

**T.C.
ISTANBUL AYDIN UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES**



**“ROLE OF BIG DATA ANALYTICS
IN MANAGING AND ORIENTING MEDIA ORGANIZATIONS”**

THESIS

Ashraf AHMAD

**Department of Business (English)
Business Administration Program**

Thesis Advisor: Prof. Dr. Akın MARŞAP

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İSTANBUL AYDIN ÜNİVERSİTESİ
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YÜKSEK LİSANS TEZ ONAY FORMU

Enstitümüz İşletme Anabilim Dalı İşletme Yönetimi Tezli Yüksek Lisans Programı Y1712.130139 numaralı öğrencisi **Ashraf Yousef Othman AHMAD**'ın "ROLE OF BIG DATA ANALYTICS IN MANAGING AND ORIENTING MEDIA ORGANIZATIONS" adlı tez çalışması Enstitümüz Yönetim Kurulunun 09.01.2019 tarih ve 2019/1 sayılı kararıyla oluşturulan jüri tarafından oybirliği/oyçokluğu ile Tezli Yüksek Lisans tezi 05.02.2019 tarihinde kabul edilmiştir.

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I inform that, the information given in this thesis presented according to the rules and the ethical conduct. Master's thesis that, I presented as "Role of Big Data Analytics in Managing and Orienting Media Organizations" is written without recourse to contradict the tradition that consists of those shown in the Bibliography, it indicates that it has been used with reference to them, and I declare with pride. (24.12.2018)

Ashraf AHMAD



FORWARD

I owe the success of this thesis and the MBA program to Allah Almighty who is my All.

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TABLE OF CONTENTS

	Page
FORWARD.....	iii
TABLE OF CONTENTS.....	iv
ABBREVIATION	vi
LIST OF FIGURES	vii
LIST OF TABLES	viii
ÖZET.....	ix
ABSTRACT	xi
1. INTRODUCTION.....	1
1.1 Purpose of the Thesis	2
1.2 Hypothesis.....	3
1.3 Contribution of the Study.....	3
2. LITERATURE REVIEW.....	4
2.1 Management.....	4
2.1.1 Managerial functions.....	7
2.1.1.1 Planning	7
2.1.1.2 Organizing.....	8
2.1.1.3 Leading.....	8
2.1.1.4 Controlling	9
2.1.2 Management decision making.....	10
2.2 Media Organization.....	12
2.2.1 TV channels	15
2.2.2 Press platforms	20
2.3 Big Data	25
2.3.1 Definitions and features of Big Data.....	26
2.3.2 Big Data analytics	31
2.3.3 Big Data from social media platforms	38
2.3.3.1 Facebook	40
2.3.3.2 YouTube.....	41
2.3.3.3 Instagram.....	42
2.3.3.4 Twitter	42
2.3.4 Big Data and its importance in media field.....	45
2.3.5 Big Data –new vision of decision making	54
2.3.5.1 Leadership	56
2.3.5.2 Talent management	56
2.3.5.3 Technology.....	57
2.3.5.4 Decision-making	57
2.3.5.5 Organization culture.....	57
2.3.6 Big Data challenges.....	63
3. METHODOLOGY.....	65
3.1 Research Method.....	65
3.2 Research Design.....	65

3.2.1 Sample selection.....	66
3.3 Background and Summary of the Organizations	69
3.3.1 El Sharq TV channel	70
3.3.2 Filastin TV channel	70
3.3.3 Huff Post Arabi	70
3.3.4 Arabi 21.....	72
3.4 Data Collection Method and Tools	73
3.5 Data Analysis	74
4. RESULTS	78
4.1 General Knowledge.....	78
4.2 Big Data Culture	79
4.3 Source of Data.....	80
4.4 Data Usage	82
4.5 Challenges of Using Big Data Analytics	85
4.6 Decision Making.....	86
5. CONCLUSION.....	90
5.1 Conclusion and Discussion	90
5.2 Limitations and Suggestions for Future Research	93
REFERENCES.....	94
APPENDICES	103
RESUME.....	110

ABBREVIATION

AA	: Anadolu Agency
ATM	: Automated Teller Machine (cash machine)
CDC	: The Centers for Disease Control and Prevention
CEO	: Chief Executive Officer
CNBC	: Consumer News and Business Channel
CNN	: Cable News Network
CRM	: Customer Relation Management
H1N1	: a virus that is a subtype (H1N1)
IBM	: International Business Machines Corporation
KPI	: Key Performance Indicator
MENA	: Middle East and North Africa
PWC	: Pricewaterhouse Coopers
ROI	: Return of Investment
SEO	: Search Engine Optimization
TV	: Television
USA	: United States of America

LIST OF FIGURES

	<u>Page</u>
Figure 2.1 : Model of the decision-making process.....	11
Figure 2.2 : Number of TV households in the Middle East and North Africa in 2017	17
Figure 2.3 : TV households in USA from 2000 to 2018.....	18
Figure 2.4 : Global digital ad and TV spending (2000-2017).....	19
Figure 2.5 : Minutes spent per day with media worldwide.....	19
Figure 2.6 : Change in global advertising media spend	20
Figure 2.7 : Percentage of USA newspaper advertising revenue coming from digital advertising	24
Figure 2.8 : decrease percentage of Arabic printed newspaper readers from 2013 to 2017	24
Figure 2.9 : Data production 2010-2025 in ZB.....	27
Figure 2.10 : The four V's of Big Data	28
Figure 2.11 : Global IP data traffic from 2016 to 2021	29
Figure 2.12 : IBM and Oxford Survey: where does Big Data come from?	30
Figure 2.13 : Big Data Companies, products, and technologies	33
Figure 2.14 : Facebook page insights.....	36
Figure 2.15 : Twitter analytic.....	37
Figure 2.16 : YouTube analytics.....	37
Figure 2.17 : Digital around the World in 2018.....	39
Figure 2.18 : Facebook monthly active users	40
Figure 2.19 : Number of YouTube viewers worldwide from 2016 to 2021	41
Figure 2.20 : Instagram monthly active users 2018	42
Figure 2.21 : Monthly active Twitter users worldwide from 1st quarter 2010 to 3rd quarter 2018 (in millions).....	43
Figure 2.22 : IPSOS 2016 report.....	47
Figure 2.23 : Los Angeles density MAP	59
Figure 2.24 : Los Angeles density MAP 2.....	60
Figure 2.25 : Amazon stocks value, 2012 – 2016.....	61
Figure 2.26 : Amazon net revenues (2004- 2017)	62
Figure 3.1 : MENA Orbit coverage	69
Figure 3.2 : Home page massage of the Huffpostarabia website.....	71
Figure 3.3 : Graphical insight for the huff post uses of Big Data analysis	72

LIST OF TABLES

	<u>Page</u>
Table 2.1: Data size.....	29
Table 2.2: Data Journalism	51
Table 2.3: Dynamic Semantic Publishing	51
Table 2.4: Social Media Analysis	52
Table 2.5: Cross-sell of Related Products	52
Table 2.6: Product Development.....	52
Table 2.7: Audience Insight	53
Table 3.1: Arabic TV channels in Turkey list.....	67
Table 3.2: Arabic news platforms in Turkey list.....	68

"BÜYÜK VERİ ANALİTİĞİNİN MEDYA KURULUŞLARININ YÖNETİMİNDEKİ YERİ"

ÖZET

Bu tezde, büyük veri analitiğinin medya kuruluşlarının yönetilmesi ve yönlendirilmesindeki yeri üzerinde durulmaktadır. Son on yıl içerisinde, teknoloji ve iş dünyasında "Büyük Veri" terimi ortaya çıkmıştır. Teknoloji ve iş dünyasında, çeşitli sektörlerde hizmet sunan öncü kuruluş ve şirketler, bu terim üzerinde durmaya, kuruluşlarını ve karar süreçlerini iyileştirmek için bu terimden daha fazla yararlanmak istediklerinden üzerinde araştırmalar yapmaya başlamışlardır. Geçtiğimiz yüzyılın sonlarında bu iş alanında çalışan kuruluşlar ve liderleri, bilim insanlarını interneti iyileştirmek ve geliştirmeye iten isimler olmuşlardır; çünkü internetin iş dünyasındaki olanaklarını arttıracaklarını düşünüyorlardı. Şimdilerde aynı düşünce şekli, bilim insanlarını Büyük Veri analitiğini iyileştirmek ve geliştirmeye zorlamakta ve yönlendirmektedir. Son yıllarda AI (artificial intelligence / yapay zeka), IOT (internet of thing / nesnelerin interneti), ML (machine learning / makine öğrenmesi) ve CHATBOTS gibi, yeni dönemde iş dünyasına yön verecek terimlerin üzerinde daha çok durulmaktadır.

Bu veri devrimi, yöneticiler ve karar mercileri için birçok fırsat sunmaktadır. Aynı zamanda onları veri genişletme husundaki zorluklarla karşı karşıya getirmektedir. Bu nedenle, büyük veri ve kuruluşların yönlendirilmesi ve yönetimi arasındaki ilişki bu günlerde en çok araştırılması ve tartışılması gereken konulardan biridir.

Tezde, özellikle medya sektöründeki kuruluşlarda büyük veri analitiğine bağlı olarak kuruluşların ve karar mercilerinin yönetimi ve yönlendirilmesine odaklanılacaktır. Bunun için iki Arap haber platformu (basın) ve iki Arap televizyon kanalı seçilmiştir; dördünün de İstanbul'da ofisleri bulunmaktadır ve dördünün de takipçileri ve izleyicileri Ortadoğu ve Kuzey Afrika'da bulunan Araplardır.

Medya sektörü genel hatlarıyla tanıtılacak ve sektör dâhilindeki yönetim sürecinin üzerinde durulacaktır. (Yöneticiler ve karar alma yetkisine sahip kimselerin aldığı temel kararlar nelerdir? Büyük Veri; işe alım, değişimleri karşılama, özel konulara odaklanma ve okuyucuların tercih ettiği isimlerin onlar için yazmasını sağlama gibi kararları nasıl etkileyebilir? Gibi)

Sosyal medya hesaplarından ve medya kuruluşlarının ana internet sayfalarından toplanacak veriler bu çalışma için toplanacak temel verilerdir. Bazı durumlarda analitik ve sonuçlar, nüfus gibi kamusal veriler, bunun yanında kuruluşların veri analizi için kullandığı bazı çevrimiçi analitik araçlar ve programlar da (sosyal medya platformlarının analitik araçları da yadsınmadan) göz önünde bulundurulmalıdır.

Sonuç olarak, bu çalışma, medya kuruluşlarında karar vermeyi iyileştirmek için analitik sonuçların kullanımının her geçen gün arttığını; ancak karar alma sürecinde hâlâ temel faktör olmadığını; karar verme aşamasında sezgilerin ve deneyimin baskın olduğunu, ancak Büyük Veri analizinin sağladığı bulgu ve anlayış eklenince, karar veren kişinin aldığı kararın doğruluk payının yükseldiğini tartışmaktadır. Aynı zamanda büyük verilerin, kurumların kararlarına rehberlik etmedeki önemli etkisini;

retimin geliřimindeki olumlu roln ve bu kurumların verimlilięini ve kazancını arttırdıęını gstermektedir.

Anahtar Kelimeler: *Byk Veri, analiz, internet, sosyal medya, ynetim, karar verme, AI, IOT, ML.*



“ROLE OF BIG DATA ANALYTICS IN MANAGING AND ORIENTING MEDIA ORGANIZATIONS”

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.

The media industry identified in general and concentrate on management process in that industry, what is the main decisions usually made by the managers and decision makers? and how could Big Data affect those decisions like hiring employees, budgeting changes, focusing on specific subjects, and making some readers personas to write for them, data gathered from social media accounts and the main website for media organizations is the main source of data in this study, in some cases the analytics and the results need to take in consideration few public data like population, also some online analytic tools and software's that used by the organizations to analyze data taking into consideration the analytic tools by social media platforms itself.

As a conclusion the study argues 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: *Big Data, analysis, internet, social media, management, decision making, AI, IOT, ML.*



1. 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), The technology is part of a Chinese campaign across the country to develop artificial intelligence and surveillance programs based on Big Data collection and analyzing.

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.

Even more Big Data analytics result does not only serve big organizations like Facebook or Google or Twitter, middle size and small size organizations also started

to use Big Data analytics tools to enhance its performance to follow up the new technological world.

After Hadoop and IBM Watson and such big names were only the direction to analyze Big Data, now another choices from middle and even small size technological companies is there, all the sizes in the business world are thinking of benefit Big Data.

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 dollars and expected to grow up to hit 2.2 trillion American dollar in 2021” (The drumcom, 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 573 top 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.

1.1 Purpose of the Thesis

Is to introduce the media sector organizations explanation of how could they work with Big Data in term of utilizing management orientation, in the last decade a new patterns in technology produces a huge amount of data for instance social media, GPS, sensors, mobiles this data raise the efficiency of organizations management processes in general.

Moreover, today one of the major industries in the world is the media industry. In this study, the role of using results from Big Data analyzing to help the management in the media organization to make and process better decisions to complete the overall goals of the organization like the best way of influencing audience would be discussed.

1.2 Hypothesis

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

1.3 Contribution of the Study

To be more able to understand the impact of using the Big Data in directing and managing media organization, especially by using the social media platforms, which give a real projection for the reality of the followers in addition, the influence of decisions using Big Data analytics in that organization and what is the real experience results for it, how it affects all departments in the organizations.

2. LITERATURE REVIEW

Aim of this part of the thesis is to describe the existing literature in the area of managing and directing media organization and Big Data analytics, in order to provide wider understanding and insights into previous studies. This literature review forms the foundation of this study and involves the current state of knowledge that is present about managing and directing media organizations and Big Data. In this, “the purpose of a literature review is three-fold: (1) to survey the current state of knowledge in the area of inquiry, (2) to identify key authors, articles, theories and findings in that area, and (3) to identify gaps in knowledge in that research area” (Bhattacharjee, 2012:21), to spot on the gaps in previous literature which make it possible to detect lacking previous literature, in order to show in which areas existing studies can be extended, finally, in this way also the benefit of this study becomes clear.

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” (Skrupak &Stephen, 2018:161), Certo sum 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

Management is a human activity of a mental nature embodied in the form of an integrated process of planning, organization, direction and control of all human and non-human resources necessary to achieve the objectives of any organization efficiently and effectively. This concept leads to the need to identify the main dimensions that reflect the nature of the practical application as follows:

- Management is an intangible mental activity or perspective, and is not an executive activity of the work and functions but a human activity based on the implementation of work and functions by others.
- Management can be exercised in all types of organizations of all sizes and nature of activity (political, economic, social, military, religious, etc.).
- The management is linked to the group and not to the individual.
- Management helps the group to achieve specific goals efficiently and effectively.

Organization: In practice, is refer to any organizational entity that follows specific goals and thus manages the different elements of production from human, material, financial and data resources. It may therefore be any company, facility or enterprise that produces a good or service, whether for profit or non-profit services, the nature of the organization's activity may be economic, social, political, religious or Charity. The organization can also be seen as a set of overlapping roles and activities that are responsible for specific goals. The organization is a set of roles that are in turn a set of expectations to be borne by the relevant parties (shareholders, owners, suppliers, intermediaries, government agencies, and public opinion) as well as management and individual expectations of the organization itself.

On the other hand, the organization can be seen as a system of two or more people who cooperate in carrying out an activity and therefore when there are people who can communicate with one another and prepare to cooperate and contribute to their common goal. That is, the organization is not just a group of individuals; the main activity of the organization's existence is that its members cooperate to achieve the company's goals.

It is also a social unit because it includes groups of individuals who use these tools, ways and means and operate machinery and equipment, and that these individuals maintain a variety of relationships, including employment, or other personal, social and humanitarian interests, these units have a specific goal or objectives that they seek to achieve. An organization is a Subsystem unit of a whole system, the environment or community around which it operates. In order to achieve its desired objectives, the organization practices a variety of activities and functions, such as production and operations, marketing, finance, procurement and warehousing, personnel affairs, research and development, ...etc.

An organization consists of several types of resources used to achieve desired objectives. These resources include:

- Human resources: And includes individuals who have the ability and willingness to work. Usually, the human resources in the various administrative and technical competencies of managers, supervisors, salespersons, observers, skilled workers, half skilled and others.
- Finance resource: And includes the funds necessary to provide the needs, requirements of production, payment of wages, salaries, spending on activities, supporting work and in exchange for the required liquidity... Etc.
- Raw (primary) resources: These are raw materials and other raw materials used directly in production processes.
- Capital resources: It includes equipment, machinery, parts, fixtures, other assets and fixed capital used in the production of the goods or services required.
- Data resources: It includes a variety of data from the market, the surrounding environment and its different variables. Data are an important resource for an organization because of its market realities and variables, customers and their characteristics, the type and magnitude of the expected demand for the

organization's products, competition, characteristics, political, economic, social and technological variables.

2.1.1 Managerial functions

The managerial functions refers to the integrated process, which includes the main functions of the department, which are practiced in all organizations of the nature of their activities or sizes, or at all levels of management in a single organization. Since researchers and writers have contributed to the formation and development of management theory as a science with multiple definitions and vary around the managerial functions and its main components.

“Henri Fayol, a French businessman, first proposed in the early part of the twentieth century that all managers perform five functions: planning, organizing, commanding, coordinating, and controlling.¹⁴ Today, these functions have been condensed to four: planning, organizing, leading, and controlling” (Robbins & Coulter, 2012:9).

2.1.1.1 Planning

Planning is one of the most important managerial functions because Organization, Influencing, Controlling cannot be processed without planning. Planning can be described as the process of defining the future objectives of the Organization as well as identifying the strategies, policies, plans and programs necessary to achieve these objectives. Through planning, managers in the organization can decide: What is it to be done? His job will be What? When is it to be done? How long will it be? How will, who will do it? Planning is the future vision to determine the direction to be followed by the organization and its subordinate administrative units. It involves a formal and directed approach to help managers manage the right things while keeping goals clear in mind.

Planning represents the thinking stage that precedes implementation of any work that ends with the preparation of the plan. The plan ... is the physical appearance of the planning, which includes the objectives to be achieved, the work required to accomplish the objectives, the elements to be used to carry out the work (material / human / cost of doing the work, how to do the work). Therefore, the planning function includes:

- Setting goals (general / functional).

- Identify the actions required to achieve these objectives.
- Identification of input method (policies, procedures and methods of work) work programs and timetables.

2.1.1.2 Organizing

Of the necessary management functions related to the organization of human and material resources in order to implement the planned plans. These resources must be collected and allocated, and work in the organization must be distributed in such a way as to allow it to be implemented in a coherent and integrated manner.

This managerial function focuses on human resources, which must be grouped into departments and sections. Their competencies, responsibilities and powers are defined as well as their relationships through a defined organizational structure and levels, allowing for a consistent and non-contradictory flow of work. Organizing as a management function is important in terms of being the container through which the management exercises its functions and implementing the plan that has already been determined to achieve the desired goals. Management often fails in organizations because of poor organizing, widespread incompatibility, overlap in terms of competence and lack of clarity, lack of precise identification of authorities and individual responsibilities, lack of clarity of the role to be played by each individual, etc. In short, the function of organizing involves the following main tasks:

- Identify activities and actions necessary to achieve the objectives already specified.
- Division and assembly of activities and business in the form of organizational units.
- Building the organizational structure at its various levels.
- Identify the authorities and responsibilities of each unit in the organizational structure.
- Identify organizational relationships between units and organizational levels.

2.1.1.3 Leading

This management function is unique in distinguishing it from the previous functions, namely that it is related to the execution of the work or activity, where it is necessary for the management to exercise the functions of directing the human element in a direction that helps achieve the objectives. The leading function is very much about

how to deal with others in the organization so that they can achieve what they want and what the management wants at the same time. I.e. directing the behavior of others destination that helps to achieve the goals of the organization and their personal goals. The process of management guidance achieved through several methods, the most important of which are the following:

- Issuing the necessary instructions and directions for the employees.
- Leadership of subordinates through the initiative and the ability to choose good methods of effective leadership.
- Stimulate employees to suit their needs and raise their morale.
- Effective two-way communication with subordinates.
- Achieving job satisfaction for employees.
- Harmonize the objectives of the organization and the personal goals of the employees.

2.1.1.4 Controlling

Effective management is responsible for keeping things in the right direction. The management function of monitoring and evaluating performance in the organization called control, which is complex in practice. The manager must assess performance, identify problems that impede performance and predict Crises before they occur, analyze the causes of errors or deviations from the planned trend of performance, and take corrective decisions. The control function is the management activity that complements the planning activity, the manager plans what needs to be done to achieve specific objectives, and control to enable him to verify that what had been done has been done correctly and as planned. In its simplest form, the control function is concerned with verifying the extent to which the results achieved have met the objectives already established. Take appropriate and prompt action to correct any deviations that may occur. The concept of control function includes the following:

- Setting standards.
- Actual performance measurement.
- Performance evaluation.
- Analyze the causes of distractions and take appropriate corrective actions in a timely manner.

The relation between the four management functions should be aware of and to understand the connection and the dependability of each one on each other to reach optimum management aim, which is the organizational goals.

2.1.2 Management decision making

“Decision making is the essence of management. It is what managers do (or try to avoid), and all managers would like to make good decisions because they’re judged on the outcomes of those decisions” (Robbins & Coulter, 2012:178), the decision-making process involves the essence of the administrative process and all its functions include all the management levels are carried out by each manager and deal with each possible subject within the process for example, in planning, decisions determine what needs to be done and the means to be followed in order to achieve the objectives that have been set in advance and in the organization, decisions determine the type of work to be distributed to certain members of the group and to delegate the specific authority they can from doing the work. In guidance, the aim of decisions is to persuade members of the group to act to achieve the objectives and in the control process, the actual performance is compared to what is plan and decision-making through which these results are adopted in addition to the relevant decisions dealing with deviations.

“Decision making is a process of making a choice from a number of alternatives to achieve a desired result” (Eisenfuhr, 2011:3), The difference between the decision-making processes and taking is that the first is a set of systematic steps that aim to put the problem under study and the need to dive closely to be reached at the end to a strict decision with all caution and warned by avoiding negative things. The decision-making process is a reaction to the owner of all the surrounding effects and can be done suddenly, but the quality of a successful manager is the constant readiness for this sudden timing.

Decision-Making is define as an administrative process designed to create radical solutions to a particular problem that hinders the operation and slow down of an enterprise's operations. This requires a deep search for the best solution among a range of solutions that exist by trade-offs between them. Management at this stage is at its most careful and caution stages. The decision can be define as the answer, decision, final opinion and specific will of the decision-maker. The decision-maker must know what to do and what to avoid in order arriving at a sound, specific and

final outcome. Many approaches to clarify the steps of decision-making was adopted, as in (Lunenburg, 2010:3) model, which shows the processes of rational decision-making process, see Figure 2.1.

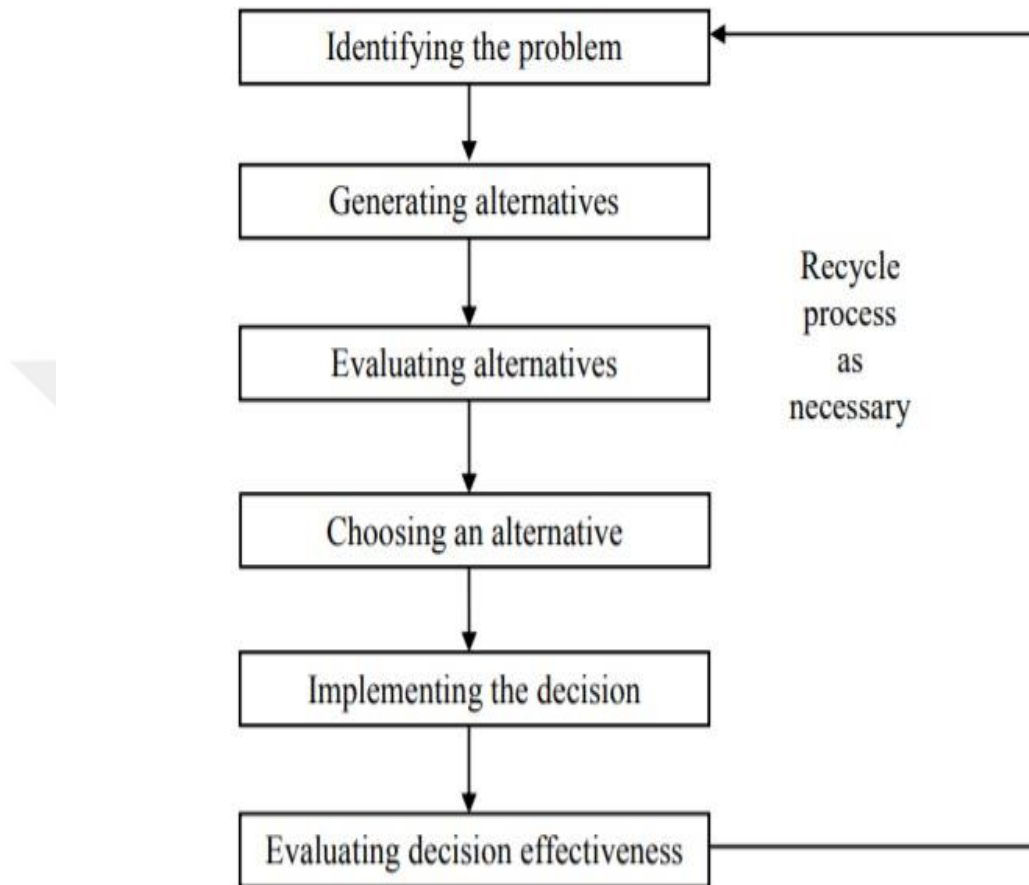


Figure 2.1: Model of the decision-making process

Source: Lunenburg, 2010:3

Decision making process can be broken down into six steps (Schoenfeld, 2015:233):

- Identify the problem, to make the decision we have to understand the problem or the case and situation, so the first step of making the decision is to define it will.
- To develop a set of alternatives that can be applied when needed, taking into account all the consequences of each of them, this step is clear and is the establishment of a number of suitable alternatives for the treatment of a particular problem, taking into account the dimensions of the situation it

should be noted that this problem could be more complex than solving the available alternatives.

- Determining the pros and cons of each of the available alternatives, and the consequences of the results to facilitate the decision-making process among them, often prefer to have an effective discussion through a group of persons aware and understanding of the nature of the current situation to be followed by a common opinion among all participants.
- Making the most appropriate decision by choosing between alternatives to achieve better results is the last step in achieving the objectives and goals of the organization.
- Make a clear plan for the implementation of the decision and then just do it, in the presence of influential people or affected must be agreed between you to take it or at least inform them of the decision before taking it.
- Review and take feedback, this will help to gather more experience of the accuracy of the decisions.

Administrative decisions cannot be equal in nature or circumstances to any decision its circumstances and its special nature. Accordingly, decisions made by managers vary depending on the importance the diversity of the problems it addresses, the different circumstances and the time period in which it is taken the decisions made in organizations differ from one administrative level to another and from the general directorate to the department because of the different functional functions and degree of specialization in activities organization, the decisions made in any organization are many and varied, due to the diversity and variety issues you are experiencing, also know that the method used to make a decision depends on the nature and type of problem.

2.2 Media Organization

One definition of Mass media is “Usually understood as newspapers, magazines, cinema, television, radio and advertising; 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, however, is the erroneous view that large agglomerations of people are one-dimensional or homogeneous." (Danesi, 2009:188). Also, Danesi 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.

As defined, the first feature of the mass media is that it requires a complex formal organization, in other words means Media organization, the phrase "Media organization" will be used in this thesis to express the mass media entities and will conduct the research on them, the study will focus on two kinds of media organization; TV channels and the news platforms (online newspaper).

Since the print revolution in the fifteenth century 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. first it was paper-based, after that via radio waves, the TV station also made a big step in that revolutions by broadcasting via satellite signals or cables, in 21 centuries the internet become one of the main medium to deliver the materials like audio, video, even online newspaper.

The technological revolutions made the mass media revolution as well, a brief explanation of how technology development made a big effort to develop and was the main reason for the mass media to go to next step:

- Newspaper mass media: In 1439 "The German blacksmith and printer Johannes Gutenberg, often cited as the inventor of the printing press" (Marshall T. Poe, 2011:116). Until the fifteenth century every book was written manually, so if want to make two copies of a book you would see two different versions of it. Later

on 1660, “The first daily newspaper was published in Leipzig, Germany” (Marshall T. Poe, 2011:112), announcing the first mass medium to collect and disseminate such information.

- Radio mass media: “The origins of sound-based mass media, radio in particular, can be traced primarily to the invention and spread of the telegraph” (Richard, 2007:113), the telegraph is a main factor in inventing the radio “Radio owes its development to two other inventions: the telegraph and the telephone. All three technologies are closely related, and radio technology actually began as “wireless telegraphy.” (Mary, 2018) in 1840s Samuel Morse invented the telegraph, which was the starting point of developing radio broadcasting, until this day the radio still developing, today some cars company starts to integrate the online radio option in their new model. Mainly the car driver still likes to turn on the radio and listen to various types of music or even programs broadcasted on the radio stations.

- Television mass media: in 1884 “Paul Nipkow invents a scanning disk that separates a picture into small pinpoints of light that can be transmitted line by line and decoded to recreate a rough (low-resolution by the standards of early television) image.” (Marshall, T. Poe, 2011:158) it was the birth of the television, which is one of the main mass media effective influencer till today

- Internet and digital media: as a mass media, “digital media read, write, and store data (text, images, sound, and video) using numerical code, which revolutionized media more quickly than ever before” (Biagi, 2007:173), from a project of the American ministry of Defense, to one of the most revolutionary phase in mass media. Today a person could be a mass media if he uses the internet via a website or social media websites.

Mass media is any kind of broadcasting, through any medium that can be delivered to a big audience, but media organization is the mass media entity which has regulations, rules, managing hierarchy that arrange the entity filed of work within standard process and professional workflow, like Radio stations, Newspapers and TV channels, the study will discuss and explain the two kinds of media organizations the first one is the TV channels and the other one is the newspaper-online type, rephrased as a news platforms in this research.

2.2.1 TV channels

Television is one of the most important kinds of mass media especially in the last decades of the previous century, it combined the advantages of audio and video with the ability to introduce this advantages to a big number of audience, after the second world war a lot of industrial companies started to develop their brands of TV receiver, specially that the TV was spreading all over the world and the manufacturing techniques developed year after year, first period of inventing the TV receivers it shows only black and white video on the screen, in the 1970s another important development was added to the TV, the colorful video which started to be the default manufactured TV receivers later.

Many TV stations first appeared in united states of America, then it begins to spread in Europe, later on, many countries started to establish their own local area TV station and their broadcast were locally too, some kinds of subscriptions as cable TV started to spread out especially in united states and it was the model of broadcasting through cables, in the MENA region the TV stations started as a governmental established broadcasting local news, TV shows, Drama the main, and it was free of charge, no subscription for receiving the signals, in the 1990s also two main developments were taking a big effect on the TV as a mass media the first one is the satellite broadcasting started to been used and a lot of satellite TV stations were established and the idea spread one by one, today there is 3 main satellite in the MENA region with hundreds of TV satellite TV stations, with variety of choices, movies, music, drama series, news and so on. This variety allowed TV channels to attract a big percentage of the audience who's looking for their needs, entertainment, education, news feeding ...etc.

The second is the development of digital broadcasting and receiving, with high definition videos techniques also the TV had to take the broadcasting to that level, Satisfying the viewer's desire to see a clearer picture and the most beautiful and closer to reality pictures made this development very important for the TV stations to adopt, due to that TV stations and broadcasting could reach all the world by satellites and the fact that it could be live events or recorded one, a lot of viewers were using and watching TV all over the world, locally and globally level, the numbers of TV householders started to increase and the TV became a must in almost every home in the world, this makes the TV as one of the most effective ways of commercial

advertising and also a big influencer on the political level, politician side to side by governments noticed the big effects of TV in homes and started to broadcast there political believes and view on it, and some TV stations were just appeared to broadcast a specific kind of political opinion specially the news stations, not to forget the other categories of TV stations started to be specialized and specific make it more likely for the audience to choose from what he wants to and he likes to see, main category like news, sports, entertainments, childrin, fashion, cooking and more.

All of previous factors made the TV as a mass media spread very widely, and these points could shorten those factors:

- Speed in the transmission of news and events.
- Free service.
- Changing patterns of entertainment and group entertainment.
- Spread capacity.
- Ability to update and follow up.
- Multiple TV feed sources.
- The addictive effect of television.
- Variety of entertainment material offered.

Last decade the new era of TV broadcasting which called “online TV” has been started, the transmission over internet is a very important factor of the future of the TV stations and its influence as a mass media. now almost of TV stations have different types of broadcasting mediums beside the satellite, over internet mediums are mainly changing the way audience see their favorite category of TV shows or events, the content made by TV stations are still the major factor that attract the audience, but the way audience consume this content is changing.

Now you can see your favorite show over TV channels via satellite or via streaming of those channels or even via subscriptions to some online on demand service provider such as Netflix, even from Facebook live, the “Smart TV” as a technology is now used for online as for receiving from satellite due the fact that you can connect to the internet by this kind of TV’s, brands are developing their thinking and their devices in this era TV’s, this also helped the TV satellite channels remain in the home, while you are watching your favorite TV show on the satellite channel you may also change to the online channels you have on your smart TV and go on

searching what you want to see, “Statistic describes the number of TV households in the Middle East and North Africa in 2017, by country.” (Statistacom, 2018), Figure 2.2 shows that statistics in graphical way

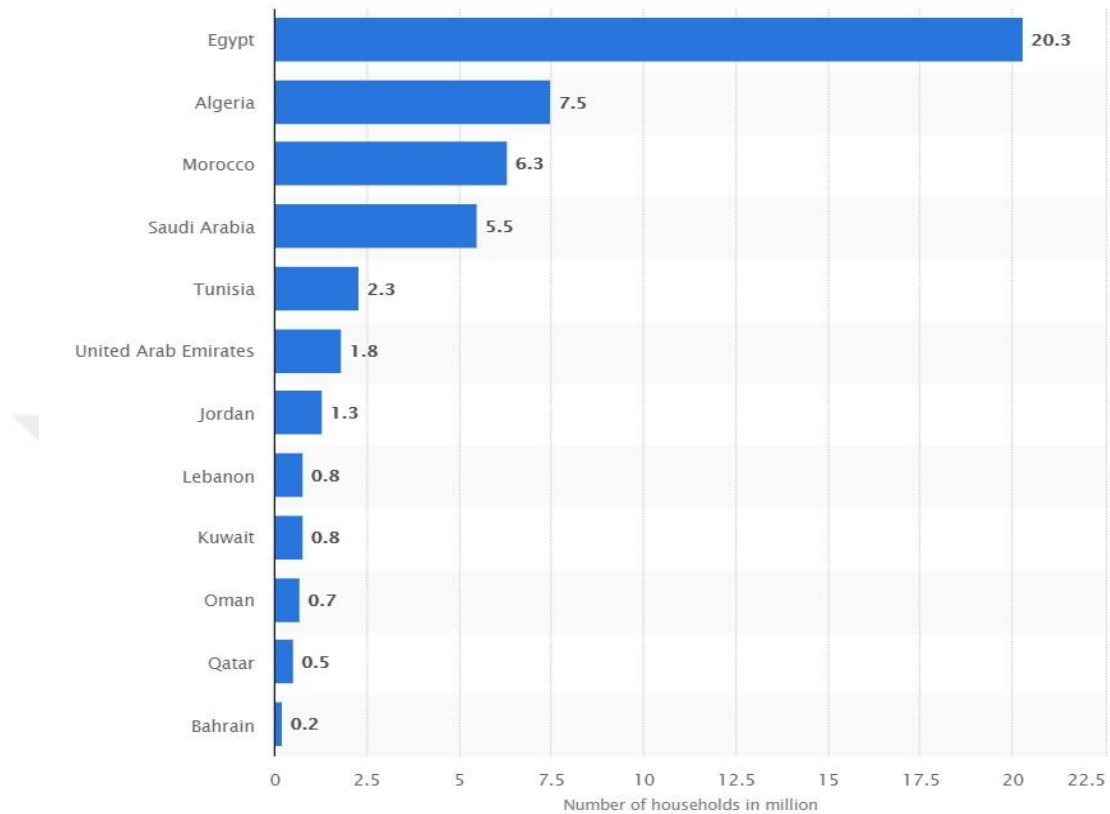


Figure 2.2: Number of TV households in the Middle East and North Africa in 2017,

Source: (in million) (Statistacom, 2018) <https://www.statista.com/statistics/806869/mena-tv-households-by-country/>

As observed in this figure the number of TV householders in MENA region, the TV culture are widespread, for example the number of TV householder in Egypt it is 20 million taking into consideration the population of Egypt which is about 100,000,000 person (Worldometersinfo, 2018), a major factor of TV culture in the Arabic world is the kind of satellite broadcasting used there which is still free of charge, just need to buy a receiver once and you can access more than 750 (Nilesatcomeg, 2018) different types and category of TV channels .

Also in the other countries in the world the situation does not seems different, for instance in United States of America “The number of TV households in the United

States in the TV season 2017-2018 was estimated at 119.6 million” (Statistacom, 2018) as shown in Figure 2.3.

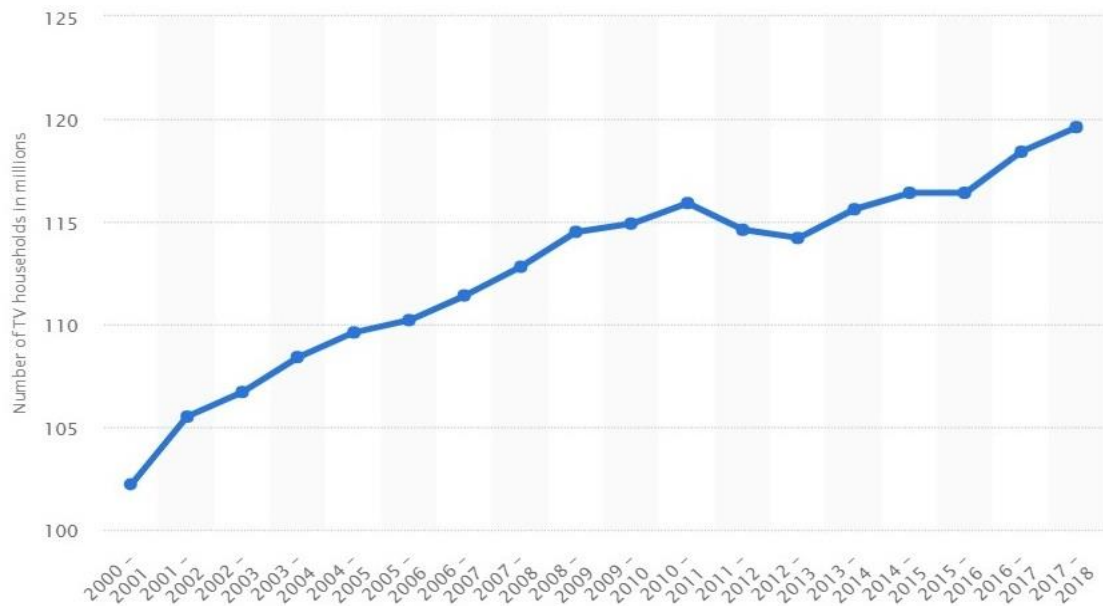


Figure 2.3: TV households in USA from 2000 to 2018

Source: (Statistacom, 2018) <https://www.statista.com/statistics/243789/number-of-tv-households-in-the-us/>

Advertising is one of the main financial resource for TV channels, especially the non-political channels, it was always an important factor of determining the ability of TV channels to compete with other mass media kinds, a new report by “IPG Mediabrands” worldwide marketing agency, in 2017 shows that the digital advertising spending raise over the TV ad spending to be more specific “TV brought in \$178 billion, 35 percent of the ads market” (Recodenet, 2017) as shown in Figure 2.4.

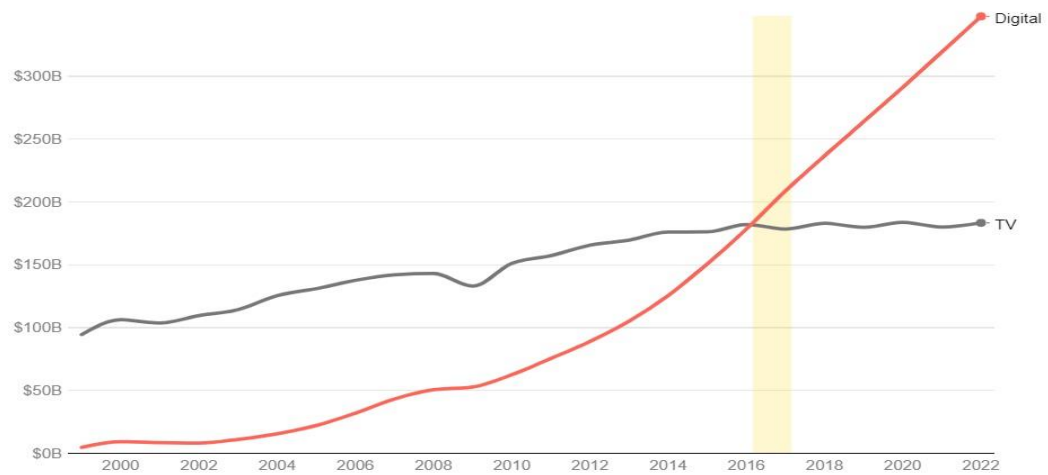


Figure 2.4: Global digital ad and TV spending (2000-2017)

Source: (Recodenet, 2017), <https://www.recode.net/2017/12/4/16733460/2017-digital-ad-spend-advertising-beat-tv>

The TV still have the lion's share of the media spending time over the global audience with total 172.7 minutes average every day (Recodenet, 2018), as shown in Figure 2.5.

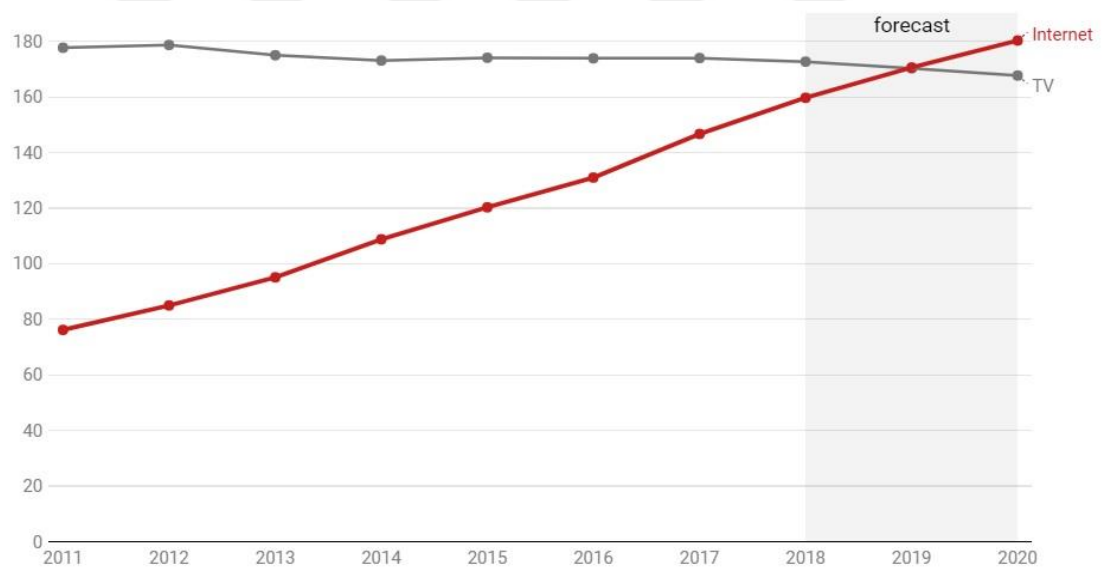


Figure 2.5: Minutes spent per day with media worldwide

Source: (Recodenet, 2018) <https://www.recode.net/2018/6/8/17441288/internet-time-spent-tv-zenith-data-media>

Another study by “Deloitte Analysis” assure that TV will still have the biggest portion of the global advertising media spent till 2020 (Deloittecom, 2018:7) and still

the first ads companies preferred media platform to put in ads is the TV until 2020 as shown in Figure 2.6.

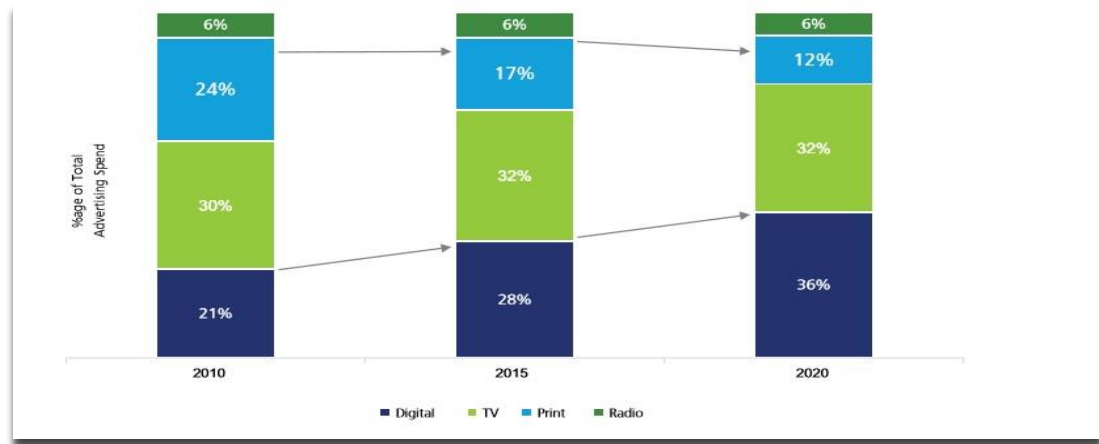


Figure 2.6: Change in global advertising media spend

Source: (Deloittecom, 2018:7), <https://www2.deloitte.com/content/dam/Deloitte/in/Documents/technology-media-telecommunications/in-tmt-rise-of-on-demand-content.pdf>

“The fundamental thing to realize about the Middle East market is that there is a predilection towards free content” (Arabianbusinesscom, 2018) in other words the TV channels as a mass media still a major player in the MENA region due to the mentality of the Arabic people which still prefer not to pay for on demand video or payed services like Netflix or any other kind of payed services to watch videos, “PwC Middle East Entertainment & Media Leader Philip Shepherd says: “Digital success is not about technology. It’s about applying a ‘digital mindset’ to build the right behaviors to be closer to the customer.” (Arabianbusinesscom, 2018).

2.2.2 Press platforms

Since the entrance of journalism as a media mass in the late sixteenth century in Europe, there have been many developments in the field of technology that benefited the press from the evolution of its status, the real jump was with the development of the computer, the Internet and the electronic press that almost invaded every home in the world, the study will spot on some main stages in the development of using technology in journalism until the new shape of newspapers the online shape which is called the “Press platform”:

- The use of electronic collection systems in the 1960s (first appearing of computers) represented the beginning of the shift towards the use of digital systems.
- Using the TV screen to read news texts in the seventies (the teletext and video text).
- Use of computers in collecting news in what was known as “The audit press” after the mid-eighties.
- The entry of computers to the newsrooms the beginning of the nineties. Started to use in writing, editing, classification and electronic collection and increased reliance on technology tools and communication systems.
- Expanding the use of full digitization at all stages, from camera to scan to production to image processing, and increased use of computer hardware and software to help journalists collect and analyze information
- The era of the use of the Internet and multimedia for publication and presentation in the form of news platforms beginning in parallel with the printed newspapers as its platform’s is the electronic version of them, to the second phase which we are living its days by creating platforms without printed copies of them (Press platforms).

“What started out in the 1980s as simple, text-only experiments for newspapers developed into more robust websites in the 1990s, allowing newspapers to develop an online presence, today online journalism is completely changing the industry” (Richard, Christopher & Bettina, 2014:290), Electronic journalism, online journalism, web journalism, Digital journalism, smart journalism all names for the same development of the printed newspaper as a mass media to the new shape of newspapers on the internet “press platforms” The basic determinants of the concept of press platforms is that it’s periodic electronic publication containing current events, it is read through a computer or mobile screen and is often available over the Internet, and it is issued electronically in terms of editing, correcting, designing, processing drawings and images.

Sometimes the press platforms could be related to a paper printed version of it and sometimes not in this study a focus on the second type, “Journalists are struggling to balance the use of online audience metrics with traditional norms” (Anderson,

2011:555) although it's a new format of journalism but it still had the same Criteria of the traditional newspapers:

- Professional standards: Like using journalistic templates, such as news, inquiry and dialogue, Production of field topics such as conference coverage and seminars, Professionalism in the sense that journalists are professional, not amateur, with the requisite dedication, professional competence, cumulative experience and institutional.
- Criteria for the institution or location: Like archiving system, having a separate server...etc.
- Criteria for visitor rate: It can identify the number of visitors to the site, the number of sessions on the site, the rate of visits to the time and the countries from which the visits were made.
- Financial criteria: Having a clear and specific funding system for the organization or site and can be reviewed by the competent authorities.
- Control criteria: It concerns the legal status of the institution, which ensures the fulfillment of the financial and legal rights of its employees.

Despite the short life of online newspapers compared to paper, but it was able to have a personality and style, that personality has a number of features that can be summarized in the following:

- Real time and instant news publishing: The immediate transfer of news and follow-up developments enabled e-newspapers to compete with radio and television, and even preceded the satellite channels that broadcast the news on fixed dates, while some news is published in press platforms less than 30 seconds after the event.
- Worldwide (Universal): The publication of newspapers via the Internet gives them a global flavor. Because of the nature of the medium itself, the Internet is a continent without censorship, barriers, fees, low cost and instantaneous form.
- Interactive with the readers: The newspaper can play the role of instantaneous or instantaneous communication between its audience, through discussion panels, chat rooms, dialogue forums, mailing lists, and others.

- Multimedia: Text, audio and image can be used to serve content and display it better and more attractively.
- Less cost: They do not need to provide buildings, presses, paper and printing supplies, not to mention distribution, marketing requirements, a large number of staff, editors and workers.
- Electronic archive: The press platforms provide an electronic archive that can be easily retrieved from the user and in a timely manner.
- Promoting democracy and freedom of expression: Press platforms has played a major role in promoting freedom of opinion, through instant communication between the reader and the newspaper, accepting criticism, expressing opinion through instant comments and giving space to young people to express their aspirations and aspirations through their pens. Create new blogs, forums and services related to the second generation of Web 2.0 and new e-reading habits have undoubtedly contributed to the creation, activation, creation of cultural communities and calling, especially among young people.

“Digital advertising accounted for %31 of newspaper advertising revenue in 2017, based on this same analysis of publicly traded newspaper companies, The portion stood at %29 in 2016 and %17 in 2011” (Journalismorg, 2018), An important indicator describing the rise shares of press platforms audience is the advertising on that platforms, usually advertisers make their research to see the reliability of putting and investing in ads on any platform like TV, Radio, Newspapers and so on, for instance in USA as shown in next figure the percentage of newspaper advertising revenue coming from digital advertising is growing up.

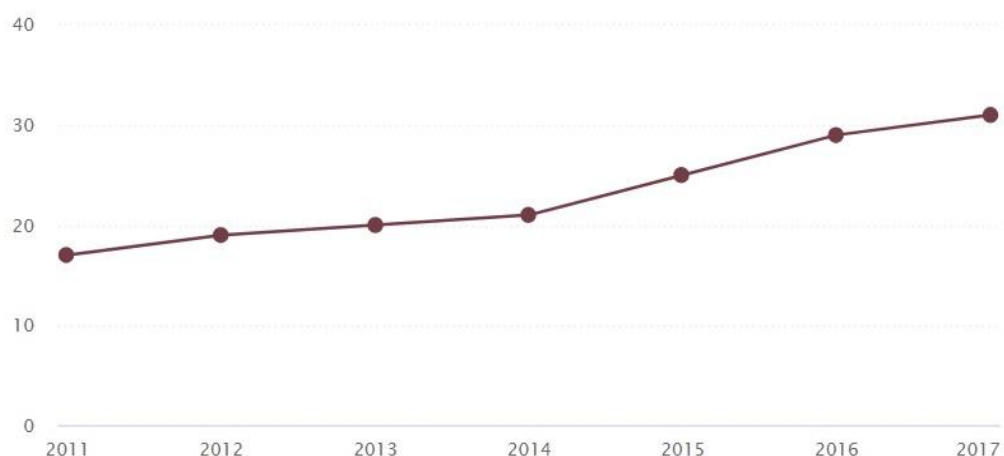


Figure 2.7: Percentage of USA newspaper advertising revenue coming from digital advertising

Source: (Journalismorg, 2018), <https://pewrsr.ch/2qELXC1>

In MENA region and especially in Arabic world the situation is not different, a lot of printed newspaper tried to follow up the last development of the press and journalism, in general there is still some big and old newspapers are printinting even daily especially the governmental one's, but the era of Press platforms is raising "Internet expansion is significantly affecting legacy media use... Newspapers have been hardest hit. Just %24 of nationals in 2017 said they read newspapers in a typical week, down from %42 in 2013." (Northwesternedu, 2018).

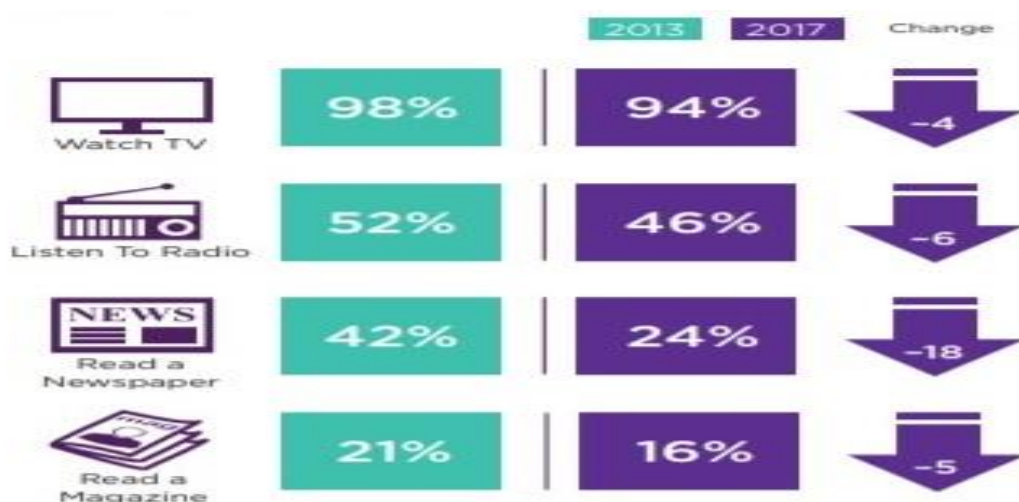


Figure 2.8: decrease percentage of Arabic printed newspaper readers from 2013 to 2017

Source: (Northwesternedu, 2018). <https://www.qatar.northwestern.edu/docs/publications/research-media-use/2018-middle-east-media-retrospection.pdf>

In the other hand the percentage of the Arabic readers for online news are raising up “Online consumption of information in the Arab region is higher in 2017 and is growing continuously. More than three-quarters of the respondents receive news on their smartphones” (Northwesternedu, 2018), a lot of Arabic newspaper even stopped the printed version of their newspaper, a few months ago Al-Hayat Arabic- Lebanese newspaper closed its Lebanon office in Beirut “The newspaper closed its bureau in the Lebanese capital seven decades after it was founded there, with a source at the paper citing “financial reasons” (Arabianbusinesscom, 2018) and before that it stopped the printed version of newspaper “In January, the newspaper closed its head office in London ahead of moving to the Gulf emirate” (Northwesternedu, 2018), two years ago another important Lebanese newspaper al Safir also had the same destiny. “In late 2016, Lebanese newspaper As-Safir shuttered 42 years after it published its first edition, with the founder saying they had run out of funds.” (Arabianbusinesscom, 2018), in another Arabic country (UAE) also with the same destiny the printed version of it also stopped but the online version of it still published “Xpress, which was launched in 2007, will continue to exist online” (Arabianbusinesscom, 2018).

2.3 Big Data

Gil press argue that the term Big Data first mentioned was in the 40s of last century “The story of how data became big starts many years before the current buzz around Big Data. Already seventy years ago we encounter the first attempts to quantify the growth rate in the *volume of data* or what has popularly been known as the “information explosion” (a term first used in 1941, according to the *Oxford English Dictionary*).” (Gil, P., 2018:1), according to Gil, first time to hear the term “Big Data” clearly were in April 1998 by John R. Masey, Chief Scientist at SGI, presents at a USENIX meeting a paper titled “Big Data... and the Next Wave of Infrastrass”.

“Big Data” is a new trending term in the technology fields (Laney, 2001:3), laney one of the first experts in data management to mention explosion of data and put the three dimension of V (3V’s) as a challenge of dealing with data, the 3V’s is simply the Volume, Variety and Velocity which became later on of the common framework to describe Big Data, Now the Big Data is a trend appearing in almost every technological meeting related to data.

2.3.1 Definitions and features of 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), another definition “refer to Big Data as large and complex data sets and techniques which require advanced and unique data storage, management, analysis, and visualization technologies” (Chen, 2012:1166), 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), Goes define Big Data as the “creation of massive amounts of data through an extensive array of several new data generating sources” (Goes, 2014:3) a lot of different definitions where founded for Big Data but in general it’s all about data that cannot be analyzed with existing 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), volume is the first factor of defining the Big Data, when Big Data term heard, the first thing to imagine is the volume or the size of that data, according to (Reinsel, et al., 2017:7). Data production is expected to double to 160 ZB by 2025, which means that the data volume doubles 16 times from about 10 ZB in 2015 to 160 ZB in 2025.

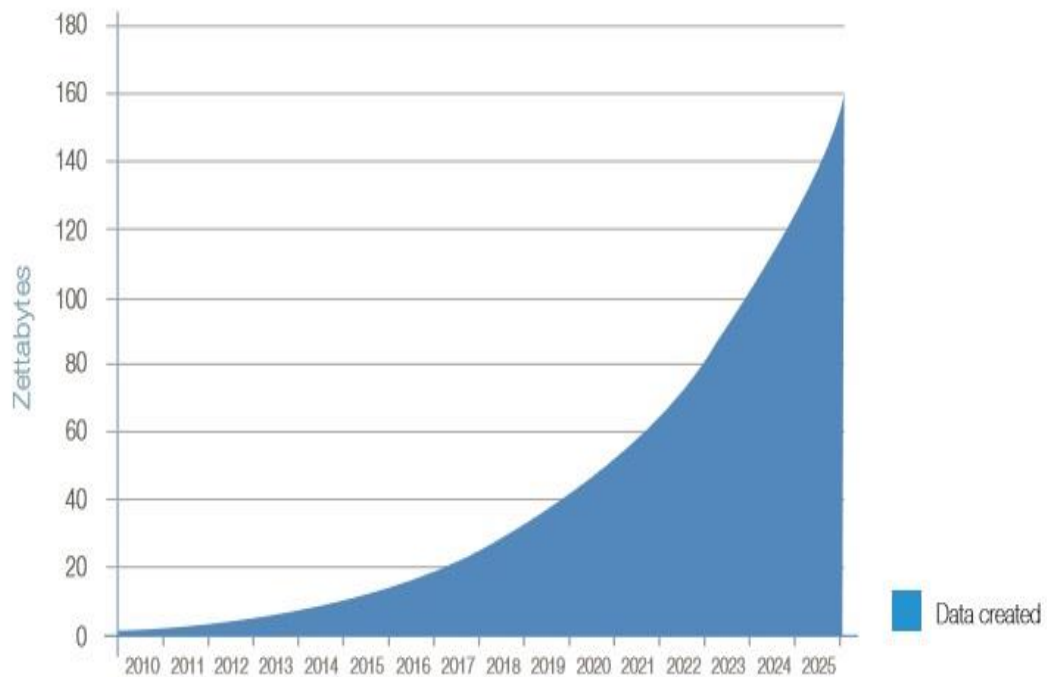


Figure 2.9: Data production 2010-2025 in ZB

Source: Reinsel, et al., 2017:7

From the basic 3V's definition of Big Data, velocity which means the speed that the data increase or the speed we get more data, the last V is the variety which indicate the different kinds of data like text or audio or even video sources of data. This data can be structured as well as unstructured, after adopting the 3V's of Big Data another researchers started to add more factors that affect the Big Data term some times 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.



Figure 2.10: The four V's of Big Data

Source: (IBM, 2018) <https://ibm.co/2xf9YEi>

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.

To understand the Big Data volume of the Big Data in the world, statistics done by Cisco (leading company in IT and networking company) showed that in 2017 global IP traffic is about 121,694 Exabyte's per month and in 2021 it's expected to reach 278,108 Exabyte per month (Ciscocom, 2018 :1), see Figure 2.11.

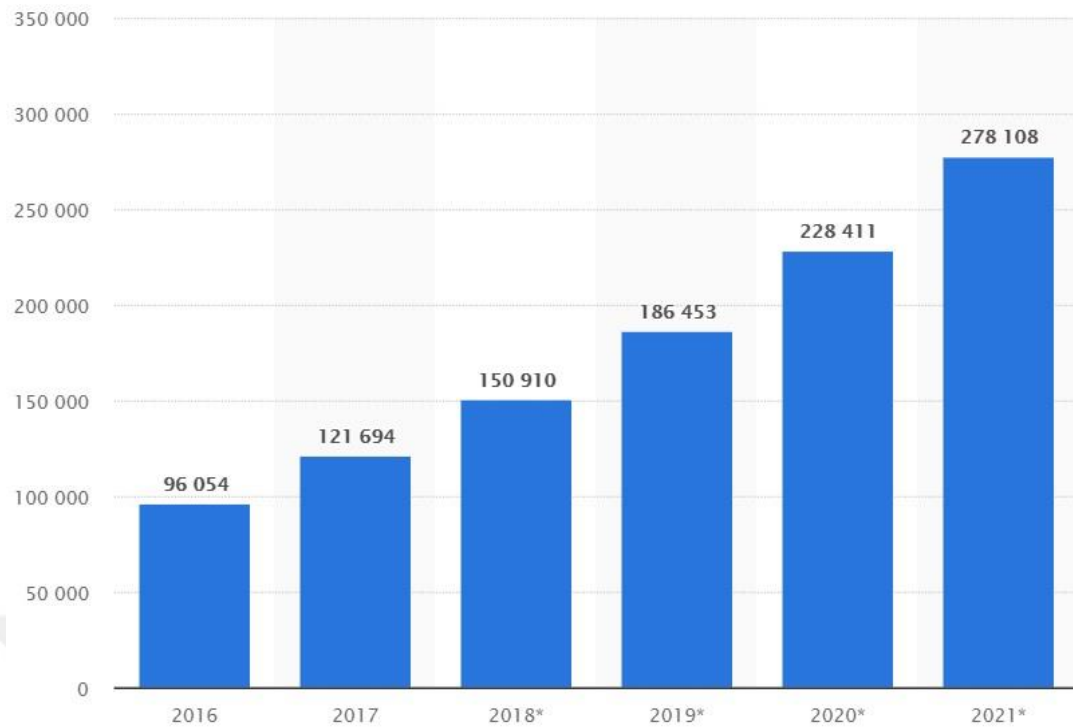


Figure 2.11: Global IP data traffic from 2016 to 2021

Source: (In petabytes per month) (Statistacom, 2018) <https://www.statista.com/statistics/499431/global-ip-data-traffic-forecast/>

To simplify the data measures here is some explanations of the data size measures with real life example:

Table 2.1: Data size

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

Source: (Berkeleyedu, 2013) <https://datascience.berkeley.edu/big-data-infographic/>

For organizations Big Data is vary and could be gathered from different internal and external sources structured and unstructured types, internal as from transactions, log data and emails for external as social media for example, a study conducted by IBM and University of Oxford shows for instance that social media source can give %43 of the external data source for the organizations

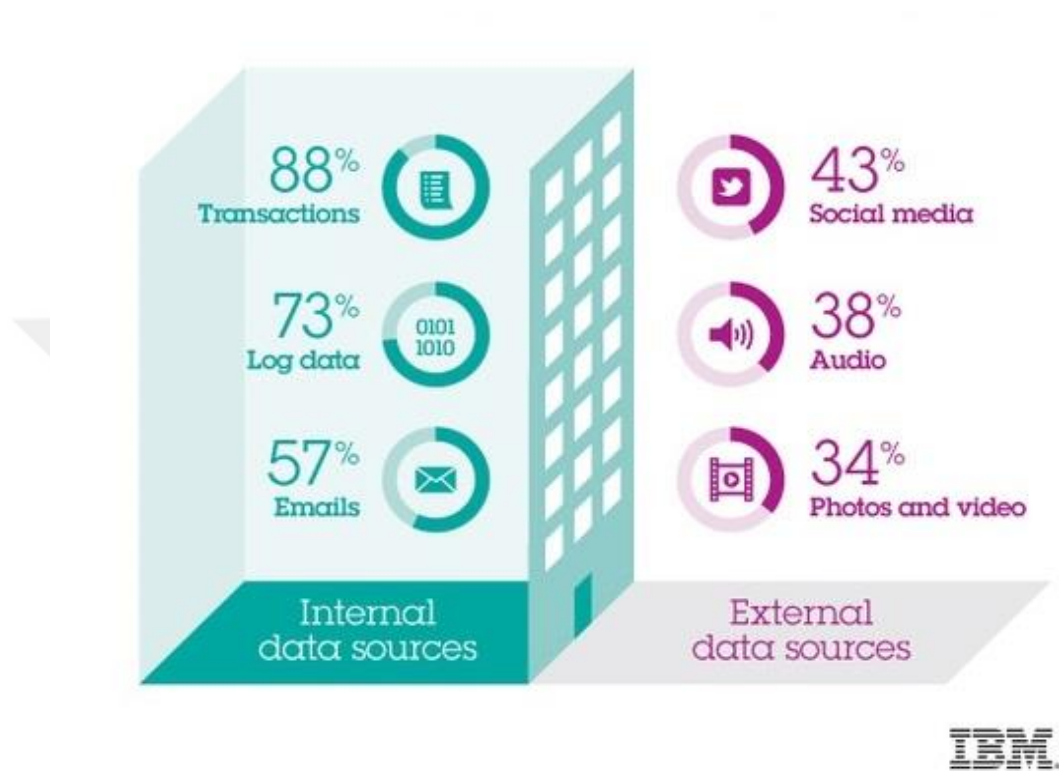


Figure 2.12: IBM and Oxford Survey: where does Big Data come from?

Source: (Ibmcom, 2018) <https://ibm.co/2OHYC7j>

Sarprasatham, classify the source of Big Data into three categories (Sarprasatham, 2016:2):

- **Data Streams:** Activity generated or process mediated data from Computers and mobiles such log files, sensor data, location-tracking, data generated by processors etc.
- **Social Networks:** Human sourced information- Eg. Data from sites such as Google+, Facebook, YouTube, Twitter, LinkedIn, blogs, WhatsApp, Instagram, Pinterest etc.
- **Public Domains:** Data that is publicly available on the Web. Eg. Government portals, Wikipedia, The World Bank, SEC/Edgar, Microsoft Azure Marketplace/ Data Market.

The speed of data flow constantly increases in the organizational process and so will increase the size of data gathered every day, “Globally, the average fixed broadband speed will grow 1.9-fold from 2016 to 2021, from 27.5 Mbps to 53.0 Mbps” (Ciscocom, 2018:5) which means nearly doubled from 2016 till 2021, so the same amount of data that could flow in two days in 2016 will be gathered in one day in 2021.

The worldwide population is approximately 7.6 billion humans being (Worldometers info, 2018) half of them are using internet, those billions produces a huge number of data, according to a new report of the amount of data by digital world in 2018 (Domocom, 2018) each day in 2018:

- Google conducts 5,583,081,600 searches
- Skype users make 253,756,800 calls
- Amazon ships 1,599,840 packages
- Netflix users streams 139,999,680 hours of videos
- More than 18,699,999,840 texts sent
- YouTube users watch 6,240,326,400 videos
- The weather channel receives 25,999,999,200 forecast requests
- Snapchat users share 2,999,999,520 snaps
- Twitter users send 681,696,000 tweets
- Venmo processes 98,629,920 \$ peer-to-peer transactions

The previous huge numbers and more shows the amount of data been produced every day and it's growing day by day due to the fact of the digital world and internet users increasing yearly, see Figure 2.11.

2.3.2 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?”

“Big Data refers to huge datasets that are beyond the ability of traditional database software tools to capture, store, manage and analyze, with extreme volume, velocity and variety” (Chan, 2013:2) 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 were 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.

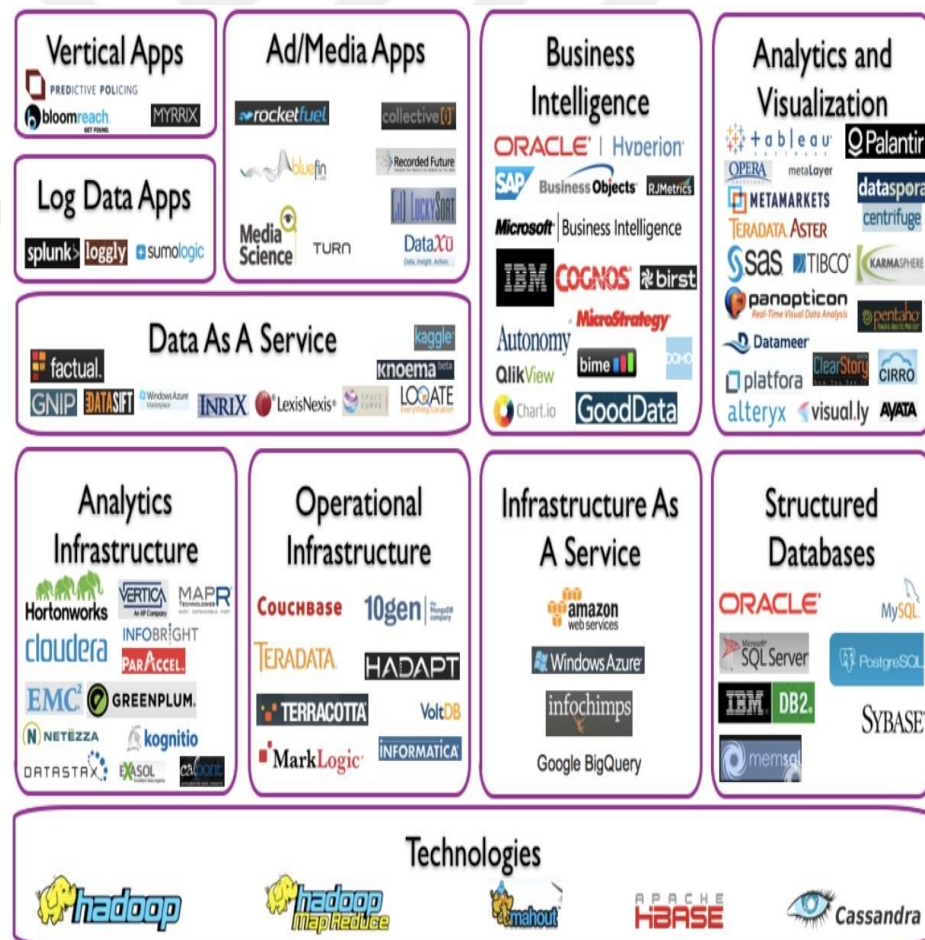


Figure 2.13: Big Data Companies, products, and technologies

Source: (Dave, F. 2018: 1), <https://www.forbes.com/sites/davefeinleib/2012/06/19/the-big-data-landscape/>

A new technologies developed to analyse Big Data like Hadoop, NoSQL, Google analytics “Engineers needed to revamp the tools they used for analyzing it all. That is the origin of new processing technologies like Google’s MapReduce and its open-source equivalent, Hadoop, which came out of Yahoo.” (Schönberger-Viktor, 2014:6). As noticed MapReduce technology was developed from Google and Hadoop came out from Yahoo this fact assure the fact that Big information technology organizations over the world are developing and working on the term Big Data. In addition, social media platforms have its own tools sometimes within the platforms like Facebook insights, Youtube Analytics, Twitter Analytics ...etc.; some of the tools and databases used with Big Data analytics:

- Hadoop: “The Apache Hadoop software library is a framework that allows for the distributed processing of large data sets across clusters of computers using simple programming models.” (Apacheorg, 2018), the main idea of Hadoop is to separate the storing and computation process on many servers or computers, built using Java, now it’s one of the main technologies used with Big Data.

- MapReduce: “A programming model for processing massive data on distributed systems such as a Hadoop cluster. MapReduce has been evolving to improve its performance” (Martha, et al., 2013:637), as defined previously its aprogramming model used with Hadoop usually it’s main feature is working and computing process in parallel with all servers or machines, “The term "MapReduce" actually refers to two separate and distinct tasks that Hadoop programs perform. The first is the map job, which takes a set of data and converts it into another set of data, where individual elements are broken down into tuples” (Ibmcom, 2018), Google has originally developed it.

- Google Analytics: “Is a free web analytics tool offered by Google to help you analyze your website traffic “(Mediumcom, 2017), Google is one of the leaders company to invest in the Big Data era, this analytical tools is widely used in the world specially by the websites owners who want to work on SEO ranking for their websites, as a leader in web browsers Google give this tool for free also to stay attached, using Google analytics allow even to track social media campaigns and in ROI for that campaigns.

- IBM Watson Analytics: IBM from the first technological organizations to adopt the term Big Data and it developed a lot of products and services to serve Big

Data technologies, “Watson Analytics is a cloud application that does all of the heavy lifting related to Big Data processing by retrieving the data, analyzing it, cleaning it, building sophisticated visualizations and offering an environment for communicating and collaborating around the data” (Techcrunchcom, 2018), many social media platforms includes analytics tools used to observe and review the insights about the accounts on that platforms, especially for business it produce a significant view of the products in general.

- Facebook insights: introduce analytics and insights about the pages in Facebook for admins of the pages see Figure 12, it shows a lot of detailed information through graphical figures and dashboards, for example Facebook pages for business provide the managers and social media accounts admin with information needed to help them by marketing campaigns.” Product and behavioral analytics tools can be an incredibly powerful way to measure your business’s performance, and understand how people are interacting with your website, app, Facebook Page, and other channels” (Facebookcom, 2018), Facebook even are trying to connect business websites and applications with the Facebook pages to produce more insights about all the business platforms, for instance a tool from Facebook called “Pixel” helps the business pages admin to track the conversions from the Facebook pages to the websites, which allow business to evaluate the advertisement campaigns done on Facebook.



Figure 2.14: Facebook page insights

Source: (Facebookcom, 2018) <https://www.facebook.com/login.php?next=https%3A%2F%2Fwww.facebook.com%2Fbesonateknahya%2Finsights%2F%3Fsection%3DnavPeople>

- Twitter analytics: “Twitter analytics provides a wealth of information that can help you create meaningful Tweets that will resonate with your target audience” (Allie, 2018:1), twitter analytics can give the business account admin a lot of information about the followers of the account like from where, what tweets they like and more of the insights that helps understand more about the followers.

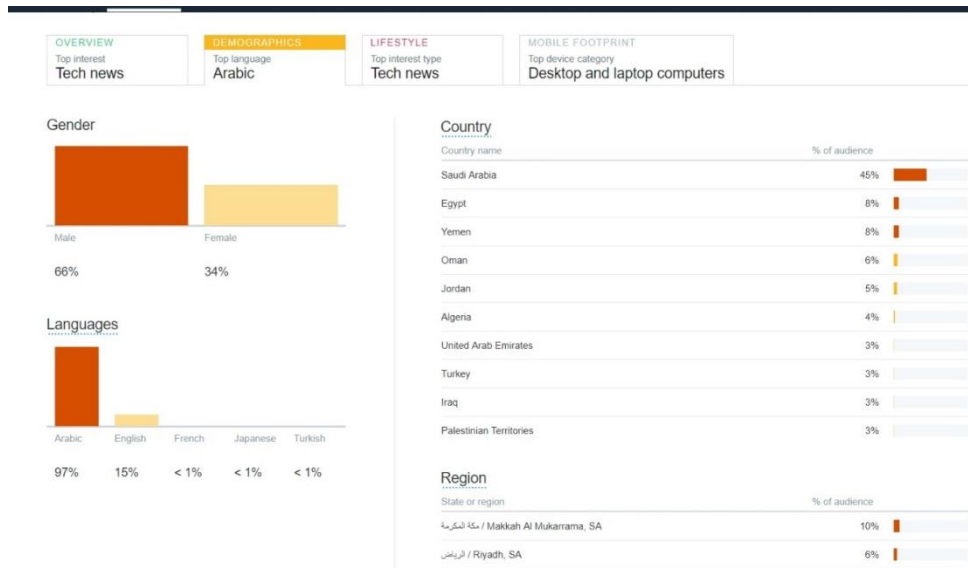


Figure 2.15: Twitter analytic

Source: (Twittercom, 2018) <https://bit.ly/2AwMkpL>

- YouTube analytics: “The YouTube Reporting and YouTube Analytics APIs let you retrieve YouTube Analytics data to automate complex reporting tasks, build custom dashboards, and much more.” (Googlecom, 2018).

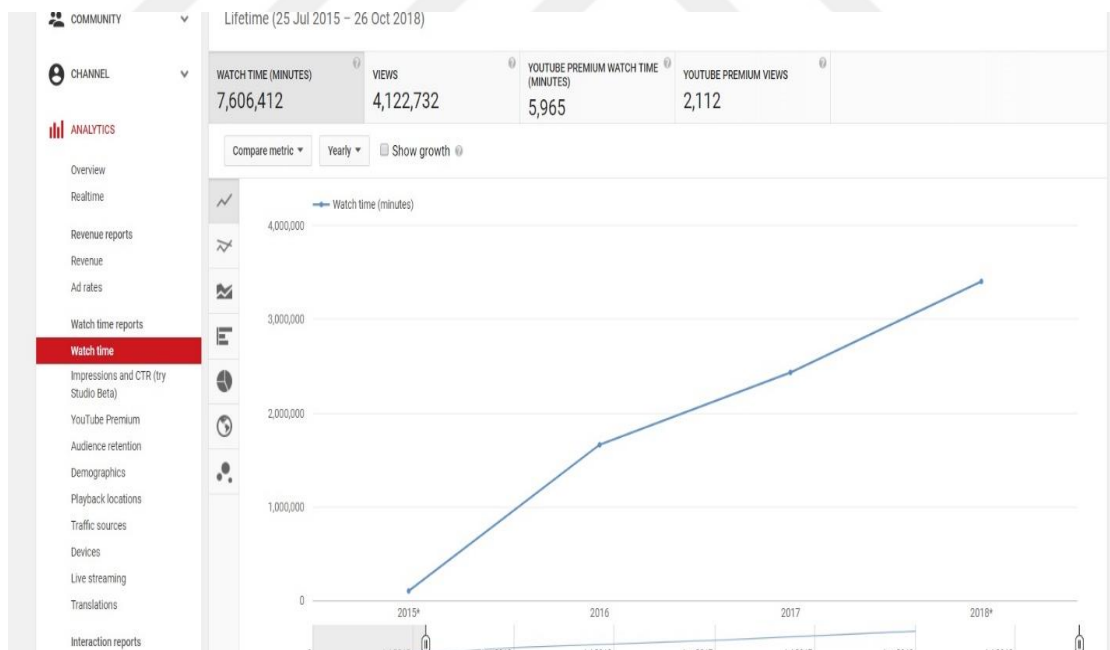


Figure 2.16: YouTube analytics

Source: (Youtubecom, 2018), <https://www.youtube.com/analytics?o=U>

The video business publishers get a lot of information from the reports and analytics given by YouTube analytics (Analytics and Reporting APIs), one of the early platforms to monetize the content and share with publishers, more insights from social media platforms are available like Instagram, LinkedIn, Google alerts ... etc.

After the availability of giant devices capable of storing data and processing in a short time on the one hand, and the collection of huge data from more than one source and in large quantities on the other, it was possible using some algorithms to analyze that data is huge. Data investment and analysis is used in many sectors and is used by government and private entities at the institutional and individual levels. There are many stories that show successful data analysis investments in increasing revenue, reducing costs, and creating new products that could not be accessed and produced without the availability of these huge data and giant devices.

2.3.3 Big Data from social media platforms

Did you ever notice the memos from Facebook about your anniversary of joining Facebook? Or at the day you accepted the friendship of one of your friends? If so, then you saw a practical example of how Facebook using Big Data.

At the beginning of the second millennium web.2 phrase appear (Wedomarketingcom, 2011), this new type of websites allows developers to start social media websites, having the new technology to develop an interactive network allow users to share and interact with each other's.

Social network sites definition “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” (Boyd & Ellison, 2008:210) .

“The most use of Big Data is for the social media and customer sentiments” (Katal, 2013:405) social media today produce a huge amount of data structured and unstructured, increasing the internet broadband and the rapidly growing of mobile usage makes the social media more rapidly spread “Ninety percent of the data in the world today was produced over the last 2 years. The source and nature of this data is diverse. It ranges from data gathered by sensors to data depicting (online) transactions. An ever-increasing part is produced in social media and via mobile

devices” (Cavanillas, et al., 2016:41), big percentage of Big Data produced in the world came from social media due to the nature of social media platforms which allows the sharing of text, audio and video content, adding the engagement on each content by likes, comments, shares ...etc.

Another main factor increase the data gathered from social media platforms is susbscription method to the platform, when first signing up for any social media platform, there is a procedure to fill some information about each subscriber, this accumelated data added to the database of the platforms and every time the account owner enter the platform all new actions are being added to his profile.

“Two-thirds of the world’s inhabitants now have a mobile phone, mobile phone users in 2018 is 5.135 billion, internet users in 2018 is 4.021 billion, social media users in 2018 is 3.196 billion” (Simon, 2018:7).

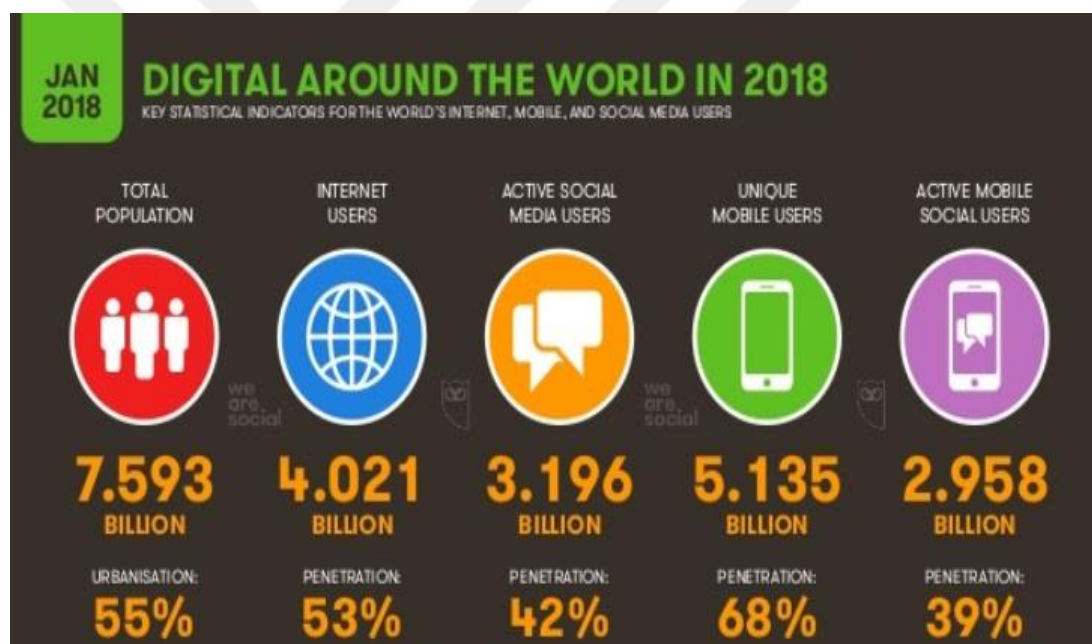


Figure 2.17: Digital around the World in 2018

Source: (Simon, 2018:7), <https://wearesocial.com/blog/2018/01/global-digital-report-2018>

More than 3 billion persons had at least one social media account on the social platforms and he/she uses this account at least once a month and because all social media platforms have its own applications for mobile approximately %92 of the social media users uses their mobile to reach their accounts and they can interact on it. For instance.

2.3.3.1 Facebook

According to monthly active users, statistics considered as the biggest social media platforms over the internet with more than 2023 billion users,

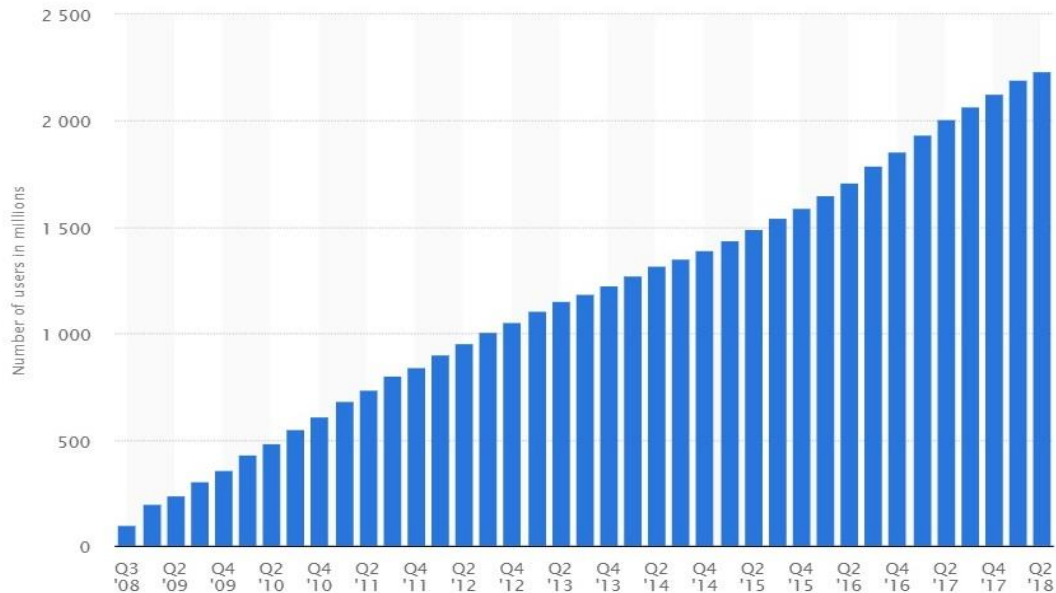


Figure 2.18: Facebook monthly active users

Source: (Statistacom, 2018) <https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/>

Started as a close grouped social network within the students of Harvard University, a few months later populate to other universities “At the end of February, 2004, Thefacebook.com launched simultaneously at Columbia, Yale, and Stanford, where it quickly became just as popular as it was at Harvard.” (Cassidy, 2006) Facebook now is the biggest social network platform in the world, in that developing life Facebook faced a serious problem processing the data flowed to its database, they need a day to proceed the process of the data, the developers solve the issue by developing their own data base solution “Prior to 2008, they were using a processing infrastructure that was built around a data warehouse built using a commercial RDBMS. As a response to the slow processing problem, the team developed HIVE, an open source data warehousing solution built on top of Hadoop. It implements HiveQL, and SQL-like declarative language for large-scale data analysis that allows the user to create queries that are executed using MapReduce jobs.” (Diaconita, 2015:982).

2.3.3.2 YouTube

Is the largest online video platform with 1.47 billion in 2017 and statistics forecasts this number will raise to 1.86 billion within the year of 2021?

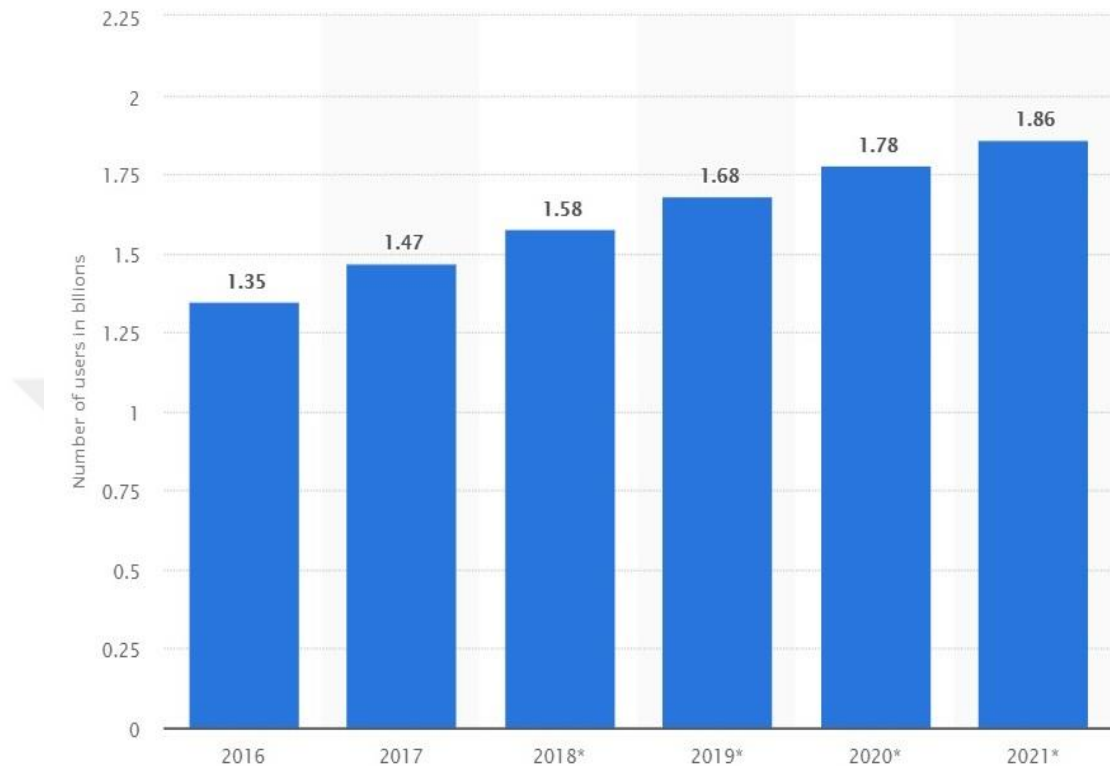


Figure 2.19: Number of YouTube viewers worldwide from 2016 to 2021

Source: (Statistacom, 2018) <https://www.statista.com/statistics/805656/number-youtube-viewers-worldwide/>

The potential of gaining money from YouTube give it more chance to spread all over the world, for different categories like gamming, fashion, music or even unboxing unknown packages, some people do left their jobs to start just making videos and publish them into YouTube which share revenues from advertisement on each video beside the per-view rule “YouTube is now characterized as a paradigmatic example of a hybrid commercial environment where user-generated content production is efficiently tied to forms of monetization” (Arthurs, et al., 2018:7). According to (Googleblogcom, 2018) people are watching videos on YouTube platform One Billion hours every day “people are spending a billion hours every day rewarding their curiosity, discovering great music, keeping up with the news, connecting with their favorite personalities, or catching up with the latest trend”.

2.3.3.3 Instagram

The mainly mobile photo-sharing network had reached 1 billion monthly active users, “Due to the apps visual nature and high user engagement rate, Instagram is also a valuable social media marketing tool. As of March 2016, 98 percent of fashion brands had an Instagram profile. As of December 2016, average number of image brand posts on Instagram was 27.9 posts per month” (Statistacom, 2018), many influencers in every filed are dealing with brands for advertising campaigns like football players, singers, fashionest depending on the number of followers the influencer get money from the brands which post in his account, more over new features added recently like IGTV raise the number of users with different demands of sharing and viewing.

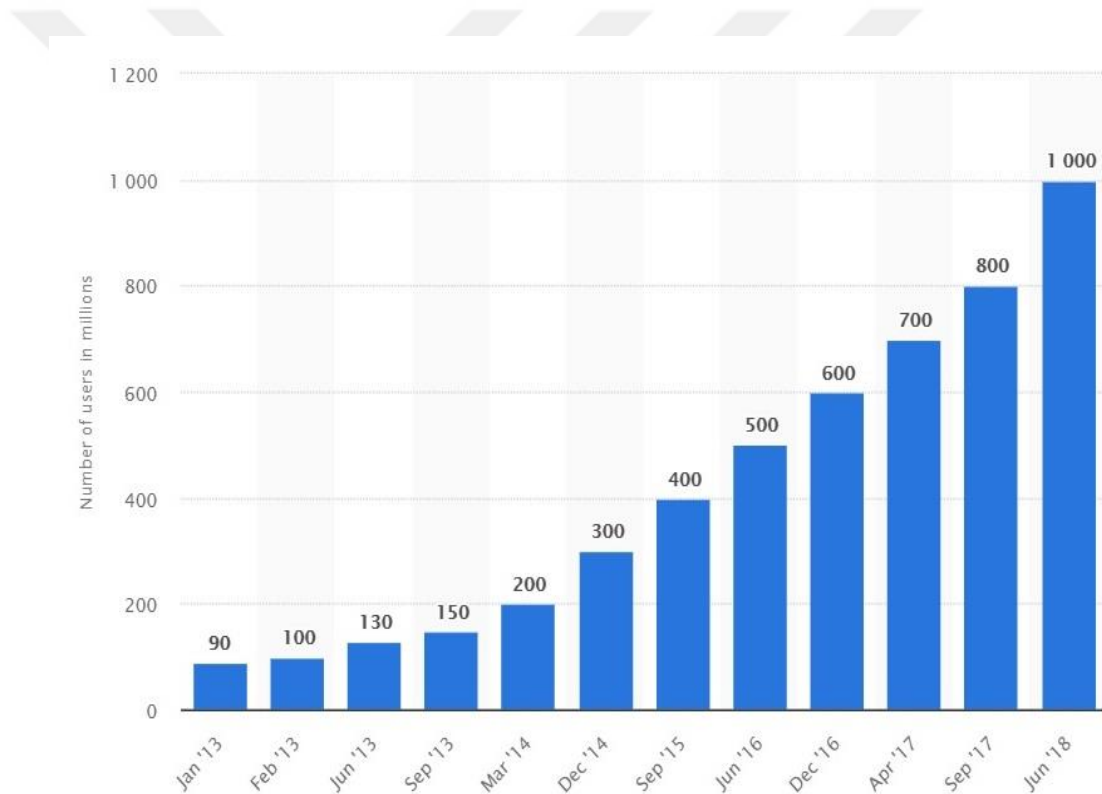


Figure 2.20: Instagram monthly active users 2018

Source: (Statistacom, 2018) <https://www.statista.com/statistics/253577/number-of-monthly-active-instagram-users/>

2.3.3.4 Twitter

One of the famous news and social media platforms it, with a slogan “what’s happening in the world and what people are talking about right now. “(Twittercom, 2018), a statistic shows a timeline with the amount of monthly active Twitter users

worldwide. As of the third quarter of 2018, the micro-blogging service averaged at 326 million monthly active users.

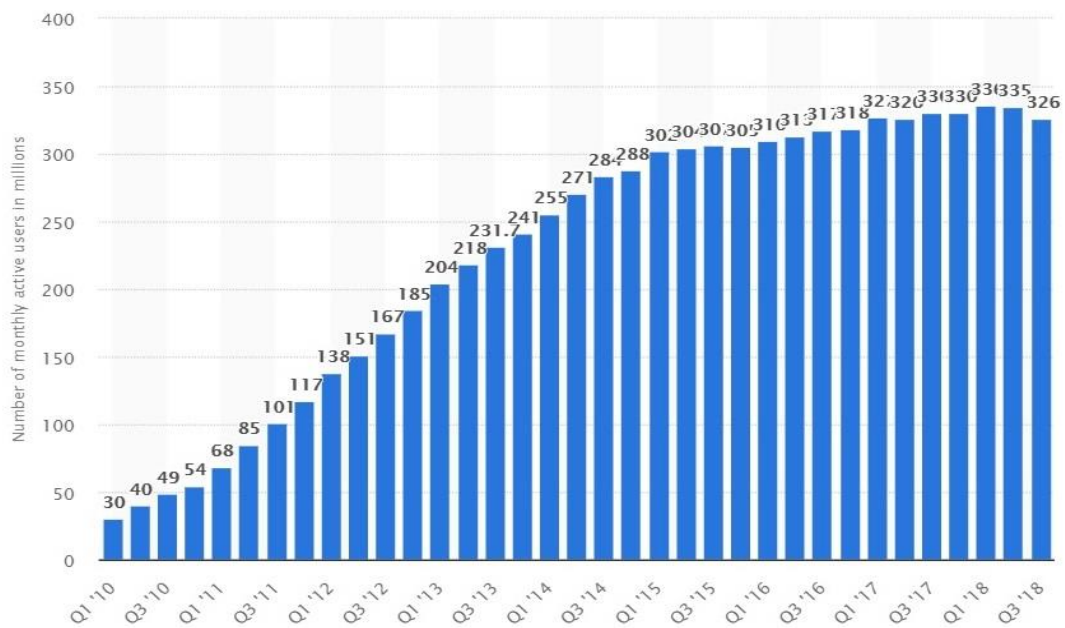


Figure 2.21: Monthly active Twitter users worldwide from 1st quarter 2010 to 3rd quarter 2018 (in millions)

Source: (Statistacom, 2018) <https://www.statista.com/statistics/282087/number-of-monthly-active-twitter-users/>

Twitter allow users to write a 280-character expressing themselves, “When somebody wants to designate related messages, they come up with a short term and prefix it with the “#” symbol. (In programmer-speak, that symbol is a hash mark, and the term is a tag; thus “hashtag.”) Then others add the hashtag to messages about that topic—and then anyone can search that hashtag and find all the related messages.” (O’Reilly & Milstein, 2012:43), with the hashtag tool users can write on the same subject what they think about it, a very important feature allows to follow the trending subjects especially in news filed.

All these social media network platforms with Billions of users and accounts produce a huge number of data; business tries always to benefit from this new technological development into more understand the behavior and needs for them and make the maximum profits.

Social media networks proceed on changing the organizations all over the world, and it’s been used more and more as a source of data, today the social media do affect the way people think and behave, the customers transformed toward their trusted

thoughts via social networks instead of just accepting the commercial brands, today data can be gathered through web, blogs, social media networks, sharing videos platforms, photo sharing platforms, all kinds of social media networks and this data will help the business to more direct their efforts to the right persons.

Big Data solutions can help the organizations to have a huge number of social media networks data and analyze it to get more understanding of the decisions and making decisions about their customers, products, services, competitors and markets in a better way, the social media Big Data includes sharing the available information on the organization websites, and share unavailable information's on the organizations websites, get the feedback on it and comments, deliver more links for other websites. In addition, social networks include data from connecting and interacting with audience or corporate with other organizations.

Organizations should determine the Big Data and the data field it need to take in consideration and the properties of the Big Data and the technologies used in analyzing the data, emerging the data capture and organize all the structured and unstructured Big Data within the organization, Big Data analytics technologies allow acquisition, store, process and analyze the data from social media networks, knowing the behave of the customers consider important source of competitive advantage, the results from the analyzed data about customers rich with deep values, and could be used to develop and produce products or services, and the competitive intelligent with the customer behavior. These data could be gained from the social media networks where the instructiveness been between people in it.

Social media Big Data has been hailed as key to crucial insights into human behavior and extensively analyzed by scholars, corporations, politicians, journalists and governments (Boyd & Crawford 2012:665), social media platforms promises a future of innovation and cutting the costs and spread of commercial brands through social collaborating, organizations uses it to promote for the new products and services, also monitoring what people feel about their commercial brands, Big Data also promises changing the administrative way of dealing with practices. Big and diverse data give more chance and potential in every industry, through following social media organizations can measure the new trends and use the insights to evaluate the strategic marketing and increase or redirect the advertising campaigns and inputs to raise the sales.

Social media measures consider important factor that help the managers of the success of their campaigns and social activities, for instance they can evaluate the marketing campaigns which includes competitions and promotion offers on Facebook through a lot of indicators like reacting to it and commenting and so on, if the measures were indicates weak results then managers could do changes and modifications to get the wanted results, for example low reacting for a campaigns post may indicate manager to introduce more active and entertainment contest.

2.3.4 Big Data and its importance in media field

Its not a new trend in the media industry to look for the data of the audience to optimize the “It seems reasonable to view the gathering and use of Big Data in the media sector as the latest step in the historical process of the “rationalization of audience understanding,” that dates back at least to the 1930s when communication researchers such as George Gallup and Paul Lazarsfeld began working with media industry stakeholders on more data-driven approaches to understanding and predicting audience tastes and preferences” (Napoli, 2011:11).

Media organizations already have a Big Data resources with the traditional broadcasting methods and this fact help to encourage them to use it, the fact that the content of media organizations are almost digital type of content like video, audio and so, emphasize the technological constraint of how to handle this big amount of data, now more and more development solutions of Big Data analytics tools and software will encourage decision makers to adopt the use of Big Data analytics.

For (Licht, 2015:2), also Big Data source can help media and entertainment organizations to understand more about their clients and audience these data sources are:

- Social Media
- Web browsing patterns
- Traditional enterprise data from operational systems
- Data from data aggregators (Nielsen, etc.)
- Advertising response data
- Demographic data
- Historical media and entertainment data

Social media is a main source of Big Data sources especially for media organizations, every time the media organizations decide to produce a media product or content they think about the reaction of the audience, is it the right product at the right time to attract them, recently the strategic thinking changed to be a business to customer model since the decision makers are thinking for the need of the consumer of the content, “Audience ratings data have been of critical importance to marketers and media managers for almost a century.” (Nelson & Webster, 2016:1).

Media industry is a historical business relies on the human judgment since the beginning of this industry by newspapers appearance it was always about the loyalty for the media organization through coming back again and wait for the new product, before the age of data it was the practical experience for the decision makers of how the successful content been made, but because of the new technologies and the new ways of broadcasting it's not enough these days just to rely on the previous experience the technology now introduce a new approaches to understand the audience and if they don't use these technology they will lose their success, for instance in order grasp the audience interest of the program shows or more to rank the TV channels in last decades of 20th century some researches companies were introducing services like surveys and questioners to give a reports for the media industry about the market, those reports was one of the rare ways to measure the attention of the audience, according to (Amaorg, 2018) report of the 50 leading companies in the market research field the 5th ranked company is Ipsos, founded in 1975 with a history of delivering market research reports for the media industry, Figure 2.22 shows one of the IPSOS reports in the MENA region in 2016.

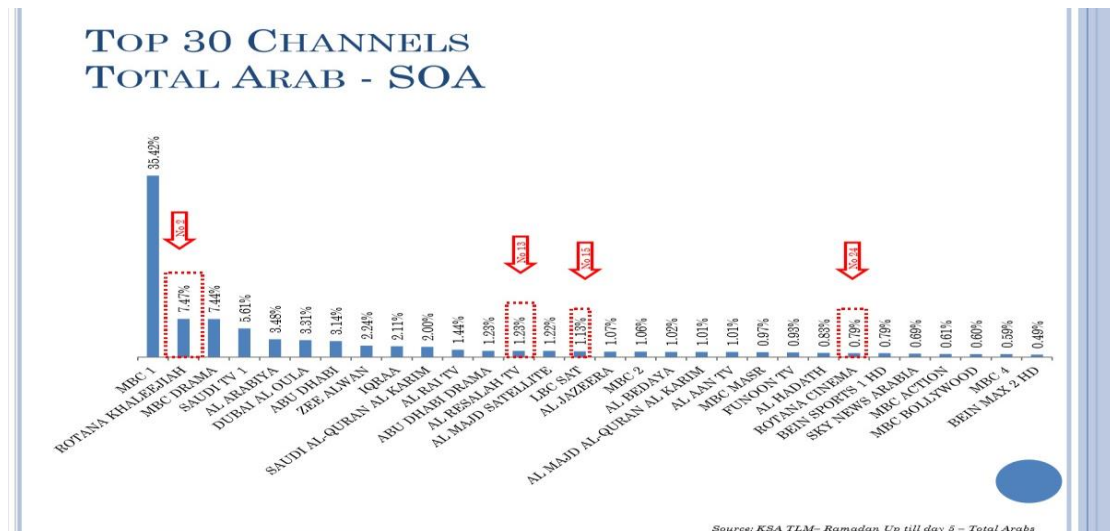


Figure 2.22: IPSOS 2016 report

Source: (IPSOS, 2016:2)

Depending on such reports were a way of grasping the audience favorites programs or TV channels, this kind of reports usually coast money and need time to be done specially it is depending on the surveys and phone calls as a main approach of gathering the data.

“The media and entertainment industries have frequently been at the forefront of adopting new technologies.” (Cavanillas, et al., 2016:245). Media industry always tries to understand the market and to produce a content that fit the audience, the way they consume it, with the speed changes in technologies media had to adopt a new ways of broadcasting and publishing techniques, for example in recent years it’s a basic for every TV channel or Newspaper to have an online website, social media accounts, a new formats for viewing and reading content, also some new business models of media industry were bulit on the digital technology to pursue the audience new behave of consuming like different kinds of online platforms, “Changes in the ways that audiences use television (TV) and the ways such use is measured led to a reconfiguration of the audience commodity in which multiple measures of the audience” (Kosterich, 2016:1), Netflix is a leader in the media and entertainment industry in the world, they use the method of predicting what you will like and they suggest it to you, every one depending on his own data by using data analytic for the data they already gathered from you, “For Netflix, an online film rental company, three-fourths of new orders come from recommendations.” (Schönberger-Viktor, 2014:51).

“The quote on CNBC by Wilbad (2012), really exemplifies this “Data is the new Oil.” “Which has the potential to turn business in any desired direction?” (Sarprasatham, 2016:5), last decade there is a new direction to use data to more understand the markets, in almost all industries data is a major factor in all industries, more understand the audience understand their data, “Clarity is currently working with entertainment companies to measure audiences across platforms. By aggregating these viewers, the company is able to see activity across platforms and provide advertisers with opportunities to truly execute an omni-channel advertising strategy.” (Callie wheeler, 2018). Big Data solutions give the media organizations the chance to more understand their audience by gathering and analyzing the data from several platforms which are connected to the mass media, this results will help also to provide the advertisers with more insights about audience preferences which will give more opportunities for raising the profits of the media organizations, advertising was always one of the main factors of continuity of the media organizations, for instance recent studies and statistics is assuring that TV still the main preferable advertising mass media in the globe (see Figure 5 and Figure 7).

Of the first adopters to use the Big Data in the world of media in an effective and pioneering way was CNN at CNN, Big Data is used in three ways: as an early warning system for breaking news, as a window into how its vast audience is using technology and how they are consuming news in real time, and as a way to distill major data sets and present them in data journalism stories, said Peter Bale, CNN International vice president and general manager for digital” (Stone, 2014:13) CNN made a partnership with Twitter (social media platforms) and works together with a thirdparty data analysing company to make a use of 500 million tweets per day for alert system to feed their news department for a real time following up news, this use of Big Data allow the network to have a real time insights of the trending news in the society and deliver them into the channel.

According to (Stone, 2014:4) some key strategies that top media companies employ using Big Data management:

- Huffington post uses Big Data and small data to improve their user experience. They employ the use of real-time dashboards, social trends, recommendations, moderations and personalization to improve user experience using

Big Data. Their use of small data is to improve UX from reporting, headline optimization, SEO, content efficiency and consumer research.

- Financial Times build customer “signatures” of each individual customer’s digital consumption of data and use that information to understand the customer’s preference. This helps them create relevance of their communications and personalize what they have to offer. They employ intelligence to customer touch points, such as customer service, website, mobile apps and third parties.

- BBC uses data journalism to provide insightful, personally meaningful and shareable visual explanations on the BBC’s biggest and most momentous stories

- Channel 4 is working on innovation of the television business model using Big Data by connecting to their millions of already registered viewers. This helps them to segment viewers into groups, create personalized emails, suggest tailored content recommendations and serve relevant advertising.

Traditional broadcasters have an opportunities and challenges in the era of Big Data; they have to work in different approaches with it to grasp the benefits and to deal up with the challenges, the main advantage they had always but even they don’t recognize is that they already have data, some previous expectations and the most important thing is the quality “Comparison to the Traditional TV media, network TV and new media, the biggest advantage is that the traditional TV media have high-quality TV content” (Zhang, et al., 2017:551), the quality of the media over traditional TV still high in comparesion of other types of new medi.

“In order to deliver content for a variety of platforms/devices, it is critical that organizations establish platforms that can scale up and effectively enable this multi-distribution model. Organizations need to enable their data warehouse, analytics and content delivery architectures to a point where they can deliver differentiated and personalized services across a range of devices” Using the new ways of consuming media is critical point broadcaster need to understand and use it to forward this type of audinece to their main platform (TV for instnace) and to benifit from the data gathered by other platforms to predict the audince desir of what they like to watch

According to (Cavanillas, et al., 2016:246) there are three important domains where Big Data can generate potential values in media industry:

- **Products and Services:** Media organizations with different broadcasting platforms have the ability to publish their content in more advanced ways, using human experience for instance editing skills, psychology, with the insights from Big Data analysis.

- **Customers and Suppliers:** Media organizations use the Big Data to understand more about their followers (customers) behavior, attitude, and profiles and more, they will use this understanding to build more engagement relations with them.

- **Infrastructure and Process:** spreading the culture of using the Big Data analytics results will help in facilitate the developing of infrastructure of the big media organization forward using Big Data in thinking and working processes.

More and more media companies trying to benefit from there platforms on the web, a trending behave in the media is to get as they can data from audience, readers or followers to use it and analyze for a better understanding of the organization, especially after the big social media companies like Facebook lost some of it as a news medium or publisher within the last 2 years after the scandal of “Cambridge Analytica” with the American election, also the big media companies are trying to make their own data base (an example of this is BBC is making an option now to register to their websites and application to continue using it) for their users not only to depend on social media platforms to get data from them.

The media industry will face a major change in the next few years, for instance before using Big Data it was all about the managers’ experience of deciding what is the best time to broadcast a series or a show program, with Big Data era these decisions will be depending on data and insights from it to schedule the programs on the behavior of the audience, and even more “A TV anchor has joined a Chinese news agency, but with a twist: he isn't human. China's state-run Xinhua News Agency has launched an artificial intelligence (AI) anchor, a move it claims to be a world first.” (Lucy handley, 2018), the last trend in the media industry were the artificial intelligence anchor who appear in one of the TV channels in China performing as a news presenter, one of the main application of Big Data in artificial intelligence and media industry, a copy from another human being anchor made after studying every single move for it and loading all data about his movement, reaction,

face expressions and even voice mode all gathered and applied into the robotic model of that human being to present for the world as the first artificial intelligence anchor (Lippell, 2014:75) summaries six applications of Big Data scenarios for the media sector:

Table 2.2: Data Journalism

Summary	Large volumes of data become available to a media organization
Synopsis	A dataset or multiple datasets requires analysis to derive insight, find interesting stories, and generate material, which can be enhanced, and ultimately monetized by selling to the media organization's customers.
Business Objectives	• Improve quality of journalism and therefore enhance the brand • Analyze data more thoroughly for less cost • Enable data analysis to be performed by wider constituency of staff than just data scientists

Table 2.3: Dynamic Semantic Publishing

Summary	Scalable processing of content for efficient targeting
Synopsis	Using semantic technologies to provide the means to both produce and target content more efficiently
Business Objectives	• Manage content and scarce content creation staff more efficiently • Add value to data to differentiate from competitors

Table 2.4: Social Media Analysis

Summary	Processing of large user-generated content datasets
Synopsis	Batch and real-time analysis of millions of tweets, images, status updates to identify trends and content which can be packaged in value-added services
Business	• Create value-added services for clients
Objectives	• Perform large-scale data processing in a cost-effective manner

Table 2.5: Cross-sell of Related Products

Summary	Developing recommendation engines using multiple data sources
Synopsis	Applications that exploit collaborative filtering, content-based filtering and hybrids of both approaches.
Business Objectives	Generate more revenue from customers

Table 2.6: Product Development

Summary	Using predictive analytics to commission new services
Synopsis	Data mining to support development of new and enhanced products for the marketplace.
Business Objectives	• Offer innovative new products and services • Enable development to be done in a more quantitative way than is possible currently

Table 2.7: Audience Insight

Summary	Using data from multiple sources to build up a comprehensive 360-degree view of a customer
Synopsis	Extension of scenario “Product Development” – mining of data external to the organization for information about customer habits and preferences.
Business Objectives	• Reduce costs of customer retention and acquisition • Use insights to feed into commissioning of new products and services • Maximize revenue from customers

The previous scenarios will give guidelines for media organizations willing to use Big Data analytics, and will encourage them to start adopting it.

Looking for the future, Google entered the Big Data analytics and used its results in media industry in another way “The GDELT Project uses a massive inventory of the world’s news media, developed in collaboration with partners across the globe, to perform real-time monitoring of every accessible print, broadcast, and online news report around the globe, with a special emphasis on local news in local languages” (Kalev & Felipe, 2015) GDELT is an initiative by Google to create a catalog of social behavior and beliefs at the community level in all countries of the world and connect each person, organization, site, topic, news source and incident across the world, connect them to a huge network that captures what is happening all over the world.

Feel the world out, the GDELT platform uses NLP, Data Mining, Deep Learning techniques to extract more than 300 categories of media events on a daily basis, millions of topics, and thousands of emotions, updated every 15 minutes to provide an accurate and up-to-date picture of what is happening around the world from multiple media outlets, for each story, Google extracts many related features such as time, location, parties associated with the event as well as some features related to the event, they also developed a special ontology coding for events to be easy to handle and deal with, for example code for pessimism 12 and optimism 13 and indicated by the words in green and the actor is in red, the question now is how do

we handle that amount of that Big Data? Google has developed the BigQuery tool to transfer data on the cloud and deal with it easily using the normal SQL language, in summary they do a direct index of world news depending on the Big Data analytics in the news and media field

2.3.5 Big Data –new vision of decision making

Rapidly development in Big Data and information technology, make it form a major success factor in almost every organization, so they are trying to benefit as much as they can of this data to help them in making a better decisions, “Information and knowledge are the most valuable assets for organizations’ decision making processes” (Poleto T. et al., 2015:14), adopted decisions effected by several factors related to data like having appropriate data, accuracy and credibility of the data with the fact of flow of data from different sources, also capability of employees in the organizations to deal and audit the data.

Analyzing Big Data consider a main effective pillar in determining the problems and understand all over sides of it, and more over to determine the alternatives, and finally to make the appropriate decision in between available alternatives. The value of the data does not loss its importance when making the decision, it is continued to figure the results of taken decision, and working on evaluating the effectiveness of it, how much it serve the organizational goals, contribution in solving the problem and making modification of the decisions if needed.

“Big Data analytics is more fruitful when it can give us precise results which are effective to be used for faster and effective decision making” (Kumar & Goyal, 2016:121), the value of Big Data increases when managers confidence and conviction of the available data are existent to make the decisions, also for the value of the data and its analytics results in making the right decisions in the organization, so the value of the data means the value of changing the decisions and the choosing between alternatives depending on the available data, which shows a difference in making particular decision in between alternatives depending on the organization flow of data, also the quality of the data assume main factor in changing decisions, per contra decreasing in data will drive to wrong decisions.

However, what is the reasons of not having the data? could be that it’s hard to have the data, or it could not be exist, disregard employees for some data because they

thought it's not worth, cost and high price of the data and may be having a data with different formats than required.

In this technological era every decision maker realize that they do not have the chance to understand all the hidden motivators for costumers, which upon it efficient decisions should be taken. With the development of technology, the organizations have a big chance to understand quickly what happens in the market and to give more appropriate and specified offers for customers. Related to the huge incoming information, which is important for businesses, there is an accumulating data helpful to choose the right strategies and the ability to filter it reduces, In such cases the technology if Big Data is used. These technology changes the usual ways of analyzing the data which don't have a traditional structure, now in the era of Big Data the effectiveness and the efficiency of organizations depends on its ability to take the right decisions from the gathered data, to be a leader you have to take one step forward in front of your competitors, more quickly to inspect the market situation, determine the challenges and to use the available and hidden chances efficiently. To do so, organizations need to manage available data in proper way, with the continually receiving needed information to marketing business, organizations with Big Data technology must understand its possibilities and benefits and the chances it offers.

Distinction between data and information is a main factor of decision-making. "The aim of Big Data Analytics is to "turn data into insights" for better decision making" (Dargam, et al, 2015:3) Data is raw material with an accurate meaning to express just something, while information is a logical explanation and vision of data in time and space. For example, the sales figure of an organization is classified in a certain year from the data, whereas when compared to the figures in previous years or what has been achieved by the competitors, it becomes the information that leads to the decisions, the information is subject to two basic criteria. The first is related to the importance, and meaning which is the ability of this information to effect organization. For example, a transaction class is important information for assessing business performance, calculating net income and monitoring the development of the organization's income for shareholders. The second criterion relates to the trustiness of the information, which requires an examination of its sources.

There are three types of decisions in organizations, the first are programmed and structured decisions. they are scientific decisions that are subject to numbers and are almost certain, such as the choice of suppliers by comparing the prices of goods and then semi-structured decisions where the possibilities are equal and subject to change. In addition, the latter are unregulated decisions that are subject to political balances and balance of power rather than scientific logic, Big Data has become a strategic treasure for organizations and an urgent tool to achieve its goals, especially as a decision maker with the power and knowledge to do so.

These data have many implications that achieve many objectives, including monitoring the future variables and trends in decision-making, not to mention the injustice of the principle of limited rationality in decision-making caused by the inability of the human mind to expectation, process and analyze information because of its increasing number and extensive networking, making the main challenge for organizations is the use of data scientists, specialists in the analysis of large data,, And they have awareness and knowledge of the difficulties surrounding the organizations.

Adopting the Big Data in decision making have some challenges have to be considered, according to (McAfee & Brynjolfsson, 2012:8) five areas are particularly important when need to benefit from using Big Data in decision making:

2.3.5.1 Leadership

Organizations in the Big Data era does not success just because it has better or more data, the success factor is to have a leading team who determine a clear goal, specify what seems successful and to ask the right questions. The power of Big Data doesn't erase the need to human vision, in contrast they still have a managers and leaders able to figure and take the good opportunities, understand the development of the markets, have the ability of innovational thinking, submit new offers, express a logical successful vision and convince people to adopt and work hard to perform it. Dealing efficiently with the customers and employees and owners.

2.3.5.2 Talent management

As more data are been cheaper, the complement s of data are more valuable, and the most important one is the data scientist and other skillful persons who deal with Big Data. The statistics are important but many main techniques to use it is rarely learned

in the traditional statistical courses. a major skill must be considered is to clean the data and organize the clusters of Big Data, usually Big Data came in unstructured patterns, insights techniques are also valuable beside the data scientist. A new generation of computer scientist using Big Data techniques.

2.3.5.3 Technology

Tools, software's and platforms of Big Data analytics are improving day by day, in general, some of it are expensive and some could be open sources, even more a lot of social media platforms for instance includes a powerful insights tools in their platforms like Facebook and YouTube. Working with those analytical, tools need a specific new skill in most of the information technology fields.

2.3.5.4 Decision-making

In the Big Data era, there is levels of decisions could be driven by the data, and do not need to argue about it, especially if the data is clear about the decision, high level managerial decisions should be taken and driven by the mean of data.

2.3.5.5 Organization culture

The first question should be asked by an organization who tried to take decisions in the era of Big Data is not what they think? The question must be what they know? this requires a move away from acting solely on hunches and instinct, the role of Big Data in decision making should be a culture in the organization itself and not to be wired to understand the change in the process of taking the decisions driven by results and insights from Big Data.

There are many stories that proof that decisions made with Big Data analytics could change a lot in real life:

- How did Google beat the Centers for Disease Control and Prevention in America? (Ginsberg, et al., 2009:1012)

The story of the swine flu (H1N1) was the spark that sparked interest in the Big Data, In 2009 and within a few weeks spread the H1N1 virus among people, the health agencies in America feared a disaster similar to the 1918 Spanish flu that infected half a billion people and killed tens of millions, is particularly dangerous in the absence of medicine ready for swine flu The decision to limit the spread of the disease by locating it, the Centers for Disease Control began to identify the number

of patients on a weekly basis, but the information on the epidemic comes late for a week or two, with the rapid spread of the disease, two weeks in fact as a time, this delay hit the health agencies blind at the most critical moments In the paper, researchers explained how Google "predicted" the spread of winter flu in 2008 in America, with specific areas identified and perhaps Entire states!

The idea is simply that Google has taken more than 50 million searches by Americans and compared them with data from the Centers for Disease Control on the spread of seasonal flu from 2003 to 2008. The goal was to identify areas affected by the flu through their search words they modeled everything they do is to look at the relationship between the frequency of a particular search and the spread of influenza according to place and time. They processed many models and found that there is a set of 45 terms used when combined closely between their expectations and official data after the development of the model; it was tested to predict the diseases in 2007 and 2008 and compare the results with CDC data.

They were able to determine where the influenza virus is spread with high accuracy immediately without medical detection, unlike the centers that need one to two weeks to determine areas of disease prevalence The H1N1 disaster has clearly demonstrated the effectiveness of the data-intensive techniques as a more useful and timely indicator to provide public health officials with accurate and accurate information about the situation, unlike government statistics, which were slow in reporting and making decisions.

- Union Bank's tale of how to locate its cashiers in downtown Los Angeles, based on Big Data analysis, (Datafloqcom, 2018)

Mobility data refers to the paths of people and objects. The patterns of movement of people in the city are of particular importance in the banking and financial sector. These are referred to as footfall, through which trajectories can be traced, for a certain period of time Union Bank used the data collected from 1 October to 31 October 2016 to map a map in downtown Los Angeles to determine the most crowded place on the map. The dark color represents the more densely populated places and the red dots. The distribution of the current exchanges in the middle of the city and the blue circle shows the location of the candidate

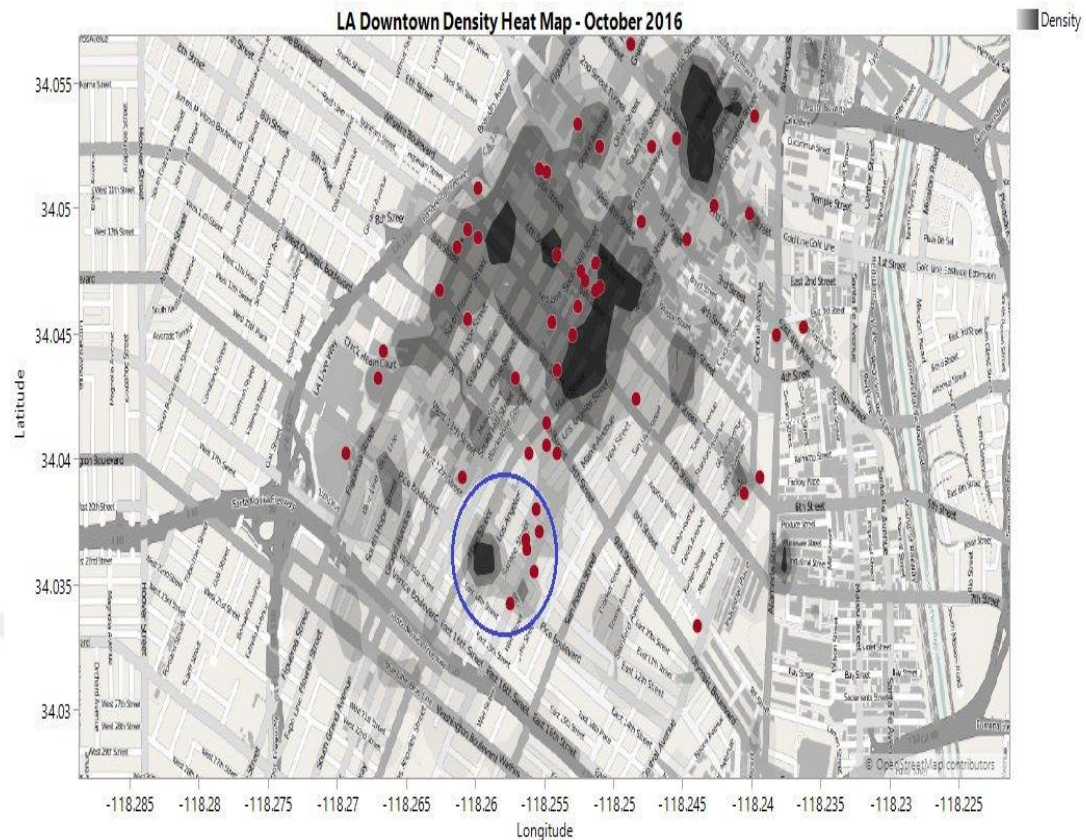


Figure 2.23: Los Angeles density MAP

Source: (Dataflogcom, 2018) <https://dataflog.com/read/location-data-in-the-financial-services-industry/3307?amp-content=amp>

In this area Figure 2.23, the high footfall represents %13 of the congestion in the city center, and there are 6 bankers from other banks, so the decision to put Union Bank ATM in this place Figure 2.24

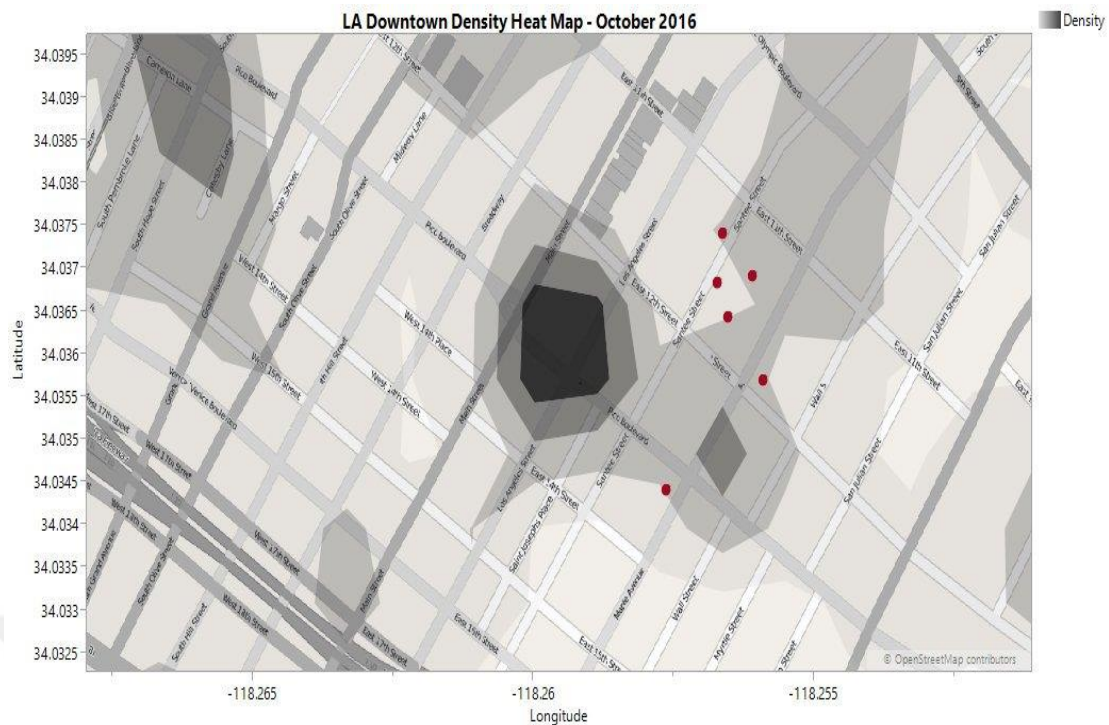


Figure 2.24: Los Angeles density MAP 2

Source: (Datafloqcom, 2018), <https://datafloq.com/read/location-data-in-the-financial-services-industry/3307?amp-content=amp>

The decision was not random, but a deliberate decision was made in a way to analyze the huge data to find out the presence of people in order to provide a cashier service in the places where customers of the bank

- Amazon, using Big Data analytics (Rejoinercom, 2016):

The Amazon experience is a pioneering experience in smart marketing, depending on its Big Data, which aims to increase the impact of the marketing campaign by targeting customers individually. Amazon has invested the vast amount of data available to it from customer purchases, tracking and tracking their products and evaluating them to build a recommendation system. This system is based on a smart marketing rule that "not to lose the customer you have to send the right recommendation to the right person in a timely manner" This concept is known as personalization and try to understand the personal characteristics of each customer and how to influence it by following it and understanding the behavior and taste through the amount of data that has been Collect it. Amazon used two methods of marketing using the recommendation system: the first on-site while the client is browsing the site, and the second off-site by sending the recommendation to the

customer's email. Imagine that the recommendation system increased Amazon sales by %35. Figure 2.25:

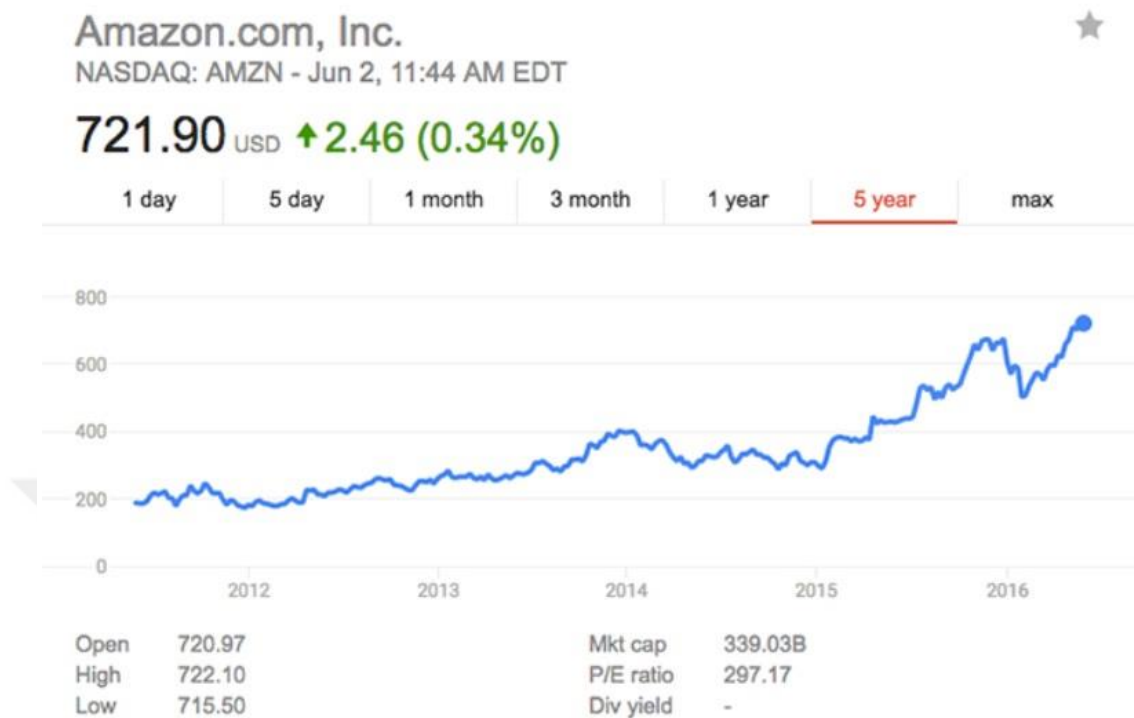


Figure 2.25: Amazon stocks value, 2012 – 2016

Source: (Rejoinercom, 2016) <http://rejoiner.com/resources/amazon-recommendations-secret-selling-online/>

This system depends on the huge data Amazon collects from its customers, an efficient system that delivers positive results at lower cost, the use of Big Data and making decisions upon that Big Data analytics results raise the revenues of amazon as shown in Figure 2.26.

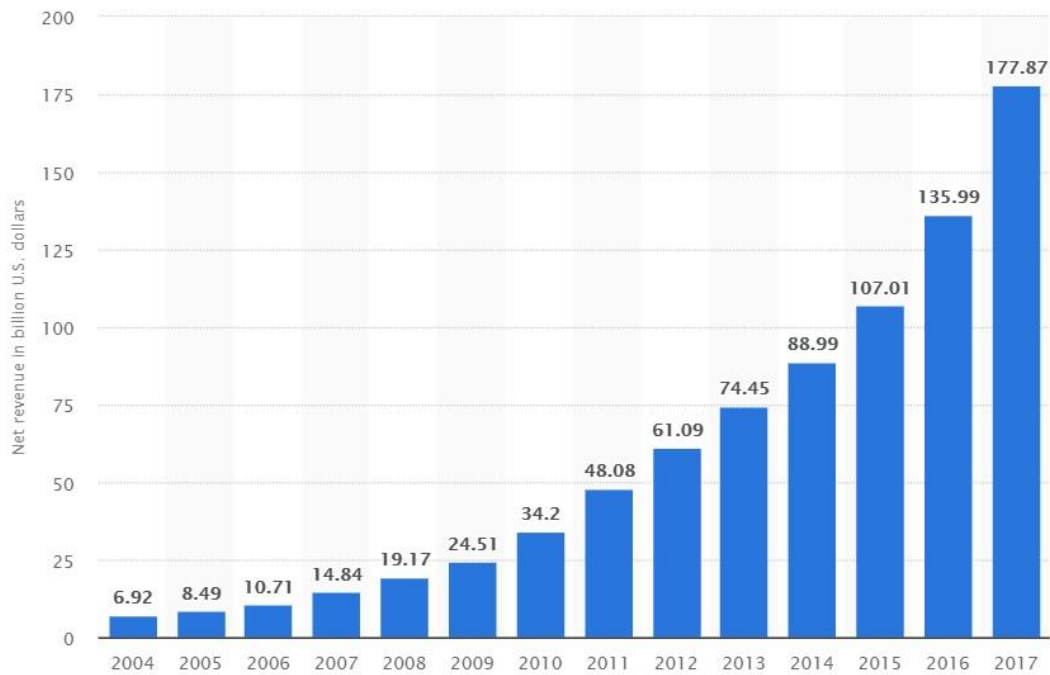


Figure 2.26: Amazon net revenues (2004- 2017)

Source: (Statistacom, 2018), <https://www.statista.com/statistics/266282/annual-net-revenue-of-amazoncom/>

Big Data is a gold mine for exploration in order to build modern marketing strategies based on customer understanding and follow-up of their needs to build diverse offerings that suit each category. Artificial Intelligence techniques lead modern marketing strategies and use data mining tools to analyze data and predict customer needs. Artificial intelligence techniques track consumer interaction through multiple electronic channels such as company, email, social networks, record all interaction data, and use machine-learning algorithms to capture customer experiences and understand their needs.

The data in the information revolution played a role similar to the role played by oil in the industrial revolution. Oil was the source of many products such as plastics, motor fuel and aircraft, and the data in the era of the information revolution became a source of knowledge; new products that help solve some of the current problems and an important source of decisions. The data mirror the reality, each of our work in reality reflected in the data we collect, it is possible through the data to measure performance indicators on a daily basis, but in a moment, the presentation of these indicators to the decision maker makes it able to see the reality in his organization or company, And sources of waste, and then draw plans and propose solutions, in

general, these data enables the decision-maker to follow what is descriptive analytics and predict what will happen in the future (predictive analytics).

2.3.6 Big Data challenges

“Big Data is very difficult to deal with. It requires proper storage, management, integration, federation, cleansing, processing, analyzing, etc. With all the problems faced with traditional data management, Big Data exponentially increases these difficulties due to additional volumes, velocities, and varieties of data and sources which have to be dealt with” (Elgendy & Elragal, 2014:13), Big Data face some difficulties and challenges to take the advantage of using it due to the fact of its characteristics volume, volume and variety, “Companies won’t reap the full benefits of a transition to using Big Data unless they’re able to manage change effectively” (McAfee & Brynjolfsson, 2012:8), Despite the big benefits of Big Data it also have some challenges that make using Big Data analytics is not easy to implement, “While Big Data can yield extremely useful information, it also presents new challenges” (Katina, 2013:23), for media organization like other organizations there is a lot of challenges facing using Big Data analytics like high cost of using Big Data analytics applications and tools, lack of skills (talent), lack of infrastructure, organization culture of using Big Data and more.

“Data storage and analysis is still one of the main concerns in Big Data environments. At this level, we may find challenges in terms of hardware infrastructure, high-dimensional data, data quality, data integration, real-time data and data provenance” (Fernando, 2017:16), the fact that Big Data need a lot of storage and machine power to analyse, make it so costly to prepare and setup such infrastructure, specially for small- medium size organizations which have less financial strength than the big one.

Another big challenge for Big Data is the skills and talent to analyze it “With the increase in amount of (structured and unstructured) data generated, there is a need for talent. The demand for people with good analytical skills in Big Data is increasing” (Bhadani & Jothimani, 2016:22), since it’s a new term in the technological world there is a need for more talented and skilled people to deal with the Big Data and harvest the benefits by analyzing it and give the results in a proper way that less talented and non-technical positions to understand it, like the higher managerial levels who usually need some clear answers submitted to them like a dashboards or

visual reports to make different decisions, “Companies will need a power shift in their structures if they are to capitalize on Big Data analytics capability. The data and analytics newcomers need to be supported and integrated into the company’s decision processes” (Burton, 2014:5), for the organizations they should lead having organizational culture understanding the Big Data environment and capabilities of making and producing better decisions, “The involvement of top management in the implementation and use of Big Data is important both to support and sponsor a new technology, as well as to help overcoming obstacles to change” (Félix, 2017:118) one of the critical challenges of Big Data is the culture change forward using Big Data in organization and particularly from the standpoint of the management and the decision makers,“ In our work with dozens of companies in six data-rich industries, we have found that fully exploiting data and analytics requires three mutually supportive capabilities. First, companies must be able to identify, combine, and manage multiple sources of data. Second, they need the capability to build advanced-analytics models for predicting and optimizing outcomes. Third, and most critical, management must possess the muscle to transform the organization so that the data and models actually yield better decisions.” (McKinsey, 2013).



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 was focusing 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 the Big Data term are new term and a few qualitative research have been done on it specially its role in managing and directing media organization, almost of the researches conducted on the Big Data analytics and its effect on organization had concentrated on discussing theorization and formulation of the expectations, “The aim is to describe and understand the phenomenon studied by capturing and communicating participants’ experiences in their own words via observation and interview” (Kaya, 2013:313), “Where it 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).

The study wants to go deep inside and see the practice and real life practical day effects from these theorizations, Big Data is a new field of research in scientific studies and need more research to be conduct on it to gain the knowledge and the experience on how it will affect organization as we are using qualitative research method that concentrate on gathering data through interviews for small group,

hypothesis are determined to give clarification and an explanation of the influence that Big Data has on management directing . “The emphasis in qualitative analysis is “sense making” or understanding a phenomenon” (Bhattacharjee, 2012:113).

“Qualitative research differs because of its ability to represent the views and perspectives of the participants in a study. Capturing their perspectives may be a major purpose of a qualitative study. Thus, the events and ideas emerging from qualitative research can represent the meanings given to real-life events by the people who live them, not the values, preconceptions, or meanings held by researchers.” (Robert, 2011:8).

Qualitative Research is mostly exploratory. It is applied to earn a grasp of hidden cause, opinions, and motivations. It produces vision into the case or helps to improve thought or hypotheses, qualitative Research is also used to detect way of thinking and visions, and dive deeper into the problem, it's not about producing generalizations, it's to understand and discuss various effects.

“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, as described in previous literature review, to the method which is qualitative 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.

3.2.1 Sample selection

“Collecting data for qualitative research usually implies interacting with real-world situations and the people in them. These all become part of the field setting for a research study” (Robert, 2011:109), qualitative research depends on collecting in depth data from a small group so interviews are held with 8 employees from four companies, All of them was from the first managerial level, so we can get deep information about management theme dealing with Big Data and if it's affecting their department, jobs and decisions they take or if they really think about Big Data

as a supportive factor in their decisions. 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 were found and listed below:

Table 3.1: Arabic TV channels in Turkey list

Name	Website	Origin
El Sharq TV	http://elsharq.net/	Egyptian
Mekameleen TV	http://www.mekameleen.tv/	Egyptian
Watan TV	http://www.watanegypt.tv	Egyptian
Al Rafedeen TV	http://alrafidain.org/	Iraqi
LibyaAlahrar TV	https://libyaalahrar.tv/	Libyan
Falastini TV	http://www.falastini.tv/	Palestinian
Belqees TV	http://www.belqees.tv/	Yemeni
Jisr TV	http://jisrtv.com/	Syrian
Syria TV	https://www.syria.tv/	Syrian
Al Qanat 9 TV	https://alqanat9.com/	Egyptian
Al Nabaa TV	https://alnabaa.tv/	Libyan
Yemen Shabab TV	https://yemenshabab.net/	Yemeni
Al Fallujah TV	http://www.alfallujah.tv/	Iraqi
Daawah TV	http://www.daawah.tv/	Egyptian
Halab today TV	https://halabtodaytv.net/	Syrian

Table 3.2: Arabic news platforms in Turkey list

Name	Website - platform
huffpostarabi	https://www.huffpostarabi.com/
Arabi21	https://arabi21.com/
Rassd	http://rassd.com/
Sasa Post	https://www.sasapost.com/
Al Khaleej Online	http://alkhaleejonline.net/
2P	http://2p.com.tr/
Arab turkey	https://arab-turkey.com/
Tukeya Al Aan	https://www.turkeyalaan.net
Turk Press	http://www.turkpress.co/
Turk Now	https://www.turk-now.com
Turk to Arab	https://turkeytoarab.com/
Akhbar Turkiya	http://www.akhbarturkiya.com/
Turk Life	https://www.turk.life/
Turkey Breaking	https://turkey-breaking.com/
Add White	https://www.adwhit.com

“Egypt’s Asharq, Mekameleen and Watan, Iraq’s Al-Rafidain, and Libya’s Al Ahrar are among the top Arab satellite stations broadcasting from Istanbul. In addition, Istanbul has dozens of studios of Arab stations headquartered in central Europe and the Middle East. “, “Among the websites that broadcast from Turkey to Arab world audiences are Huffpostarabi, Arabi21, Rassd, Sasapost, Pal-post, Alkhaleejonline, and 2p.com.tr.” (Semerci, 2018).

The first TV channel to mention in previous article is El Sharq TV channel, and Huffpostarabi (which called later Arabipost) and Arabi21 was the first news platforms also, three of them are been selected for this study, the fourth media organization we intended to choose a different kind of media content due to the fact that other TV channels are mainly news channels, and to have another kind of content we decided to choose an entertainment TV channel and the only Arabic one in Turkey is Falastini TV.

Four of the selected organizations are media organizations, but we consider the variety of each of them since two of them are TV channels and the other two are News platforms (press platforms or journals) and in each two there is a big difference in the nature, audience, technological development, size, message and even in

budget, all of this variables are also must be considered when conducting the interviews and collect the data, it also will give us a better vision and insights to understand the role of Big Data in managing that variance media organizations.

3.3 Background and Summary of the Organizations

In this part we will give a brief summary of the four media organizations we select to make the interviews with them, as we mentioned before they are two TV channels and two news platforms, around the world Arabic speakers is about 420 million (Istizadacom, 2018) person most of them living in the middle east and north Africa region, this region is covered by orbit satellites which allow audience to receive broadcasting signal for more than 1300 TV channels (Jenny, 2018) Satellite broadcasting in middle east and north Africa region source (Eutelsatcom, 2018), Figure 3.1 shows the covered area by Eutelsat or Nile sat which is including all the Arabic world .

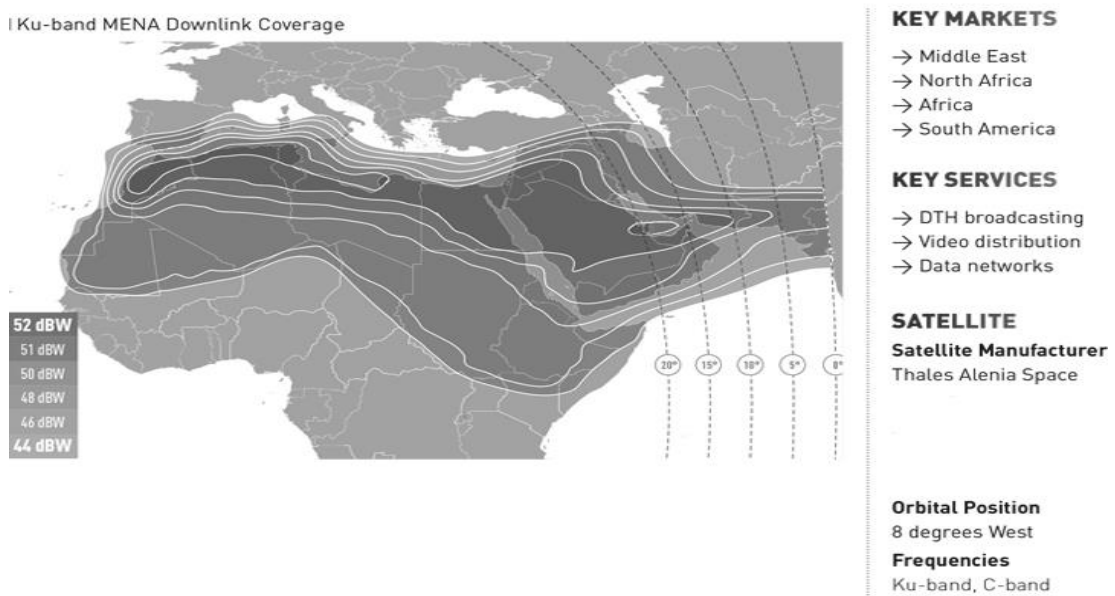


Figure 3.1: MENA Orbit coverage

Source: https://www.eutelsat.com/files/contributed/news/media_library/brochures/EUTELSAT_SATELLITE_E8WB.pdf

3.3.1 El Sharq TV channel

The first ranked TV channel in the report of Anadolu Agency (AA), It's an Arabic Egyptian TV channel established in Istanbul in ,2014 it's mainly a news channel with some talk show programs, main audience of the channel is Egypt with more than 100 million population and have a big effect on the Egyptian respondent, also it has a live streaming on website and online radio station and a popular social media accounts which consider for her as a main data source, with 7 employee in the social media and analytics department it have the ability to use this data and analyze it and report to the management which believes in that results .

3.3.2 Filastin TV channel

It's an Arabic Palestinian TV channel established in Beirut in 2015 broadcasting to the middle east and north Africa region, moved its headquarter office to Istanbul in 2017, it has two more offices in Palestine and in Beirut, mainly it's an entertainment channel it's broadcast music video clips and entertainment shows, this kind of channels focus on the feedback and the interactive platforms to stay up to date with the audience request, having a live stream from its own interactive website and an online radio station with the social media accounts make it get a Big Data from all of that sources, don't have a big team for Big Data analytics but it's following up the development in this field and Intend to invest in the Big Data analytics

3.3.3 Huff Post Arabi

The first ranked Website broadcasting from turkey in the report of Anadolu Agency (AA), Huff post Arabi was one of the global Huff post news platform which started as an online newspaper at 2005,: a few months ago the same platforms including all the assets changed the name and stopped being the Arabic branch of Huff post, and started their own news platform with the new name "Arabicpost "Figure 3.2 shows the home page message of the Huffpostarabia.com, which explain the new name and new website link and as an agreement between the Huff post international and Arabicpost this home page will continue to appear to all old link visitors till the end of 2018 .

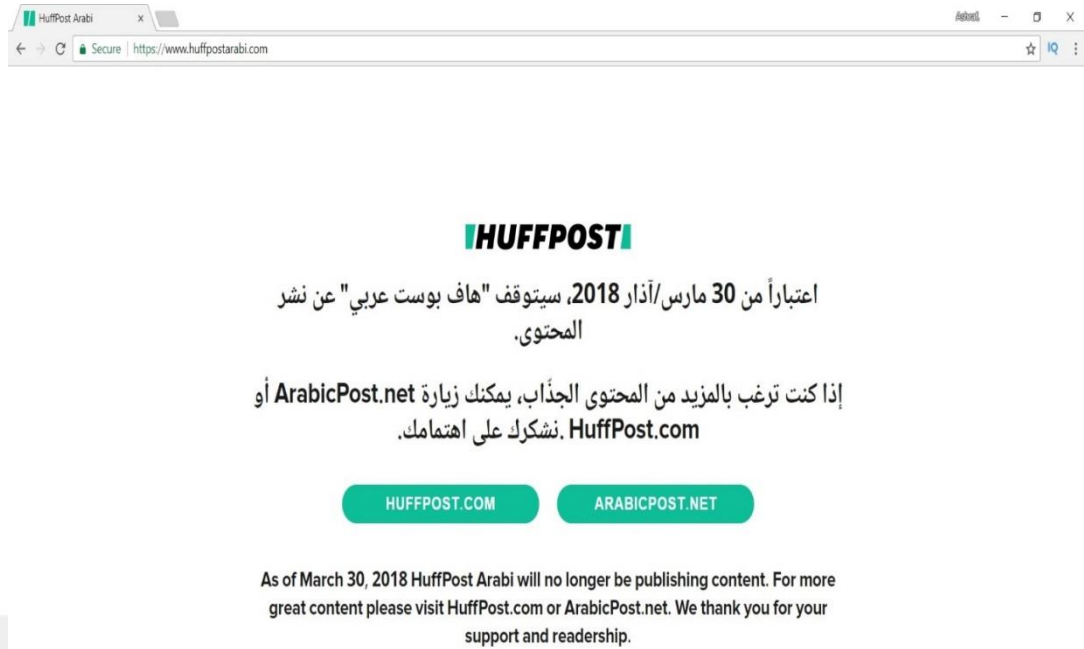


Figure 3.2: Home page message of the Huffpostarabia website

Source: (Huffpostarabicom, 2018), <https://www.huffpostarabi.com/>

The professional experience from the global Huff post, using all the result from the data analytics program in Huff post, Huff post uses Big Data analytics since 2013, “Huff Post content garnered 300 million reader comments back in 2013. Maymann sought the services of Big Data analysis to understand how the user experience can be improved through authentication of readers’ comments. Huff Post held a conjoint analysis which is a statistical technique used to determine how users value the features and functionalities available in a product or a service.” (Shankar, 2018). Figure 3.3 shows a graphical insight for the huff post uses of Big Data analysis for segmenting the interested area of the website their visitor recently uses in 2013.

people, all those followers made it important to adapt a Big Data analytics tools to stay on the top of the Arabic news platforms.

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. This is important if you are adopting an interpretivist epistemology, where you will be concerned to understand the meanings that participants ascribe to various phenomena” (Mark Saunders, 2009:324), therefore this study is an interview study where we can see and understand in deep if the management are really understanding the Big Data analytics, and if it uses these results to guide and manage the organization.

“ Semi structured interviews employs a blend of closed- and open-ended questions” (Kathryn, et al., 2015:366), We will use semi structured interview from the four organizations, because we need to go deep inside this phenomenon, and to see detailed visions and depth information specially from the decision makers in the managerial levels, so we will meet with CEO’s, IT managers, production managers, in media organizations those positions consider as the main influencers and the top managerial level in the organization and more over they are the management who deal with the Big Data analytics, also in such subjects we need to be sure that the data is coming from a person who actually knows what we are asking for, using interviews in general let us assure the ability of the interviewee to answer our questions, other data collection methods we will not be able to do so, often accompanied by follow-up why or how questions which allow us to let the interviewee explain their visions and could let us to ask some questions that they were not in our plan depending on the answers we get, this could lead us to more important issues we wanted to understand or prove it, In this study we make interviews from the four organizations, this thing will help us to assure and test the results since we can compare the results with each other’s.

The language used in the interview is Arabic due the fact that all the media organizations are Arabic and all of the interviewees are Arabic also, so we had to clarify our interview question and conduct it in Arabic language to let the interviewees express their answers in easy way not to concentrate on the translating, after that we translate the answers to English, we tried to make the translation as same meaning as we can, also all the interviews held had been approved to be recorded by the interviewees, taking headlines notes not the whole answers helped us to concentrate on the answers and deeply understand it and discuss.

3.5 Data Analysis

“Qualitative analysis is the analysis of qualitative data such as text data from interview transcripts.” (Bhattacharjee, 2012:113), the phase of analysing the interviews starts with typing the recorded material of the interviewee 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 professional academic translator to ensure reliable transcription of the data been gathered, the interaction of the interviewees also considered in the text and from notes taken within the original interview to improve the ability of the answers to express the interviewees opinions and answers, the interview question are split into 6 dimensions, each of them focus on value gained from each question, each dimension reflects and focus 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, the first dimension is general questions to understand the experience and the knowledge of the interviewees and about the organization size and data volume, the second dimension is the Big Data knowledge which express the background understanding of analysis in general and the knowledge of the Big Data term and is there a culture of understanding and using Big Data analytics in the organization, the third dimension clarify the sources of Big Data used in the organization where the fourth is focus on whom and how the organization use the Big Data, the fifth dimension express the challenges of using Big Data from the interviewee standpoint in their organization and the last dimension and the much important one is decision making, which clarify and explain the Big Data effect on

employers, experience of trusting Big Data results, management standpoint of Big Data and management standpoint of Big Data .

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.

An example of the coding process for one of the interview questions to explain it:

Coding example for one of the six dimensions for the interview questions “Decision making dimension”:



Q: How far is practical experience and intuition still important in decision-making? Can you say that decisions made depending on the Big Data analytics results will cancel the decisions make depending?

A1: Yes 90% it uses the intuition for making decisions, for instance we gave reports from the beginning of broadcasting one program that it's interacting with the audience is very weak for more than 2 years, and nothing done, but after some thinking form management to reduce the budget they asked again if it's still weak to support their previous decision of stopping it, I think in our case it's the intuition still the leader for making decisions

A2 : I think it will use it as a factor from the factors they could use it when making decisions,especially if the results of Big Data analytics been shown in smart and clear methods, for the management its effecting and supporting but the intuition and the experience still have the big influence in management for making the decisions .

A3: To be honest with you, by using this data it's not that much detailed, but for me I am a journalist, so in some cases you have to make immediate decisions for a specific case I will depend on my journalist sense to make the decisions, but almost it makes my decisions, because it's not a competitor with me it's supporting me.

A4 : I think it's mixed between the two approaches the experience and intuition and the analytics results, I think it's supporting the decisions, specially that the data is not related to machines it's related to human and sometimes when you make a decisions based on data you could be shocked that it's not the right one,

A5: Yes, it will be supporting especially after experience some practical cases of using the Big Data in supporting the decisions it will be major factor in making decisions

A6: I think he has no escape from Big Data, especially that the decisions will be measured by the feedback from our audience, we can say it's a very important factor, but it's not the main one, I can say it's a big supporter for the decision, and with more measured effects of Big Data in the future it will have a big and important influence in making the decisions

A7: No. I think both practical and Big Data based analysis are affecting the decisions. We work in media and news which means that values and information and honesty are so important, not only numbers

A8: This may already be counted among the negatives, but it is due to the nature and skill of the person who can direct this data according to his vision and improve reading and make recommendations for this data... Do not succumb to the power of technology and dazzle them because it no matter how much intelligence level remains limited to provide a comprehensive vision, "Tool" but very powerful specifications can shorten the time and cost

After collecting the main four shared patterns between all the eight interviewee's answers for that question, which it's:

• Big Data based decision
• Intuition based decision
• Practical experience
• Supporting decision

Then, a linked theme to explain them conducted and leads to:

Intuition and practical experience is the main factors for making decisions in the interviewed media organizations, and the Big Data analytics results are supporting factor, not a main factor for making decisions,

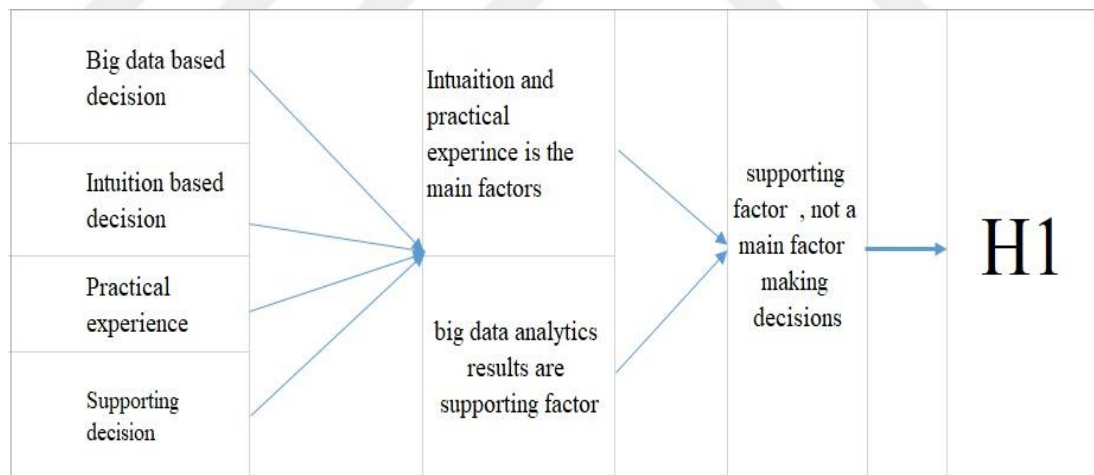
Intuition and practical experience is the main factors
--

Big Data analytics results are supporting factor
--

Which direct to a result that the Big Data analytics results are supporting factor, not a main factor making decisions,

Supporting factor, not a main factor making decisions

Which explain why as a conclusion there is no significant role for the Big Data analytics in managing and orienting media organizations,



Source: Analysis reseults

4. RESULTS

This chapter contains the results obtained from the eight interviews of the four media organizations, in the first section the general knowledge about the interviewees and their organizations, the second one shows the level of knowledge about Big Data and its analytics, the third section specifies the source of Big Data used and gathered in the organizations, the fourth section focuses on the data usage and how organizations benefit from the data they gathered, the fifth section discusses the challenges of using Big Data analytics in the organizations, and the last section clarifies an important issue of using Big Data analytics which is how Big Data affects the decision making in the interviewed organizations.

4.1 General Knowledge

The interviews with four media organizations were made with eight different positions, in AL Shaq TV channel the social media department manager and IT department manager, in Falastini TV channel the general manager and digital media manager, in Arabi Post with Head of editorial section and social media lead, and with Arabi 21 with general manager and social media manager, 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, with total six technical related positions and two high level managers this allowed to view the standpoint of various positions and managerial levels with different experience in Big Data terms, four organizations are small-medium size from 50 to 150 employees in each.

Important to notice that the eight interviewees have different studying backgrounds and almost of them is working in another field than their study, 7 of the interviewees studied and gained a degree in another academic sector for instance in Arabi post head of editorial section:

“I have studied English literature and my work is in journalism editing, [...], and now I am chief editor” (Arabi post, October- 16 – 2018)

For Al Sharq TV channel the director of social media department:

“I graduated from the Faculty of Commerce, [...], in Sharq TV I am Director of Social Media department “(Al Sharq TV, October- 15- 2018)

not having academic degree in the field of work is not a must to be successful in the job position, but it depends on the work experience for having the skills to perform the job and this issue is relying on the person to educate himself and his previous experience which could be effected by the circumstances of the previous work environment if it's professional and successful that will lead mostly to success for the person in his future working career, if not, it's hard to gain and measure the enough knowledge to be reliable for the current position, the years of experience vary from position to another but the 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.

4.2 Big Data Culture

The interviews show that all the interviewees are starting using Big Data, even that for two of them they hear about the Big Data term at interview time,

“In general I hear the term “Big Data “but i don’t have more knowledge in this term “(Arabi post, October- 16 – 2018)

For a technical position and also for higher level managerial position also,

“No specific information. We use it mainly based on our experience, without theoretical background” (Arabi 21, November- 23-2018)

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, the TV channels focus mainly on the analytical tools and applications included in their social media accounts and Google analytics mainly for their websites due to the fact that their main broadcasting platform is the TV satellite broadcasting, and Al Sharq TV used third party organization to perform a report for their ranking in Arabic TV channels depending on Big Data analysis technique, while the press platform is interested more in analytics related to their main platform (website) and using different tools and software's for Big Data analysis .

The culture of using Big Data in the organizations are weak but increasing in general, while the knowledge is still between technical department like Social media and IT

employees is more, they are producing reports to high level managerial levels depending on Big Data analytics and insights, and always trying to introduce the knowledge and benefits of using it, but still needs to improve that knowledge for instance for Arabi post they recently made an in house workshop focus on Big Data and using it in their organization with outsource expert trainer to learn employees about the Big Data term,

“We try always to raise up the knowledge of digital media and Big Data for instance we had a previous trainer before one month from an expert in Big Data who came to the location and made seminar and some lectures for the employees related to Big Data and new trends in the online press and digital based techniques, also we structure a group teams depending on projects each team have an employee that we knew before he has good knowledge in new trends and digital transformation and Big Data and he is leading the knowledge transformation to others in the team, in general we are trying to raise the new technological terms that affecting and leading our working effort.” (Arabi post, October- 16 – 2018)

The high level managers’ knowledge and standpoint of Big Data is a main factor in the culture of using Big Data in organization, as for the previous example the Big Data knowledge in for high level managers lead them to spread the culture of it by several methods another example in Falastini TV channel the high level managers always asking for reports depending on measurable KPI’s from Big Data analytics tools and insights from social media platforms.

“Our manager is one of them, he usually follows up with insights from our platforms to always give motivational action to work in a culture understands the Big Data effect in our field, he uses those results as a indicators for the success of the work, usually we give reports for the manager including analytics facts and information obtained from platforms analytics tools” (Falastini TV, October- 25 – 2018)

4.3 Source of Data

The interviews show that the main source of Big Data for almost all of the interviewed organizations is social media accounts then the organizations websites, this because of the nature of organizations which is mainly digital media

organizations and focus on online media platforms, for instance all of the four organizations are using Google analytics and social media platforms insights to analyze and review their performance in general,

“Yes i think it’s the main and the reason mainly it’s free and already we have big accounts on it and its indicator for channel viewership” (Al Sharq TV, October- 15- 2018)

In press platforms they are using other tools and applications for Big Data analytics specially for real-time insights on their platform and two of them are using paid one,

“We are using mainly the analytics from our own service providers like Parse.ly and google analytics, in addition we use social media insights like Facebook specially that included (Pixel-code) which is important for us to understand more the conversions from Facebook to our platform “(Arabi post, October- 16 – 2018)

while the TV channels are depending only on the free analytics from social media platforms and other free applications and websites due to the fact that in general the software’s and tools for Big Data analytics are coasting too much, specially they are small and medium sized organizations and their budget can’t afford high costs, in one of them they have experience to have paid reports from outsource agreements specially that for TV channel it’s also important to view the satellite broadcasting statistics

“And we had taken two times a report from IPSOS” (Al Sharq TV, October- 15- 2018)

But they argue that even for that reports it also effected by online statistics depending on analytics done upon Big Data gathered from social media and other online platforms like websites and online streaming due to the fact that in MENA region the main broadcasting method is by satellite free access and it’s not easy to measure it,

“I already read some reports assuring that its mainly depending on social media platforms, specially that in MENA region it’s not a cable TV service, instead the broadcast is free on satellite dish in each home and then beside making some surveys they don’t have more access to the data about viewership” (Al Sharq TV, October- 15- 2018)

Even for the surveys been done it's depends on sampling, for instance usually companies doing these surveys makes five thousand phone call in one country to collect data represent five million people, and this sample effected by various conditions which makes the results sometimes not reliable.

4.4 Data Usage

The interviews show that the most engaged departments in using data technologies and data analytics is marketing (via social media accounts) and the executive management, which usually make the decisions, the reports and insights introduced to them specially by social media departments and in some cases from IT departments, (it depends on the hierarchy and the structure of the organization and which departments are responsible for dealing with Big Data analytics).

"We can say mainly executive management, usually we use the results as a guide to make some of the decisions related to forecasting and orienting the employees to focus more in this subject or that one" (Arabi post, October- 16 – 2018)

"Mainly i think it's the marketing and after that its customer services, also for executive managers" (Falastini TV, October- 25 – 2018)

For social media departments they are trying to benefit from insights and analytics to generally improve understanding of their audience and followers and develop their using all available insights and measures to obtain more marketing efficiency, they focus on Big Data analytics to help the organization predict audience interests,

"We have a special employee his duty is to view insights from Big Data and give reports which targeted audience we should focused more when making ads or when pay for boosts" (Arabi post, October- 16 – 2018).

"Google analytics and Facebook data give us good information about audience interests; they show the type of published materials which attract audience" (Arabi 21, November- 23-2018)

Effective ads targeting,

"Sure, the analytics given by platforms is main indicator for targeting ads, it shows where is your weak and strong effect for some countries and you can

specify more ads for your weak places to raise their interaction with your platforms” (Al Sharq TV, October- 15- 2018)

“Yes, because we usually want to target specific audience like from specific Arabic country, we look for insights and make some decisions depending on that results” (Falastini TV, October- 25 – 2018)

Segmentation of the audience,

“Yes for example if the analytics shows that the most interested ages for your content is between (15- 24), then you have to focus more on this types of content, we usually do this for our website by periodic reports showing our readers or viewers interests” (Al Sharq TV, October- 15- 2018)

“Yes, especially regarding the gender or the age to direct the content for each segments for them” (Falastini TV, October- 25 – 2018)

Financial management which is very important and measurable aspect in organization, interviewees all assure that they are using Big Data insights to manage their financial expenses, on the daily routine decisions and also with strategic decisions for the high level managers, for instance in Al Sharq TV channel they made an important cut cost depending on the insights from website and social media platforms showing that they have efficient and fair enough reach to the audience in EUROPEAN continent by online streaming and live shows on social media platforms, and decided to stop the HOTBIRD satellite orbit broadcasting and save monthly minimum 20,000 \$, which also allow the organization to use this cut cost in other improvement in their organization.

“We were broadcasting on two different satellite orbits one Nile sat orbit which is the main for MENA region, and the other is HOTBIRD orbit which is specific to the EUROPEAN continent and after studying the case of our EUROPEAN viewership on online stream the management decided to stop the HOTBIRD broadcast due the fact that the statistics of online streaming via our websites shows fair viewership’s from EUROPEAN countries, and so we make cut cost supported by our statistics” (Al Sharq TV, October- 15- 2018)

Important notice in financial management is data and insights could change even the platforms you are putting ads on,

“Who work with digital media advertising, should know this issue, for example at Saturday and Sunday its usually cheaper to make the boost, so we could focus more on that boosts to increase our likes or views for the pages, for instance last three months it was obvious that Facebook is decreasing the reach for the paid content and this thing makes us think to go for other platforms for ads like our website, cause already we have a budget for ads and if it’s not worth to work with Facebook you have to think where is the best platforms to use it” (Falastini TV, October- 25 – 2018)

The percentage of the used data were varying between the interviewees, but for managerial level interviewees it was not less than %80,

“I can say we are trying to use every single insights we can gather, to specify we work in a projects module which based on the insights we gather to focus more on this trend or to investigate on that, for each project we have weekly report determining to what extent we are moving with the target previously been explained and what to focus more on it, every step depends on a specific insight, more we are interactive with the analytics or insights, specially that there is a culture in the organization to work with facts depending on an insights even we should use common sense in the journalism field but with the support of data or insights gained from the analytics” (Arabi post, October- 16 – 2018).

The positions which have technical aspects argue that it’s not more than %50 of the gathered data, it depends on how the employee understand the volume of the data been gathered, almost managers see the data by reports or insights introduced by the more technical positions like social media specialist, the manager tries to use all factors when making decisions so he use all the reports introduced to him from social media specialist, while the social media specialist use not more than %50 of the gathered data to produce the reports or the insights.

“I think more than 50% of the data we are using it, we transform this data into information and we use this information in the reports to proceed our work more efficient” (Falastini TV, October- 25 – 2018)

Only one interview shows that Big Data analytics could contribute to speed up the operational process in the organization, while the rest of them were not sure that it

could, back to the point of culture it's the main factor of understanding the effective using of Big Data analytics in the workflow to speed up the operational process, Moreover the interviews showed that no one of the interviewees think that there is any disadvantages of using Big Data analytics in the organization, all of them argue about the challenges of using Big Data.

4.5 Challenges of Using Big Data Analytics

The interviews show that high cost of using Big Data analytics tools and software's is main challenge,

“For example i have 4 million recorded event from (Facebook PIXEL), those event is really valuable if i could analyze it more so i can make predictions, but for now it's still coast too much to do it, so for small organizations specially media one it's not easy to afford paying more to do this predictions, even we are sure it will help more understand and go for the next step of prediction but it still coasts more than my budget to do” (Arabi post, October- 16 – 2018).

“It's big so it need more study for using and benefit from it, we are now using the free analytics tools so i am sure if we have the budget to use more specialized applications or software's we will get more deep insights which will help us more” (Falastini TV, October- 25 – 2018)

beside that the lack of technological skills is a main factor challenging organization for using Big Data analytics and the fact that no one of the interviewed organizations have their own stuff of data analytics scientist or data specialists or even a separated section or department for data analytics is the main reason for that moreover the coast of infrastructure for Big Data analytics hardware and software inside the organization is also a challenge,

“Mainly the cost, it could be a big challenge, the second one is the knowledge of dealing with Big Data and get valuable information from the results” (Al Sharq TV, October- 15- 2018)

“Lack of experience and knowledge of the term itself, even sometimes we can hire experts and still not have the optimum results for example we are trying to optimize using 'Pixel' from Facebook but still not satisfied with the results” (Arabi post, October- 16 – 2018).

None of them also were interested in establishing like this departments but 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, this will solve two important challenges of using Big Data analytics in organization the first is the cost if it is affordable, and the second is they will directly produce reports and insights without the need of having experience on how to deal with Big Data, beside the lack of experience and knowledge to do it.

4.6 Decision Making

The most important dimension of the interviews which discuss the decision making (which is the essence of the management in organizations) depending on the Big Data analytics shows that 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,

“Sure, some times it could change editorial policy depending on some earlier insights about some cases, for example after understanding from the insights results that twitter is more usable in Golf area we focus more on twitter for making exposer in that content related to Golf area interested” (Arabi post, October- 16 – 2018).

“Yes. It helps in making decision about budget, ads spending and evaluation of outsources such us (Video makers, news agencies, pictures suppliers etc.” (Arabi 21, November- 23-2018)

“I think it could have a major effect, in our channel we have employees have 20 years of experience in media field, but after viewing the results from Big Data, sometimes we were surprised that some decisions are maybe not the appropriate one for specific situations, so we now try to adopt the Big Data analytics results to support our decisions” (Filastin TV, October- 25 – 2018)

And from the interviewed responses also there were some already made decisions depending on Big Data whether it was a daily and immediate decisions or when talking about long term (strategic) decisions,

“Yes for paid boosting i do make daily decisions depending on the insights and real-time feedback” (Arabi post, October- 16 – 2018).

“For social media in specific, we decided to use still images instead of videos to make more reach for that content, yes we could do video but we decide not, the decision was made depending on insights that the reach for the still images is higher than video” (Filastin TV, October- 25 – 2018)

“Yes. I changed an outsource for a specific product. I also changed the types of contracts with some news and photos agencies depending on the feedback and insights from content they deliver on our platforms” (Arabi 21, November- 23- 2018)

An interesting response from one of the interviewees showed that he used also for security reasons when hackers attacked his organization,

“Many of course, but the most important was collecting data about the institution after being attacked at a given time to find out how to deal with it in the best possible way” (Arabi 21, November- 23-2018)

Although from the interviewee point of view Big Data is not the main factor of decision making but it's one of the main supporter factors for it, especially if the benefits of using Big Data analytics is clear and measurable, they realize and believe that in the future Big Data analytics will affect more their decision making,

“It depends on the clearness of the benefits of using it” (Al Sharq TV, October- 15- 2018)

“I am sure that in the near future it will be big factor in supporting and organizing media organizations, especially after spreading the knowledge of the possibilities of Big Data analytics results and its impact in media” (Filastin TV, October- 25 – 2018)

“Yes i think after accumulated experience on the effect of the analytics results in the business field” (Arabi post, October- 16 – 2018).

The knowledge of Big Data for the management of organization lead to have an environment and culture of using and adopting its results in the organization,

“We spoke also that if managers were having a Big Data culture all the working environment will be leaded by Big Data results” (Arabi post, October- 16 – 2018).

“Sure, i think if the culture and the knowledge is available there will be major effect for the data, in our channel the knowledge in this term is improving and still need more understanding of the efficiency of using it”. (Al Sharq TV, October- 15- 2018)

“The main factor is adopting the culture of Big Data is the understanding and the knowledge of managers of Big Data” (Filastin TV, October- 25 – 2018)

The last question for the interviewees was to figure if they were making decisions depending on Big Data analytics results only or they still rely on their own practical experience and intuition and the answers were almost assuring that practical experience and intuition is still the main factor for making decisions specially from the high level managerial positions, the Big Data analytics is supporting the decisions but if it's on the opposite direction the managers will choose their practical experience and intuition to make the decisions,

“Yes %90 it uses the intuition for making decisions, for instance we gave reports from the beginning of broadcasting one program that it's interacting with the audience is very weak for more than 2 years, and nothing done, but after some thinking form management to reduce the budget they asked again if it's still weak to support their previous decision of stopping it, i think in our case it's the intuition still the leader for making decisions” (Al Sharq TV, October- 15- 2018)

“To be honest with you, by using this data it's not that much detailed, but for me i am a journalist, so in some cases you have to make immediate decisions for a specific case i will depend on my journalist sense to make the decisions, but almost it makes my decisions, because it's not a competitor with me it's supporting me” (Arabi post, October- 16 – 2018).

“No. I think both practical and Big Data based analysis are affecting the decisions. We work in media and news which means that values and information and honesty are so important, not only numbers” (Arabi 21, November- 23-2018)

“I think he has no escape from Big Data, especially that the decisions will be measured by the feedback from our audience, we can say it's a very important factor, but it's not the main one, I can say it's a big supporter for the decision,

and with more measured effects of Big Data in the future it will have a big and important influence in making the decisions” (Filastin TV, October- 25 – 2018)



5. CONCLUSION

5.1 Conclusion and Discussion

The aim of this thesis is 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 .

The results of this study provide a new vision of the role of Big Data analytics on managing media organizations, these results differ from the expectations present in existing literature, because a lot of the existing literature focused on the theorization and formulation of expectations, while this research spot more light on the real life practical experience and the obstacles facing adopting Big Data analytics in

managing media organizations, all the interviewed organizations realize the effect and benefits of using Big Data analytics if been used in the organization specially in making decisions relying on it, although they can't benefit from it right now, the reason is that they are in the first stages of understanding and adopting Big Data analytics results and the fact that a lot of challenges are facing the optimum use for it inside the organization, the importance of using Big Data is not clear to various positions in the organizations, especially for managerial positions they were not aware of all benefits and capabilities of using Big Data analytics results to direct the organizational effort to harvest the success they seek, especially in the era where data is available everywhere and only need some effort to analyses and benefit from it.

They all have some individual believed that the Big Data era is here and the media organizations should grasp this new chance to develop the way it work and stay up to date as a business approach, since media organizations were always pioneer in adopting technological development from the invention of printing machines by Gutenberg in 15th century till now, their main challenge is the need to spread this believes in the organizations and adopt it as a culture in every part of the organization, some of them who have high managerial level trying to do it by for instance making some workshops to raise the knowledge of Big Data in general and for the lowest positions by reporting and introducing insights to high managerial level to show measurable KPI's.

Also from the existing literatures, using Big Data analytics results needs to create a change of the process of making decisions to be more data driven decisions, to do so, organizations need to reduce practical experience and intuition in the decision making of employees, but the interviewees opinion showed that it's not easy to adopt this approach of making decisions in media field because of the nature of media filed and the sense of the journalism and unexpected events, so the existing literatures expectation is not so true and don't take into consideration unexpected events and situations where practical experience and intuition are important in making decisions.

Moreover, the cost of Big Data analytics tools and software were main factor of not using Big Data analytics from big vendors, the interviewed organization were relying on their Big Data results mainly from social media analytical tools included in it and other free tools like Google analytics, although in press platforms because of the nature of their publishing platforms (only online platforms) another low cost paid

services and software's were used, another big issue is not having a special department or section in the all interviewed organization for data scientist or data analytics or even data specialist to analyze the data, they all rely on social media department or IT department to analyze the data, even it's not their responsibility to do, but they depends only on them and their own individuals experience on dealing and analyzing the data, in general we can determine the lack of the skills and talents to analyze the data is another main factor of not adopting Big Data analytics results.

The results also shows that the more measurable effect of using Big Data were shown to high managerial levels the more they adopt it, especially for social media departments which is major player in the media sector, for instance social media departments rely on insights from analytical results of Big Data tools included in the social media platforms to make a lot of decisions for strategic planning for social media platforms or even for daily routines decisions, this relying assure that if the organizations have the right and effective tools or services they will rely more on it, that feeling also assured by the interviewees answers when asked about if they have the opportunity to have special logical costly services to analyze the data they gather they will adopt it.

Finally one of the main and important factors that will affect the role of using Big Data analytics in managing media organizations is the Big Data analytics adoption from managers and decision makers in the organization, the leaders of this industry are already benefit form Big Data analyses and by default they are using it for their most important decisions, like BBC, CNN, Huffington Post and Financial Times, this adoption vary from the management understanding and believing of the effect of the Big Data in directing and orienting their media organizations.

Because of the previous points and factors, this study indicates that harvesting benefits of Big Data analytics results is not easy to gain until now, this study reveal that there is a small part of the results of the existing literatures are true due the fact that it depends on the positive sides can be introduced by Big Data analytics to the organizations.

5.2 Limitations and Suggestions for Future Research:

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 aims to understand more and deeper insights of the role of Big Data analytics results on managing and orienting media organizations.

Second, all media organizations were Arabic in Istanbul but not in the Arabic world “MENA region” due to the fact that the researcher is located in Istanbul and this issue affects the resources of the employees of the media organization and the capital knowledge in general and in specific the culture of using Big Data in media organizations.

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

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APPENDICES

Appendix A: Interview questions

General:

1. Brief about the interviewee? Age, experience, study, department ... etc.
2. In short some information about the organization? Name, location, field, origin ...etc.
3. Number of employees?
 - ☐ Between 1-50
 - ☐ 51- 100
 - ☐ 101- 1000
 - ☐ More than 1000

Big Data knowledge:

4. Did you use any software or application to analyze data? Name it?
5. What do you know about Big Data?
6. Did your organization use Big Data analytics applications before?
7. Do you believe your organization have the culture of using a Big Data analytics?

Source of data:

8. From what sources does your organization collect data? Discuss why?
 - ☐ Open data/Public Sector Information
 - ☐ Phone usage
 - ☐ Social media
 - ☐ External feeds (outsource agreement)
 - ☐ Others

9. Considering that your organization have different social media platforms (accounts), Can you say social media data is major source of your Big Data?

Usage:

10. Which departments in your organization are engaged in using data technologies and data analytics? Explain why and how?

☐ Executive Management	☐ Human Resources
☐ Marketing	☐ Customer Service
☐ Operations	☐ IT

11. From all the data collected by your organization, what is approximately the percentage that is further processed for value generation?

12. To what extent do you think that data can contribute to speed up the operational process in the organization?

13. Discuss how do you think Big Data helps your organization to achieve the following?

- Predicts Audience Interests
- Effective Ad Targeting
- Insights into Customers segments
- New business model
- Optimized Scheduling of Media Streams
- Financial Management
- Content Monetization and new product development
- Efficiency increase

14. Do you use results from Big Data analytics to organize budget of your organization? Give at least one example if yes?
15. What are the disadvantages do you see for the use of Big Data analytics in the organization?

Challenges:

16. Do you see any challenges of using Big Data in organization? Mention and explain?
17. How relevant are the following Big Data-related challenges for your organization? Discuss why?

☐ Timeliness	☐ Overwhelming volume
☐ Managing unstructured data	☐ Data quality
☐ Availability of data	☐ Access rights to data
☐ Data ownership issues	☐ Cost of data
☐ Lack of facilities, infrastructure	☐ Lack of pre-processing facilities
☐ Lack of technology	☐ Shortage of talent/skills
☐ Privacy concerns and regulatory risks	☐ Security
☐ Difficulties of data portability	☐ Corporate culture

Decision-making:

18. Do you think that Big Data analytics can play role in decision making of high-level managers?
19. Did you ever make a decision depending on Big Data analytics? What was it?
20. Do you think that Big Data analytics can have a major effect in your organization at the future?
21. To what extent is the use of Big Data analytics stimulated/inhibited by management/supervisors? What their standpoint about the use is of Big Data analytics?

22. How far is practical experience and intuition still important in decision-making? Can you say that decisions made depending on the Big Data analytics results will cancel the decisions made depending on practical experience and intuition?



Appendix B: Coding themes and patterns:

Dimension	Value	Question
General:	experience, knowledge	G 1
	understand more about organization	G2
	size,data volume	G 3
Big Data knowledge:	awareness of analysis	B 1
	familiarity with Big Data term	B 2
	experience using Big Data in organization	B 3
	culture of Big Data in organization	B 4
Source of data:	Target groups ages and viewers classification	S 1
	Importance and role of social media	S 2
Usage:	data influence in organization	U 1
	Data team, size,features and awareness	U 2
	Data analytics effect on internal workflow	U 3
	Values created by Big Data analytics	U 4
	Big Data analytics effect on budget distribution	U 5
	Disadvantages	U 6
Challenges:	Organization viewpoint challenges	C 1
	Organization viewpoint challenges	C 2
Decision making:	Big Data effect on employers	D 1
	Experience of trusting Big Data results	D 2
	Big Data effect on long term decisions	D 3
	management standpoint of Big Data	D 4
	do you still need intuition after using Big Data	D 5

Appendix C: Coding Summary

Dimension	Question	Value	SH	A P	FA	21
General:	G 1	experience, knowledge				
	G2	understand more about organization				
	G 3	size,data volume	B	B	M	M
Big Data knowledge:	B 1	awareness of analysis				
	B 2	familiarity with Big Data term				
	B 3	experience using Big Data in organization				
	B 4	culture of Big Data in organization	S	S	B	S
Source of data:	S 1	Target groups ages and viewers classification	Social media and website			
	S 2	Importance and role of social media				
Usage:	U 1	data influence in organization				
	U 2	Data team, size,features and awareness	S	S	B	M
	U 3	Data analytics effect on internal workflow				
	U 4	Values created by Big Data analytics				
	U 5	Big Data analytics effect on budget distribution				
	U 6	Disadvantages	No			
Challenges:	C 1	Lack and high coast of technology				
	C 2	talent/skills				
Decision making:	D 1	Big Data effect on employers	S	S	B	B
	D 3	Big Data effect on long term decisions	S	S	B	B
	D 4	management standpoint of Big Data				
	D 5	do you still need intuition after using Big Data	Yes / support decision not making it			

SH = Al Sharq TV channel

AP = Arabi Post

FA = Falastini TV channel

21 = Arabi 21

	good
	not bad
	not good
B	Big
M	Medium
S	Small

Appendix D: Interviewees list

Organiza tion	First interview	Position	Second interview	Position
Sharq TV	Omar al shal	Social media manager	Hani al banna	IT manager
Falastini TV	Hisham jaber	General manager	Sameer Saati	digital media manager
Arabi Post	Rashad abdul kader	Chief editor	Mohammad al sanhawi	social media lead
Arabi 21	Feras abo hilal	General manager	Loaai mustafa	social media manager

RESUME

Personal Information

Name : Ashraf Yousef Othman Ahmad
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Date of Birth : September 22, 1980
Nationality : Jordanian
Sex : Male
Marital Status : Married
LinkedIn : jo.linkedin.com/in/ashrafyusef

The academician Qualification

- *Istanbul Aydin university – Master of business administration – (2017 – 2019)
- * The Hashemite University of Jordan, Awarded the Bachelor degree in" Computer Sciences" (2003).
- *Al Ittehad Private high school (1998).

Experience

- 1- **Project supervisor** – total media cast: working on several TV channels project as operation manager including hiring and recruiting phase , Total Media Cast is a leading independent operation management, media system consultation and system Integration Company that delivers a high standard, customized technical & operational solutions, it handles turn-key projects for broadcasters and TV stations, starting from building the concept, moving to planning & design, installation, commissioning, training, &support,
- 2- **General Manager:** at REALTIME media Production- Jordan (1-2-2012—till now).
- 3- Freelancer **Director – producer** (1-1-2011-----30-1-2012) directing more than 180 hours of show program.
- 4- **Presenter** in Toyor al Jannah TV channel (2009-2010) for live program (50 hours)
- 5- **Director, script writer** in Toyor al Jannah TV channel (2009-2010) – Musical Video clips, educational Programs (75 eps.), live Programs (more than 300 hours) and other spots and reports for children.

- 6- **Production Manager, Director, producer** (2007-2009) - Music video clips, Musical Programs, Children programs, Musical Spots for (Al Resalah TV channel, Al Shorroq TV channel, Al Quds TV channel and other channels and companies).
- 7- **Editor** in Newsound Company (2004-2006) – Music video clips, spots, Musical Programs, musical Spots, Documentary Films, Reports for (Al Jazeera TV channel, Al Resalah TV channel, AL Majd TV channel, AL Jazeera documentary TV channel and other channels and companies).

Language

English	Very Good
Arabic	Native
Turkish	Beginner

Skills

- 1- Highly regarded leader, with the ability to motivate employees to deliver top performance able to evaluate operational needs and implements strategies that increase productivity enhance quality, and improve cost effectiveness.
- 2- **Directing:** music video clips, live program, show program, promo, and TV ads.
- 3- **Presenting:** live show program.
- 4- **Producing:** work as a producer for music video clips, promotions, show program, live program, TV ads, and documentary films.
- 5- **Script writing:** music video clips, promo, TV ads.
- 6- **Singing, Composing.**
- 7- Willingness to learn: acquired new skills through employment and creative projects.
- 8- Team working: enjoy working in both team environments and independently.
- 9- Problem solving: involvement in complex, low-budget projects, with time constraints.