience is very basic features for decision making and still the main factor of decision making, but if the facts and insights using Big Data analysis added, the decision maker will increase the accuracy of his decisions.

The study indicates the important effect of the big data in guiding the decisions of organizations and their positive role in the development of production and increase the efficiency and profits of these organizations.

KEYWORDS: ANALYSIS,BIG DATA, DECISION MAKING, MANAGEMENT,SOCIAL MEDIA.

INTRODUCTION

Why to use samples if we can analyze the entire community ? researchers always tried to obtain accurate results of their studies ,"Big data gives us an especially clear view of the granular: subcategories and submarkets that samples can't assess." (Schönberger-Viktor, 2014 : 13).to be accurate researchers need to gather all the data and information about each item in their study, previously they tried a lot of techniques to generalize a results by gathering the data and information from just a sample of a society, sometimes the results could be fair enough to be

generalized, and sometimes not, however, when they have the ability to conduct their study on each item of the community, sure, they will get the accurate results they attempt to reach.

"The arrival of Big Data in society has prompted business and government to take actions to exploit its value and application." Chan, 2013:10), China the biggest population country in the world with more than 1.4 billion human being (Worldometersinfo, 2018) already started its program of ranking the citizens regarding their social score, Chinese government plan to generalize this ranking system on all of the population in 2020 this System is one application of using big data analysis , and even more " a Chinese company called Watrix has created an artificial intelligence program that's able to identify people based solely on the way they walk " (Chris mahon, 2018).

AI (Artificial Intelligent) IOT (Internet Of Thing) ML (Machine Learning) and more also appear more effective and more reliable after improving more and enhancing big data analysis software and tools ,the big technological organizations in the world now investing in this field like Microsoft, IBM, SAS, and Amazon .

Media field is one of the biggest industries in the world , according to PwC report: " Global entertainment and media revenues in 2017 is 1.8 trillion American dollar and expected to grow up to hit 2.2 trillion Americandollar in 2021"(Thedrumcom, 2018). this big numbers means it is really worth to invest in media field more and more , Forbes "global business magazine" conducted a survey in 2016 on 573top executive worldwide "half of them classify their company as advanced in data analysis, 91% achieved an increase in revenue from data analysis" (Sys-concom, 2018), It always been one of the main targets and goals of the organizations to raise up the accuracy of decisions that results more revenue, reputation, and continuity, now with the use of big data analytics they are advance to make precise decisions.

2. LITERATURE REVIEW

2.1 Management

The term management is an important concept in every part of life, in the home, university, factory or a company, in business, it is the brain of every business body, and the main core of the management is to make decisions that will arrange relations between the team members of any

group or small enterprise or even a big organization. It is the decision maker's point of view for the employees to process the tasks in order to accomplish organizations goals, this point of view is an accumulated knowledge came from studying or researches or practical experience , some theoretical definitions of the term " Management" as a part of the social sciences will be discussed in this study .

A modern suggested definition for management "management: the process of planning, organizing, leading, and controlling resources to achieve specific goals" (Skripak&Stephen, 2018:161),Cetrosum the definitions by "is the process of reaching organizational goals by working with and through people and other organizational resources." (Certo & Certo, 2016:. 37),It is clear that the modern perspective in the definition of management focuses on the following key aspects:

- Management is an integrated process involving Planning, Organizing, Influencing, and Controlling.
- Management can be applied to that type of organization or regulatory environment.
- Management focuses on all resources used in the organization, whether human, material, or data.
- Management is needed to achieve the goals and objectives pursued by the Organization

2.2 Media Organization

One definition of Mass media is "Usually understood as newspapers, magazines, cinema, television, radio and sometimes including book publishing"(Hartley, 2004: 138),also mass media defined as " a diversified collection of media technologies that reach a large audience via mass communication" (Quoracom, 2018), another definition of mass media by Danesi (radio, television, newspapers, periodicals, websites) that reach large audiences, Attached to the meaning of this term, also, (Danesi, 2009: 188)present some features of mass media as follows:

- They usually require complex formal organization.
- They are directed toward large audiences.
- They are public and their content is open to everyone.
- Audiences are heterogeneous.

- The mass media establish simultaneous contact with a large number of people who live at a distance from each other.
- The relationship between media personalities and audience members is mediated (nondirect).
- The audience is part of a mass culture.

Since the print revolution the mass media changed and formulated several times starting from books, newspaper, radio broadcasting, TV broadcasting and the new media shape as internet-based medium. Indeed the technology changed the way media organizations method of delivering their material to the audience.

2.3 Big Data

"Big Data is a new trending term in the technology fields"(Laney, 2001: 3), laneyone of the first experts in data management to mention explosion of data and create the three V dimension (3V's) it's simply the Volume,*Variety* and Velocity which became later on of the common framework to describe Big data.

A lot of different definition were given to the term " Big Data " it depends on the approach each one deal with , " big data means data that cannot be handled and processed in a straightforward manner" (Fisher, 2012 : 53), also there is a famous definition known as the 3v's definition of big data " is high-volume, high-velocity and/or high-variety information assets that demand cost-effective, innovative forms of information processing that enable enhanced insight, decision making, and process automation" (Gartnercom, 2012) , a lot of different definitions where introduced for big data but in general it's all about data that cannot be analyzed byexisting database management tools or traditional data processing applications because of the big volume of it *""Big data is high-volume, high-velocity and high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision making."* (Gartnercom, 2012), Data production is expected to reach 160ZB by 2025, which means that the data volume doubles 16 times from about 10 ZB in 2015 to 160ZB in 2025.

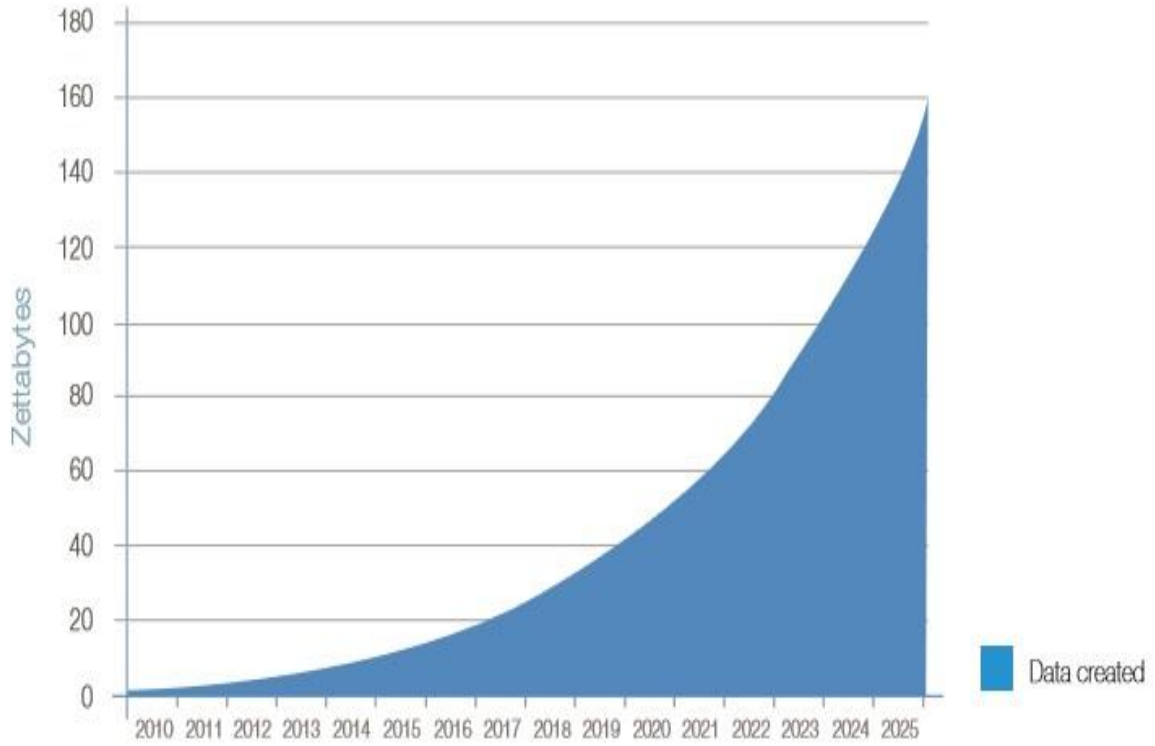

Figure 1: Data production 2010-2025 in ZB

After the 3v's of big data , another researchers started to add more factors that affect the big data term for instance, IBM define big data by a 4v's dimension adding veracity as another V which simply means the truth of the data or the degree in which a leader trusts the used information in order to take decision, even more some researchers noted 8 V's of the big data summarized by Volume, Velocity, Variety, Veracity, Vocabulary, Vagueness, Viability and Value(Nimbixnet, 2017), this data gathered from every kind of digital technology sensors , GPS, mobile devices , social media , transactions and more .

Data size measures

Bit		Single Binary Digit (1 or 0)
Byte	8 bits	**One character**
Kilobyte (KB)	1,024 Bytes	**A paragraph**
Megabyte (MB)	1,024 Kilobytes	Complete work of Shakespeare**5** MB
Gigabyte (GB)	1,024 Megabytes	Audio set of the work of Beethoven**20** GB
Terabyte (TB)	1,024 Gigabytes	Printed collection of the US library of congress**10** TB
Petabyte (PB)	1,024 Terabytes	Daily amount of data processed by google **20** PB
Exabyte (EB)	1,024 Petabyte	one **Exabyte** is one quintillion bytes
Zettabyte (ZB)	1,024 Exabyte	250 Billion DVDs
Yottabyte (YB)	1,024 Zettabyte	Size of entire world wide web at 2013

Table 1: Data size

2.3.1 Big data analytics

To deal with this amount of data, first the organizations had to store and analyze in a way allow it to get benefits from it, it's not about just harvesting the data , it's about what could be done by it, "The capability to manage and analyze petabytes of data enables companies to deal with clusters of information that could have an impact on the business."(Judith, Alan, Fern, & Marcia, 2013: 22), for the organizations the main motivation for gathering data is to impact the business and get more added values to their business, "This voluminous data can be of great significance to organizations if better insights are drawn for management to improve decision making" (Mmatshuene & Billy , 2018: 1) as a results of the analytics process insights is the main demand to improve decision making. "Increasingly, top thinkers in academia and business believe that

analytics, especially analytics connected with big data, is going to be a driving force in our economy and society in the next 10 to 20 years" (Kiron, Ferguson, & Prentice, 2013: 3).

Big data analytics defined as "the sub-area of big data concerned with adding structure to data to support decisionmaking as well as supporting domain-specific usage scenarios" (Cavanillas, Curry, & Wahlster, 2016 : 63), there is more than one type of big data analytics Mujawar & Joshi (Mujawar & Joshi, 2015, : 488) and Sarprasatham (Sarprasatham, 2016), identify three main kinds of big data analytics :

- **Descriptive analytics** which is describing or classifying the data without expressing feelings or judging, and its answers the question "What has happened?"
- **Predictive analytics** and it is focus on predicting an event or result from the data been gathered and its answers the question "What could happen?"
- **Prescriptive analytics**, which combine the previous two kinds, features and give some guides to actions for the results of the analytics, and its answers the question "What should we do?"

Dealing with big data and analysing it requires a new tools , softwares and databse even a hardware to suit this amount of data " there is need for new tools and methods for big data analytics, as well as the required architectures for managing and processing such data" (Sarprasatham, 2016: 7).Big data analytics is a major field for investing in last few years, to introduce a service with high value to improve the decision making process, here is some examples of the leaders and the main organizations invest and worked in the big data analytics development like gathering data, storing data, data, analyzing and executing data.

Data Collection implies the proper use of Networks, Infrastructure (IBM, Oracle, Dell, HP), and data Centers and Hardware (Dell, IBM, Teradata, Oracle, EMC), in order to access and analyze a particular set of dynamic data. Data Processing is directly influenced by the technologies used for the Storage and Database management. In this process, the available systems like In-memory (IMDS), NoSQLc, Hadoop, Re, MapReduce, among others are usually considered. The Data Analysis process involves methods to deal with Analytics; Prediction; and as well as with Data warehouses; cloud computing, as-a-service and mobile technologies.

To reach a specific group of data and analyze it, the analyzing phase infected by the technology used to manage and store the data base, usually like Hadoop, MapReduce, NoSQL, and R, this analyzing phase then used by big vendors of analyzing and reporting the data, and to provide a service for smaller organizations which intend to use these data as a service from that big organizations.

3. METHODOLOGY

3.1 Research Method

The big data is a new term in the scientific research , so almost of the studies and researches conducted on this term focused on the theoretical part and anticipation , and role of big data in real-life have not been studied enough by scientist or researchers , another important issue that there are a little researches to discuss if there is a relation between big data analytics and directing or orienting by the management in organizations, because of the previous the aim of this study is to get more clear understanding of the role of big data in managing organizations , a connection is made between previously described theory and the practical insights of this study.

3.2 Research Design

In this study a **qualitative** research method is selected, due to the fact that a few qualitative research have been done on it, especially its role in managing and directing media organization, "Whereit is necessary for you to understand the reasons for the decisions that your research participants have taken, or to understand the reasons for their attitudes and opinions, you are likely to need to conduct a qualitative interview."(Mark Saunders, 2009 : 324).

"deductive research tends to proceed from theory to data (theory, method, data, findings)" (Pathirage, 2007: 4) , deductive approach will be use in the study as we are testing the previous theoretical and formation of expectations from big data and its role in managing media organizations ,research method to collect the data through doing **face to face in depth semi structured interview** , after collecting data a**structure a coding scheme**been conducted"Coding is analysis" (Miles & Huberman 1994:56). To analyze semi structure interview (collecting data method) we put a code scheme for next phase of analyzing collected data from the interviews then analyzing it to get the results from that analysis.

3.3 Sample Selection

As we are going to study big data analytics role in media organization ,we select four Arabic media organization in Turkey , two of them are TV channels and the other two are News platforms, the four organization have a headquarter office in Turkey , "Istanbul has blossomed with broadcasts of dozens of Arabic-language websites, TV channels, and radio stations. "(Semerci, 2018),Semerci in this article from Anadolu Agency (AA) assured that there is dozens of TV channels and news platforms in Turkey , also after searching and observing in 2018, 15 TV channels and 15 news platforms at least were found in Istanbul .

3.4 Data Collection Method and Tools

Semi-structured, the most common type of qualitative interview, it involves pre-determined, open-ended questions, but also allows the interviewer to explore themes that emerge during the interview process. Thus, the interviewer can ensure that certain key elements are covered, but allow flexibility, "Semi-structured and in-depth interviews provide you with the opportunity to 'probe' answers, where you want your interviewees to explain, or build on, and their responses.

3.5 Data Analysis

"Qualitative analysis is the analysis of qualitative data such as text data from interview transcripts." (Bhattacherjee, 2012: 113), the phase of analysing the interviews starts with typing the recorded material of the interviwee to form it as a text scripts , after making the text each one of them reads carefully and started to translate it from Arabic language to English (as the interviews already made in Arabic) , after translation completed , the scripts reviewed by a proffesional academic translator to ensure reliable transcription of the data been gathered , the interview questions are splited into 6 dimensions , each of them focuse on value gained from each question , each dimension reflects and focuse some main issues of using big data with aim to more understand the effect and the role of using big data analytics on directing the management of media organization forward reaching organizational goals ,

After transforming the interviews into text data a coding scheme been implemented on the text to classify it and categorize it to start linking the relationship between data and the main theory and "Coding, involves taking text data or pictures gathered during data collection, segmenting sentences (or paragraphs) or images into categories, and labeling those categories with a term…"

(Creswell,2009: 186), then the categories and patterns from each dimension transcript to patterns and themes which after lead to the results from the interviews.

4. Results

General Knowledge

- All of the interviewees are decision makers, whether in their department for six of them or on the highest-level managers for the other two.
- Four organizations is small-medium size from 50 to 150 employees in each.
- All interviewees have different studying background, almost of them is working in another field than their academic study.
- Minimum experience in the working filed is not less than 5 years and up to 18 years, while their ages is between 30 to 48 years old.

Big Data Culture

- All the interviewees are starting using big data, even that for two of them they hear about the big data term at interview time, but they use it without knowing the term.
- Only three of the interviewee have good previous knowledge in analysis before dealing with big data term.
- TV channels focus mainly on the analytical tools and applications embedded in their social media accounts (Native analysis) and Google analytics mainly for their websites.
- The culture of using Big data in the organizations are weak but increasing in general , while the knowledge is still between technical department

Source of Data

- The interviews shows that the main source of big data for almost all of the interviewed organizations is social media accounts.

Data Usage

- The most engaged departments in using data technologies and data analytics is marketing (via social media accounts) and the executive management.
- Social media departments they are trying to benefit from insights and analytics to general improve understanding of their audience and followers, they focus on big data analytics to help the organization predict audience interests, Effective ads targeting, Segmentation of the audience, financial management.

Challenges

- The interviews shows that high cost of using big data analytics tools and software's, and Lack of technological skills is main challenges.
- All of them were interested in having a service from outsource or third party Company to use their services if the cost is affordable for them.

Decision Making

- The most important dimension of the interviews which discuss the decision making (which is the essence of the management in organizations)
- The main aspect of using big data in organization is the knowledge and standpoint of high-level managers for the term of big data, and that knowledge do affect their decision-making.
- The interviewee point of view big data is not the main factor of decision-making but it is one of the main supporter factors for it.
- They realize and believe that in the future big data analytics will affect more their decision making,
- That practical experience and intuition is still the main factor for making decisions especially from the high-level managerial positions.

5. CONCLUSİON

5.1 Conclusion and Discussion

The aim of this thesisis to obtain more understanding on the role of big data analytics on managing media organizations through a qualitative research, this study adding to the existence literature reviews, almost all of the previous researches focused on theorization and formulation of expectation, and a little previous work were focus on the big data analytics effect on media organization in real life and practical experience.

The main hypothesis:

H0: There is no significant role of using big data analysis result in managing and orienting the media organizations

H1: There is a significant role of using big data analysis result in managing and orienting the media organizations

This research discussed the role of big data analytics in managing and orienting media organization, and from the obtained results we can be conclude that "H0: There is no significant role of using big data analysis result in managing and orienting the media organizations". Interviewed organizations were not adopting big data analytics results in a proper way, all interviewed organizations realize the need to increase the culture of using big data analytics in work environment, from the highest level of managers to the lowest level of employees so they can compete in media industry , also they figure that not following up the trend in media sector to adopt big data analytics results will affect there professionalism, they all trying to rely more on big data results despite all the factors are delaying this thing .

5.2 Limitations and Suggestions

The results of this study should be seen in the light of some limitations, first one is that the research approach is qualitative and qualitative researches are not generalizable , this study aim to understand more and deep insights of the role of big data analytics results on managing and orienting media organizations , second , all media organizations was Arabic in Istanbul but not in the Arabic world " MENA region" due to the fact of the researcher is located in Istanbul , and

this issue affect the reources of the employees of the media organization and the capital knowledge in general , and in spacific the culture of using big data in media organizations .

For future researches it's suggested to expand the sample size to have more kind of media organizations like Radio stations for more generalizable results on media organizations,the location limit also could be elimintae in future work to have more various locations for media organizatioins , also the study conducted on a small medium media organizatioin , for future research it's suggested to work with a bigger media organization for more generalizable results.

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