



## **The Impact of Big Data Analytics towards on Effective Digital Marketing Transformation for Sustainable Growth of Organisation**

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### **Abstract**

In this study, we investigate the ways in which big data and machine learning are affecting the digital transformation of the marketing business as well as the challenges that this industry has in terms of data and information management perspective. The research, which made use of data gleaned from the rise of digital technology, uncovered previously undiscovered opportunities for advertising. Recent scholarly works that have been given serious consideration and assessment offer a complete overview of the field. In the current digital economy, with a particular emphasis on the digitalization of marketing in the five areas those are most important. In the future, research will investigate how businesses leverage technologies that are powered by big data and machine learning in their marketing operations. It is prudent to take into consideration the new advertising opportunities that the digital age has made available professionals from both the private sector and academic institutions who are experts in information technologies. It has been determined which subjects in the disciplines of information technology (IT), information systems (IS), business, and marketing call for primary research. Systematization, verification, a follow-up research, or the collections of data based on actual experience are all examples of this.

**Keywords:** Big Data Analytics, Digital Marketing, Organizational Sustainable Development

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## **Introduction**

The continuous advancement of technology requires companies to revise their standard operating procedures on a regular basis the maintenance of already-in-place systems, the introduction of innovative information systems, and the improvement of currently-used systems incorporating brand new elements into the existing configuration. The implications of recent advances in technological capabilities possibility of altering organizational strategy, management practices, and customer behaviour which would result in the production of an almost unending volume of data (Bala 2018). The potential of human beings having the ability to take in, evaluate, and use this info as a compass for more complex decision making has been overtaken by events. In the course of looking for valuable information within the data lake, we have been mining. In addition to information that can be utilized for the purpose of making a decision. The marketing efforts of a firm are responsible for a significant portion of the success and growth of the company. In point of fact, it is widely acknowledged that.

A more efficient marketing strategy may help a business realize more of its potential (Petit, 2019). The requirement placed on marketing professionals of today to enhance the focus on the market as well as data-driven decisions. As a consequence of this, Methodologies have a systematic structure for the collection of timely and accurate information regarding the market, products, and customers, equivalent to the current state of the corporate environment (Nazir, 2019). Upcoming technological developments, along with the immense potential and risks they Innovative technologies and information that is easier to get are convincing. Consumer-facing marketing strategies. Changes of a significant kind made to the business, including an intensified emphasis on expertise, the improvement of already existing operations, or the launch of brand new businesses The proliferation of digital technology has had an effect not only on the here and now but also on the future. In the near future, there will be business procedures that require specialist software, and needs a computerized system for handling the handling of money, which The challenges faced by an organization's information management can be attributed to a number of factors, including the influence of the Internet of Things and the consequences of digital transformation. New ways of thinking and innovative technology, such as the World Wide Web, have led to the Massive data collections, artificial intelligence, machine learning, and physical things dominate the conversations (Lewnes 2019).The workplace will require significant adjustments in order to accommodate artificial intelligence and other forms of technology. In addition, it is necessary for corporations to shoulder their share of the responsibility functions of Chief Digital Officer (CDO) which make it possible for them to take part in the discussion.

A leader who can both instruct and motivate them at the same time the current status of technology has seen certain shifts. In addition to fulfilling this prerequisite, firms are obligated to set mechanisms for the ongoing assessment of the advantages and disadvantages of breakthrough technologies and inventions them (Guo, 2019).The findings of big data are analyzed and discussed in this survey of the relevant literature analysis by AI of the transition from analog to digital in marketing departments as well as the resulting difficulties with information and data More specifically, the purpose of this study is to supply managers with to zero down on the particulars of the digital shift taking place in the marketing sector

problems aren't being adequately handled in an appropriate manner in academic research that is being examined by peers at the present (Alshura, 2018). The next study will have a significant emphasis on labour costs pertaining to aspects of marketing that are currently undergoing a digital transition require additional consideration, research, confirmation, or the gathering of new data. The field of marketing has been subject to a variety of developments over the course of several decades. Today's network marketing makes use of social media with the goal of minimizing resource waste and implementing an integration plan with an emphasis on investments. Websites that are primarily focused on the media and strive to maintain their visitors' engagement at a high level. In order to continue generating profits, marketing is one of the many industries that has made the transition to a digital business strategy (Trom 2020).

The convergence of big data analytics and digital marketing presents a paradigm shift that holds the potential to redefine how organizations engage with their audiences, create value, and sustain growth. This study embarks on a journey to unravel the intricate interplay between big data analytics and effective digital marketing transformation, with a keen focus on its implications for the sustainable growth of organizations.

## **Review of Literature**

The marketing industry is also plagued by difficulties brought on by the reality of business. Also, the volume of data is expanding at an exponential rate, and there is an abundance of data can be broken down into three primary categories: structured, unreliable, and semi-structured sources of data that are available to be accessed. It is not possible to store the data using a conventional database layout. The process of collecting personal data from customers entails a number of issues, including those relating to management and ethics, both of which need to be handled. The undiscovered potential of big data can be uncovered with the help of information governance. Businesses operating in the marketing sector are required to produce data that is of some utility a paradigm for the enhancement of data security that is based on data governance by lessening the significance of such measurements and their level of precision.

An problems and risk framework serves as the compass that directs information management at the firm. An important advantage will be forfeited by the company if it is unable to establish and maintain a robust governance frame work risk having a significant influence on the value of the knowledge that they possess in terms of business. When it comes to managing the operations of a company or organization, a powerful data governance framework that can process this vast amount of raw data getting a competitive advantage in business by transforming data into knowledge a significant amount of data. As a result of advancements in technology, companies now have access to a greater quantity of information than in the past (Evans 2017).

Data and information from the outside world that is both reliable and essential to one's success interacting with this knowledge through the use of technical tools. Everything and it opens up opportunities for entirely new forms of creative expression. There are trillions of data points to consider, new ways to engage with customers and other stakeholders, and new

communication channels—all of which have an impact on the experiences that customers have. Gain an understanding of the relationship between marketing and the actions of customers on the other hand, they continue to emphasize that the activities and programs are not enough.

The application of technology is only the first step in realizing one's full potential. People and systems both need to progress in order to keep up with the advances made in technology just like modern gadgets. Businesses are able to become data-driven through the implementation of big data, which in turn enables them to develop successful marketing strategies through the analysis of vast volumes of information (Reddy 2017). Technology improvements have made it possible for companies to manage and organize both structured and unstructured data within their organizations increasing the capacity of storage and effectively managing massive amounts of data No SQL is a database management system that can be used in place of relational databases.

The increasing number of data-analysis tools, the growing importance of the media industry, and the sheer volume of information that is already available. The possession of a huge data set does not in and of itself guarantee improved results Big data, on the other hand, has a wide number of applications in marketing. Regarded as both a resource and a treasure, as well as an asset. Big data can increase a company's efficiency by helping to standardize its operating procedures and revealing areas where improvements are needed the effectiveness of the market through the use of reduced prices, improved channels of communication with consumers, and streamlined business processes etc.

The amount of time individuals spend consuming material online is growing. When compared to other forms of media that are more conventional, the internet contains a vast amount of information. Because each of these technologies contributes something different to the process of analyzing social media data, these methods need to be updated to include machine learning, text extraction, and cloud computing. The significance of this is increased significantly due to the fact that. When it comes to marketing data, unstructured data is more often the rule than the exception.

## **Research Objective**

- To determine the impact of big data analytics towards on effective digital marketing transformation for sustainable growth of organisations.

## **Hypothesis**

- H01:** There is no significant variation between Data driven decision making and application of big data in effective digital marketing transformation for sustainable growth of organisations.
- H02:** There is no significant variation between choosing the target market effectively and application of big data in effective digital marketing transformation for sustainable growth of organisations.
- H03:** There is no significant variation between Keeping update of market data and application of big data in effective digital marketing transformation for sustainable

growth of organisations.

## **Research Methodology**

The descriptive study method is becoming more popular among academics since it enables inquiry into the ways in which IoT assists businesses in improving their overall performance. Researchers are interested in learning more about how the Internet of Things is enhancing company performance and wish to utilise both secondary data and primary data. As prospective sources of secondary data, they are taking a look at previously published research in the form of papers in academic journals and dissertations. The major source of data comes from an extensive questionnaire that was sent through email to 143 responders who are now working as people in a variety of companies. The questionnaire includes two parts one demographic question and second part includes questions on data analytics and effective digital marketing transformation for sustainable growth of organisations based on likert scale. The relevance of the limitations that the researchers imposed on the study is evaluated primarily via the use of correlation, regression, and analysis of variance (ANOVA), which are the three basic methods of analysis. SPSS is a data tool that the researchers use in order to carry out the required analysis.

## **Results and discussion**

The section is involved in providing data analysis using SPSS, the major analysis covered are frequency analysis, regression and chi square analysis.

**Table 1: Frequency analysis**

Gender	Frequency	Percent
Male	78	54.5
Female	65	45.5
Age	Frequency	Percent
Less than 30 Years	50	35
31-40 Years	44	30.7
41-50 Years	18	12.6
Above 50 Years	31	21.7
Nature of Industry	Frequency	Percent
Agro Products	49	34.2
Fashion Related	61	42.7
FMCG and Others	33	23.1
Currently living in	Frequency	Percent
Metro City	72	50.3
Non - Metro City	71	49.7
Occupation	Frequency	Percent
Digital Marketing	66	46.2
Advertising	34	23.8
Self Employed	24	16.7

consultant	19	13.3
Experience	Frequency	Percent
1-5 Years	44	30.8
5-10 Years	37	25.8
10-15 Years	24	16.8
15-20 years	27	18.9
Above 20 Years	11	7.7

From table 1, the authors have identified that 54.5% were male respondents, 35% were less than 30 years of age, 42.7% were in fashion related business, 50.3% were living in metro cities, 46.2% were working in digital marketing company, and 30.8% possess 1 – 5 years of experience.

### Regression analysis

The next part of the analysis is involved in understanding the critical relationship between the independent variables: Data driven decision making; choosing the target market effectively and Keeping update of market data with the dependent variable

**Table 2: Regression Analysis**

R	R Square	Adj, R2	SE	Durbin-Watson	
0.896a	0.80	0.80	0.50	2.16	
Data	SS	df	MS	F	Sig.
Regression	141.47	3.00	47.16	189.01	.000b
Residual	34.68	139.00	0.25		
Total	176.15	142.00			
Regression Model	B	Std. Error	P Val	Collinearity	VIF
(Constant)	0.32	0.16	0.05		
Data driven decision making	0.35	0.08	0.00	0.197	5.070
Choosing the target market effectively	0.35	0.09	0.00	0.161	6.206
Keeping update of market data	0.20	0.07	0.01	0.244	4.106

Based on above table the value of R squared or coefficient of determination is 0.896, which shows that the model is best fit. The F-statistic is 189.01 with a p-value of 0.000, indicating that the regression model is statistically significant. This means that at least one of the independent variables has a significant effect on the dependent variable.

The coefficients of the independent variables (Data driven decision making, choosing the target market effectively, Keeping update of market data) indicate their respective impact on the dependent variable. The p-values associated with each coefficient suggest that all three independent variables are statistically significant predictors. The VIF (Variance Inflation Factor) values for each predictor are relatively low, suggesting that multicollinearity is not a significant concern.

The regression equation is framed as Big data in Digital marketing = 0.32 (Constant) + 0.35 x Data driven decision making + 0.35 x Choosing the target market effectively + 0.20 x

Keeping update of market data Chi square analysis. The last section is to test the hypothesis using chi square analysis.

**Table 3: Cross tabulation analysis 1**

**Data driven decision making - Big Data in Digital Marketing Cross tabulation**

Count		Big Data in Digital Marketing					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
<b>Data driven decision making</b>	Strongly Disagree	0	3	0	0	0	3
	Disagree	4	11	0	0	0	15
	Neutral	0	0	17	0	0	17
	Agree	0	0	0	12	16	28
	Strongly Agree	0	0	0	28	52	80
<b>Total</b>		4	14	17	40	68	143

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	294.898 <sup>a</sup>	16	0.000
Likelihood Ratio	209.865	16	0.000
Linear-by-Linear Association	105.062	1	0.000
N of Valid Cases	143		

a. 17 cells (68.0) % have expected count less than 5. The minimum expected count is .08

From the analysis it is noted that the significance value is 0.00, hence null hypothesis is rejected, therefore concluded that there is significant variations between Data driven decision making and application of big data in effective digital marketing transformation for sustainable growth of organisations. According to the regression analysis, the model is a good match for the data, and the independent variables included in the model are statistically significant predictors of "Big Data in Digital Marketing." The chi-square analysis indicates a strong relationship between "Data driven decision making" and "Big Data in Digital Marketing," indicating that these variables are connected.

**Table 4: Cross tabulation analysis 2**

**Choosing the target market effectively - Big Data in Digital Marketing Cross tabulation**

Count		Big Data in Digital Marketing					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
<b>Choosing the target market effectively</b>	Strongly Disagree	0	7	0	0	0	7
	Disagree	4	7	0	0	0	11
	Neutral	0	0	14	0	0	14
	Agree	0	0	3	4	7	14

Strongly Agree	0	0	0	36	61	97
Total	4	14	17	40	68	143

#### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	289.054 <sup>a</sup>	16	.000
Likelihood Ratio	197.754	16	.000
Linear-by-Linear Association	107.309	1	.000
N of Valid Cases	143		

a. 18 cells (72.0) % have expected count less than 5. The minimum expected count is .20

The null hypothesis is rejected with a significance value of 0.00, therefore concluded that there is significant variations between choosing the target market effectively and application of big data in effective digital marketing transformation for sustainable growth of organisations. Table showing that there are substantial differences between "Choosing the target market effectively" and the application of big data in efficient digital marketing transformation. This shows that good market targeting has a significant impact on the use of big data for organisations' long-term growth.

**Table 5: Cross tabulation analysis 3**

#### Keeping update of market data - Big Data in Digital Marketing Cross tabulation

##### Count

		Big Data in Digital Marketing					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
<b>Keeping update of market data</b>	Strongly Disagree	4	3	0	0	0	7
	Disagree	0	11	0	0	0	11
	Neutral	0	0	14	4	0	18
	Agree	0	0	3	11	30	44
	Strongly Agree	0	0	0	25	38	63
Total		4	14	17	40	68	143

#### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	297.210 <sup>a</sup>	16	.000
Likelihood Ratio	186.241	16	.000
Linear-by-Linear Association	96.293	1	.000
N of Valid Cases	143		

a. 15 cells (60.0) % have expected count less than 5. The minimum expected count is .20



From the analysis it is noted that the significance value is 0.00, hence null hypothesis is rejected, therefore concluded that there is significant variations between Keeping update of market data and application of big data in effective digital marketing transformation for sustainable growth of organisations.

Both cross-tabulation studies show high correlations between characteristics linked to effective market targeting, remaining up to date with market data, and the use of big data in digital marketing. These findings highlight the significance of these elements for organisations wanting to harness big data for successful and long-term digital marketing strategies.

In the ever-evolving landscape of modern business, the utilization of big data analytics has emerged as a transformative force in shaping effective digital marketing strategies. This study delves into the implications of harnessing big data analytics for achieving an impactful digital marketing transformation that fosters the sustainable growth of organizations.

## **Implications**

The findings of this research carry significant implications for businesses, marketers, and policymakers alike:

**Strategic Decision-making:** The integration of big data analytics empowers organizations to make informed and data-driven strategic decisions. The insights derived from extensive data sources enable businesses to identify emerging trends, consumer behaviors, and market shifts. This informs the design and implementation of more targeted, relevant, and impactful digital marketing campaigns.

**Enhanced Customer Understanding:** Big data analytics enables a deeper understanding of customer preferences, needs, and pain points. This heightened customer insight facilitates the creation of personalized and tailor-made marketing experiences. By delivering content and offerings that resonate with individual customers, organizations can foster stronger customer relationships and loyalty.

**Real-time Adaptation:** The real-time nature of big data analytics allows organizations to adapt swiftly to changing market dynamics. Digital marketing strategies can be fine-tuned in response to real-time feedback, ensuring relevance and effectiveness. This agility in adaptation enhances the overall competitiveness of businesses.

**Resource Optimization:** Effective digital marketing transformation necessitates resource optimization. Big data analytics aids in optimizing marketing budgets by pinpointing the most impactful channels and campaigns. By allocating resources where they yield the highest returns, organizations can achieve sustainable growth without unnecessary expenditure.

**Innovation and Creativity:** Big data insights provide fresh perspectives and innovative avenues for marketing creativity. Businesses can uncover untapped opportunities and explore novel approaches that resonate with their target audiences. This sparks innovation in campaign design, content creation, and engagement strategies.

**Long-term Sustainability:** The alignment of big data analytics with digital marketing transformation contributes to the long-term sustainability of organizations. By consistently

adapting and improving marketing efforts based on data-driven insights, businesses can remain relevant and resilient in a rapidly changing digital landscape.

**Ethical Considerations:** As organizations collect and analyze vast amounts of consumer data, ethical considerations become paramount. Striking the balance between data utilization and individual privacy is crucial. Organizations must adopt transparent data practices and robust security measures to maintain consumer trust.

**Skill Development:** The implementation of big data analytics necessitates the development of specialized skill sets. Organizations need to invest in training and upskilling their workforce to effectively leverage data analytics tools and techniques. This fosters a culture of data literacy and enhances the organization's capabilities.

The implications of integrating big data analytics into digital marketing transformation are profound and far-reaching. From strategic decision-making and customer-centricity to real-time adaptation and long-term sustainability, the impact is multi-faceted. Organizations that harness the power of big data analytics stand poised to achieve effective digital marketing transformation that drives sustainable growth and secures their position in the digital era.

## **Conclusion**

An examination of the works that have been published reveals that advancement frequently occurs at an exponential rate. The broad availability of unstructured data is a factor that is helping to facilitate the diffusion of knowledge. It has been determined that the marketing industry has reached its capacity. Businesses need to reevaluate both their long-term objectives and their operational strategies in order to prepare for and successfully complete a digital transition. The field of marketing stands to gain a significant amount from big data, but only if it first puts in place a methodical information management strategy and then makes use of analytical tools and processes. Better information management and governance are required in order to gain control of the massive amount of data. This article provides information that demonstrates how the advent of technology is changing the landscape of marketing and having an impact on all aspects of company. The expansion of online advertising was brought to everyone's attention. A crucial method for collecting useful information on customers, which may be put to use to enhanced ability to forecast outcomes and make decisions based on analytics. The objectives of this study have been accomplished in their entirety at first; areas of marketing were altered by digital technology. Previous exhaustive academic experts did not investigate to their full potential. On the basis of the findings of the investigation, several conclusions have been reached. saving time on studies relating to digital technology closer look should be given to these marketing trends new research, a confirmation of previous findings, or the gathering of empirical data.

In order to accomplish this objective, a comprehensive study of the relevant literature that has been evaluated by experts in the field was collected. Encouragement of the adoption of digital processes by businesses a standpoint taken from the industry of data and information management. Having the ability to make sense of the challenges and results presented by huge data sets. The marketing departments of organizations are becoming more open to digital transformation. The transition from analog to digital media has presented a number of

difficulties, including the following: the application of cutting-edge, game-changing information technology, methods, and procedures. In addition, it was discovered that there had been insufficient research done in this region in the past. Specifically, how marketing makes use of tools that are powered by machine learning devices that assist marketers in gaining a deeper understanding of their clientele and audience.

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