Digital Marketing Framework Strategies Through Big Data

Samee Sayyad[1], Arif Mohammed[2], Vikrant Shaga[3], Abhishek Kumar[4(✉)], and K. Vengatesan[5]

[1] School of Engineering, Symbiosis Skill & Open University, Pune, India
samee.syd@gmail.com
[2] Department of MIS, Dhofar University, Salalah, Oman
mdarefl20@gmail.com
[3] Department of Computer Application, Thakur Institute of Management, Mumbai, India
shagavik@gmail.com
[4] Department of Computer Science, Banaras Hindu University, Varanasi, India
abhishek.maacindia@gmail.com
[5] Department of Computer Engineering, Sanjivani College of Engineering, Kopargaon, India
vengicse2005@gmail.com

Abstract. In recent times, the amount of data generated by various digital techniques are increasing at an unprecedented rate. These humongous amount of generated data is called "Big Data". It is basically a combination of large data sets that has complex data structure integrated with the difficulties to store, fetch, analyze, transfer, protect and visualize the transferred data. The process involved to retrieve, fetch and analyze the data are named as big data analytics. Big data analytics is more useful in e-business companies to analyse the behavior of customer, systematic analytics and acquiring profit over the competition. This paper aims to study the use of big data in business organizations. The data have been collected from 122 e- business companies located within Maharashtra, India. The outcome of this study is that the big data is basically useful in e-business companies. This paper includes a literature review, sampling, hypothesis testing, expected conclusion and suggestions.

Keywords: Querying · Data curation · Visualization

1 Introduction

Big data images as the buzzword in today's digital environment. Humongous amount of data are generated by different sources such as e-business, online transactions, education, engineering, social media, call centers, medicines, and telecommunication domain. From the past years, generating and exchanging the information has been increasing tremendously in the e-business domain. E- business is recognized as one of the fastest acceptors of big data analytics to know the need of market, customer behavior, face customer retention challenges and increase the profit. E-business applications has gained huge amount of data via online transaction or by different

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resources. The E-business firms are generally associated with both the structured and unstructured data. Structured data includes name, age, address, date of birth; gender etc. Whereas the unstructured data includes voices, clicks, likes, links, tweets etc. Nowadays, Indian people are mostly engaged in buying and selling the product via internet. The large-scale E-business companies have developed an environment for buying and selling products via online mode. İn order to enhance the customer behaviour analytics process, each transaction made by the customer is stored and analyzed.

2 Review of the Literature

Some practitioners and scholars have gone so far as to suggest that Big Data Analytics (BDA) is the "fourth paradigm of science" (Strawn 2012, p. 34). Big Data Analytics (BDA) is a "new paradigm of knowledge assets" (Hagstrom 2012, p. 2), or "the next frontier for innovation, competition, and productivity" (Manyika et al. 2011, p. 1) [5]. Soumya et al. explains the process of data analytics in big data network and that will be helpful to analyse the prediction strategies with lesser outcome [1]. Shahriar Akter et al. [2] gives a brief discussion of business value changes in the big data analytics framework. Said et al. [3] discuss the challenges involved in the electronic commerce and that helps to obtain the variety discussion in statistical areas. Lipsa Sadath et al. [4] focuses on the cyber security crime in the e-commerce application and this helps to meet the requirements of both data mining and e-commerce applications [4].

Objectives

1. To study the new approach in marketing strategies by using big data analysis and large database in E-business applications.
2. To explore the various uses of Big Data concept in E- business transaction and the role of big data in electronic marketing innovation domain.
3. To enumerate the recent trends in E-business.

Hypothesis

H0: E-business companies does not gain significant benefit due to the implementation of Big Data Analytics framework.

HA: E-business companies benefit due to the implementation of Big Data analytics framework.

Research Methodology:

A) Primary Data:

Data is collected through structured Questionnaire; some of the data is collected through interviews conducted on the on-site visits and personal observation.

B) Secondary Data:

The data is collected from Journals, Bulletin, and Newspaper.

C) Tools and Techniques used:

Classifications and tabulation of the data and so are collected from the above mentioned sources is used as per the requirements of the study. The data collected is then analyzed and presented by using the techniques such as:

1. SPSS
2. Microsoft Excel 2007
3. Correlation analysis

D) Period of Study:

The data is collected from 2005 to 2015.

Selection of Sample

Determining Sample size is recognized as the important issue because if the sample data is too large it becomes difficult to process and it consumes more time and money, while samples that are too small may lead to inaccurate results. Hence I restricted my study to "A study of marketing strategies using Big Data in E-business" (With special reference to selected E-business firms in Maharashtra state), its applicability in Maharashtra State only. Hence, out of …437… E-business Companies in Maharashtra, I have decided to take …122 as sample by using the simple random sampling method (purposely for sake of convenience amounting to 27% of the Universe)

Scope of Study

The Scope of this important subject seems to be vast because of the separate data created and stored, which can be utilized as and when required. The study shows that the big data is emerging as a very useful tool in e-business applications, and very few companies have implemented and obtained more number of benefits from big data tool in E-business applications.

Limitation of study

The study is restricted to Maharashtra State only, as the comparative study with other States and Countries will consume more amount of time, money, and energy. We have faced difficulties in collecting data regarding this topic from different sources. Hence we restricted our study to E-business companies in Maharashtra State only.

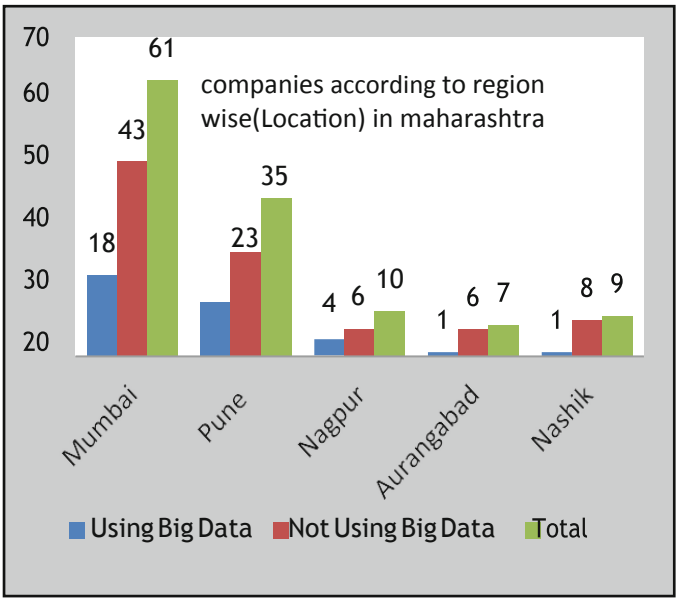
The study provides a scope for conducting further studies in the areas of:

(1) Increasing big data analytics domain in India
(2) Comparison between marketing strategies obtained by the online shopping portals like Flipkart and Amazon
(3) Case studies on the Big Data implemented companies (Table 1).

From the Graph 1, after taking a survey in Maharashtra got total 122 respondents, major respondents from Mumbai i.e. 61 which is 50% from those 18 i.e. 14.75% respondents using big data analytics and 43 i.e. 35.25% respondents not using big data analytics. A minimum response gets from Aurangabad region i.e. 7 which is 5.74% in that 1 i.e. 0.82% respondent using big data analytics and 6 i.e. 4.92% respondents not using big data analytics. In Pune region total 35 i.e. respondents which are 28.6% from

Table 1. Distribution of company region wise (location) in Maharashtra

Region (location)	A study of marketing strategies in E-business				Total	Percentage
	Using Big Data	Percentage	Not Using Big Data	Percentage		
Mumbai	18	14.75	43	35.25	61	50.00
Pune	12	9.84	23	18.85	35	28.69
Nagpur	4	3.28	6	4.92	10	8.20
Aurangabad	1	0.82	6	4.92	7	5.74
Nashik	1	0.82	8	6.56	9	7.38
TOTAL	36	29.51	86	70.49	122	100



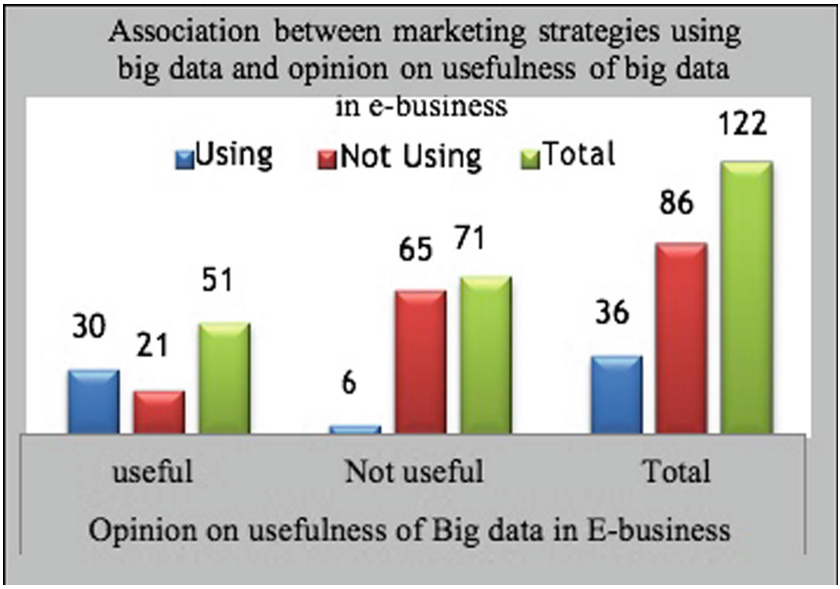
Graph 1. Source Primary Data

those 12 i.e. 9.84% respondents using big data and 23 i.e. 18.85% respondents not using big data in their companies. In Nagpur region gets total 10 respondents which are 8.20% from those 4 i.e. 3.28% respondents using big data analytics and 6 i.e. 4.92% respondents not using big data analytics in their companies. From Nashik region get total 9 responses which are 7.38% in that 1 i.e. 0.82% respondent using big data analytics and 8 i.e. 6.56% companies not using big data analytics (Table 2).

From the Graph 2, out of 122 companies 36 companies are using big data in e-business applications and out of that 30 i.e. 83.33% companies agreed on usefulness of Big data in E-business & 6 i.e. 16.66% companies are not agreed on the usefulness of big data in E- business. While 86 companies not using big data in e- business, from that

Table 2. Association between marketing strategies using big data in E-business and opinion on uses of big data in E-business.

Big data in E-business	Opinion on usefulness of big data in E-business			Chi- square value	p-value
	useful	Not useful	Total		
Using	30	06	36	36.2	P < 0.0001 Significant
Not Using	21	65	86		
Total	51	71	122		



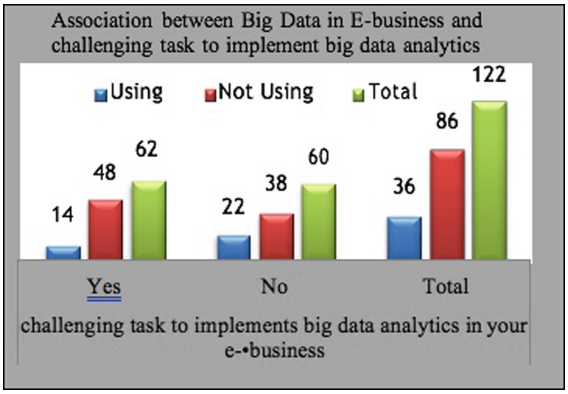
Graph 2. Source Primary Data

21 i.e. 24.41% companies where considered usefulness of big data in e-business and 65 i.e. 75.58% companies where not considered usefulness of big data in e-business. There is statistically significant association between the marketing strategies using Big Data and usefulness of big data in E-business domain (P = 0.0001) (Table 3).

From the Graph 3, out of 122 companies 36 companies are using big data in e-business out of that 14 i.e. 38.88% companies agreed that still it remains as a challenging task to implement big data analytics & 22 companies i.e. 61.11% companies where not agreed that big data analytics is a challenging task in e- business organization. While 86 companies not using big data in e-business framework. Statistically there was no significant association between the use of big data tool in e-business model and the challenging task is to implement the big data analytics in e-business domain (P = 0.086).

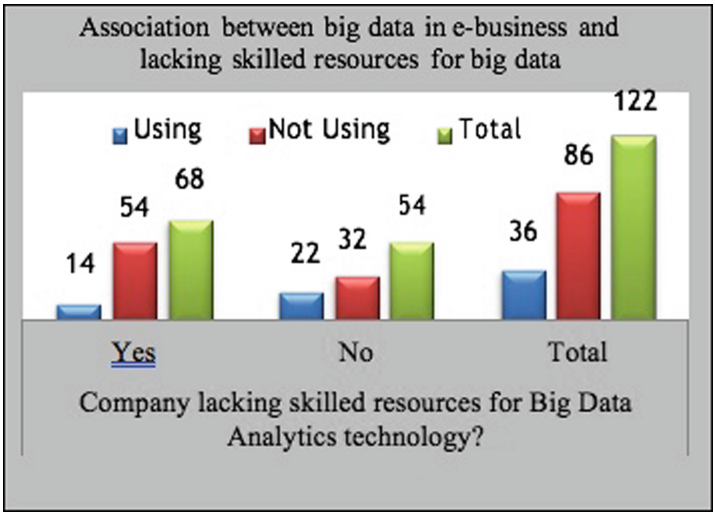
Table 3. Association between marketing strategies that utilizes big data in E-business and the challenging task is to implement big data analytics in your e-commerce/e- business framework

Big data in E- business	Challenging task to implements big data analytics in your e- business			Chi- square value	p-value
	Yes	No	Total		
Using	14	22	36	2.91	P = 0.086 Not Significant
Not Using	48	38	86		
Total	62	60	122		
Big data in E- business	Company lacking skilled resources for big data analytics technology?			Chi- square value	p-value
	Yes	No	Total		
Using	14	22	36	5.88	P = 0.015 Significant
Not Using	54	32	86		
Total	68	54	122		



Graph 3. Source Primary Data

From the Graph 4, out of 122 companies only 36 companies were using big data in e-business, and out of that 14 i.e. 38.88% companies are lacking skilled resources & Graph 3: Source Primary Data 22 i.e. 61.11% companies are not lacking skilled resources for implementing big data analytics technology 86 companies where not using big data in e- business out of that 54 i.e. 62.79% companies considered that lacking skilled resources for big data analytics technology & 32 i.e. 37.20% companies were not considered of lacking skilled resources for big data analytics technology.



Graph 4. Source Primary Data

There was statistically significant association between the use of big data in e-business and lacking skilled resources for big data (P = 0.015).

3 Conclusions

The survey shows, in Maharashtra state the big data implemented companies are less. Majority of the e-business firm exists in metropolitan cities like Mumbai and Pune region, and from these region maximum companies are found using the big data tool in their E-business applications. In Maharashtra state, maximum companies think and feels that the e-business application have been increased to develop an alternative marketing strategy and it has many advantages over the traditional marketing strategies. All the companies will think positively about the e-business application. From the survey, the major reason behind the non-usage of big data tool is their lack of skilled resources. Other reasons are that many of the marketing companies are not aware of Big Data Analytics technology, non-availability of huge data sources, and the difficulties in shifting companies' database to big data analytics framework. The maximum respondents agree that the big data framework provides a cost-effective mechanism to process the large volume of information available in the organization. The major role of big data in the organization is establishing BI/Analytics platform for the purpose of production reporting, searching, sorting, storing and analysis of the data. After implementing big data Technology, marketing companies tends to achieve major throughput and profit, and their financial performance has been outstanding, and the firm's sales growth has been increased at an unprecedented rate.

Recommendations

(1) Promoting among the academic scholars to learn new technologies like big data and create awareness among the e-business firm owners for ensuring the implementation of big data analytics technology in their traditional marketing strategy.
(2) The big data technology can be included in the college level syllabus so that the students can learn and develop their skilled resources.
(3) Arrange seminars, workshop in the small cities like Aurangabad, Nashik to create websites and implementation the big data tool in the marketing domain of large-scale companies.
(4) Promoting the benefits of big data in e-business through the media like social sites, newspapers, TV channels, journals and magazines.
(5) The companies can reduce the traditional marketing strategies. Big data analytics implements the different marketing strategy for surviving in the global environment.
(6) The company should set its goal, objective, and marketing strategy. According to that they would know the role and tangible benefits of the big data analytics in their company.
(7) The customers can easily access the sites, the products are properly categorized; a secure online transaction can be done to obtain an enhanced customer satisfaction.

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