Research Article

Management of Social Media and Digital Marketing with Ai

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Introduction: Advancements in digital marketing have provided diverse implications of AI in different business models. Therefore, this empirical analysis focuses on analysing the incorporation of AI in the management of Social Media and Digital Marketing. In addition, through a quantitative analysis objective of the study were met, and reliable results were delivered.

Literature Review: For a better comprehension of the topic past literature was critically analysed and indigenous opinions were formulated. In addition, all the past literature was cited appropriately in the literature review portion.

Methodology: For analysing the implication of AI in managing digital marketing primary data was collected through a qualitative analysis all the factors were analysed. Moreover, a survey population of 65 was chosen and they were surveyed using a questionnaire with 13 questions.

Findings: A thorough examination of the linear regression table is provided in the empirical analysis results section. The study also included a descriptive analysis of the association in order to understand the nature and outliers of the data.

Discussion: A thorough explanation of the findings is provided in the study's discussion section. Furthermore, a thorough discussion of the findings was provided in the study.

Conclusion: Overall analysis is summarised with the findings of the study thus a brief discussion is provided in the conclusion.

Keywords: Digital Marketing. AI Implication, Social Media Management, Customer Acquisition, Challenges of Implementing AI

INTRODUCTION

The evolution of technology has provided modern ways to cope with different business challenges. As per the opinion of Saura, Ribeiro-Soriano & Palacios-Marqués (2021), technology has improved the process of business and marketing in a streamlined manner. Therefore, the empirical statistical analysis is focused on the implication of AI in order to manage social media and digital marketing. Moreover, different aspects of digital marketing are analysed based on real-time responses.

However, at the time of analysing past analysis, it was noted that there are certain issues related to the process of integrating AI with the digital marketing process. As commented by Boddu et al. (2022) cost and modernity of AI a major factor that hinders the implication of AI in business. Additionally, AI is still a new technology thus negative impacts of the same are still unknown. Hence, a detailed discussion related to the issues is incorporated into the study.
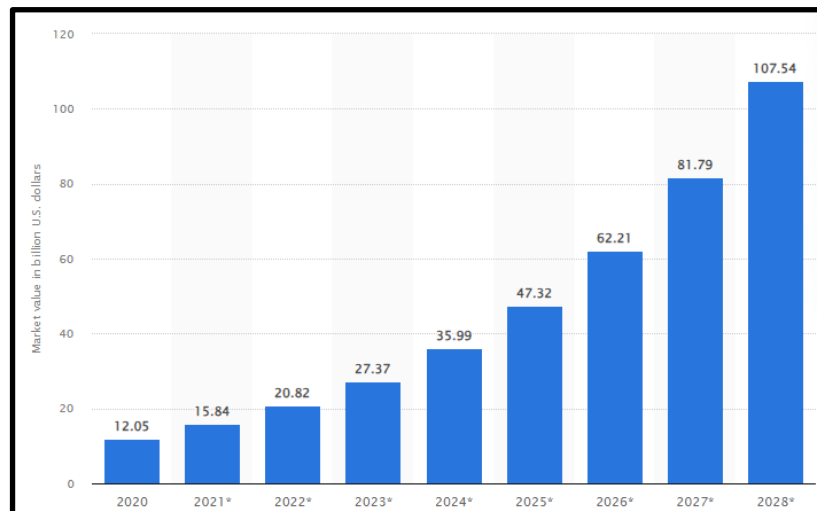
Figure 1: Market value of AI in digital marketing

(Source: Statista, 2023)

Figure 1 of the statistical analysis is associated with the market value prediction of AI. additionally, a prediction till 2028 is illustrated in the above figure. It can be seen that in 2020 the market value of AI was 12.05 billion USD (Statista, 2023). In addition, a gradual growth in the market value of AI in the marketing industry can be seen. It was predicted that by 2024 the market value of AI in digital marketing will be 35.99 billion USD (Statista, 2023). In addition, based on the gradual growth in the market it is predicted that the market value of AI is going to become 107.54 billion USD by 2028 (Statista, 2023). Therefore, it can be contemplated that businesses can achieve greater possibilities through integrating AI into the digital marketing process. In addition, digital marketing is growing at a significant pace (Nair & Gupta, 2021). Hence, such growth in digital marketing and the growing market value of AI justified the intention and topic of the study.

Aim

The primary aim of the study is to analyse the incorporation of AI in the management of Social Media and Digital Marketing.

Research Objectives

RO1: To analyse the factors that have an impact on the implication of AI in the management of digital media

RO2: To investigate the impact of AI in the process of managing digital marketing and social media

RO3: To understand the impact of content management on the improvement of digital marketing strategies

RO4: To discuss the possible ways to counter the implication of AI for digital marketing

Research Questions

RQ1: What are the factors that have an impact on the implication of AI in the management of digital media?

RQ2: What is the impact of AI in the process of managing digital marketing and social media?

RQ3: How to analyse the impact of content management on the improvement of digital marketing strategies

RQ4: What are the possible ways to counter the implication of AI for digital marketing

LITERATURE REVIEW

Critical analysis of the Impact of AI in social media management and digital marketing

Through the past analysis of the literature, it was noted that AI has significantly improved digital marketing and social media management. As per the opinion of Saini (2022), with the help of AI algorithms enhancement of efficiency and personalization can be achieved. Therefore, it can be contemplated that AI offers classified changes in digital marketing that aid in achieving a better conversion rate.
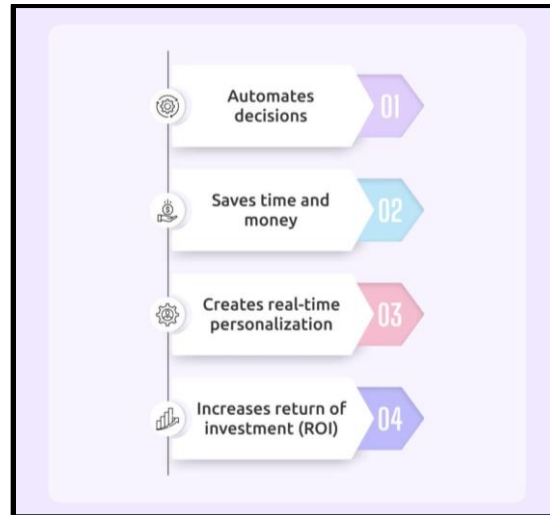
Figure 2: Benefits of using AI in digital marketing

(Source: Dumitriu & Popescu 2020)

Figure 2 of the empirical analysis is associated with the benefits that are offered with the incorporation of AI in digital marketing. It can be seen that there are specified benefits that can be achieved with AI. however, there are certain disadvantages such as reliability and cost of incorporation of AI. As per the observation of Dumitriu & Popescu (2020), AI is in the development phase thus comprehending the cons of AI is not possible in such a short period. In addition, there could be a prolonged impact of AI in a business. Hence, through the above discussion, it can be contemplated that the topic of implementing AI in digital marketing might have some disadvantages that can hinder and impact the process of digital marketing.

Factors AI that are Influencing Social Media Management

At the time of analysing past literature, it was noted that there are certain factors that impact the use of social media. As per the opinion of Pangkey, Furkan & Herman (2019), the implication of AI can aid in achieving a certain level of automation for social media. Therefore, it can be understood the management of social media posts can be done efficiently. On the other hand, Chintalapati & Pandey (2022) stated that AI is based on algorithms and the outcome of data analysis. Hence, the quality of the data has a direct impact on social media management with AI. Therefore, it can be contemplated that there are both positive and negative impacts of AI on social media management and it depends on the data analysis of the collected information.
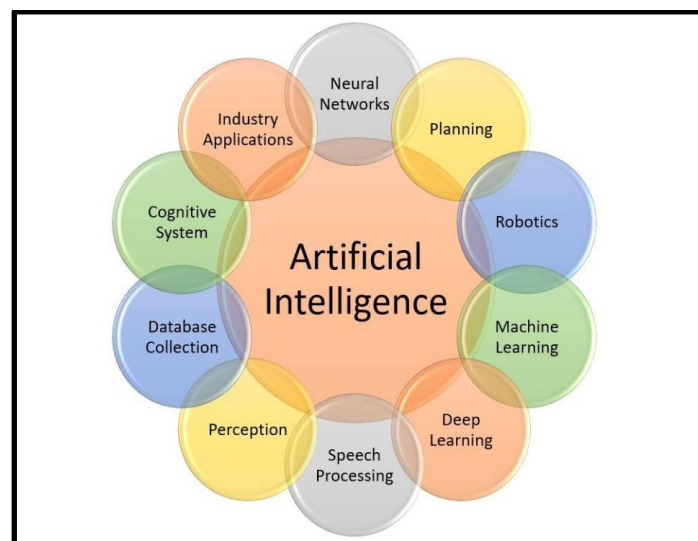

Figure 3: factors of AI in social media management

(Source: Kar & Dwivedi 2022)

Figure 3 of the empirical analysis illustrates different factors associated with AI which is beneficial for social media management.   As per the opinion of Imran et al. (2020), The importance of AI in content curation and recommendation systems cannot be overstated. Moreover, the development of AI has provided a vivid possibility for managing social media. On the other hand, Grover, Kar & Dwivedi (2022) have stated that the inclusion of AI poses a threat to the cyber security of users. Therefore, it can be understood that the inclusion of AI is beneficial at the same time there are security threats in the process.

Challenges of implementing AI in digital marketing

Through the understanding of the past literature, it was noted that there were different challenges hindering the process of implementing AI for digital marketing. As per the suggestion of Ghouri et al. (2022), for an effective outcome of AI-based systems, it is essential to provide sufficient training for the AI model. Therefore, appropriate and accurate training of the model is a major factor. On the other hand, Hajli et al. (2022) stated that for the process of training having a high-quality data set is essential for the tanning model. Hence, for analysing the

Figure 4: Challenges for implementing AI in digital marketing

(Source: Zhang & Song 2022)

Figure 4 of the empirical analysis is associated with the challenges of implementing AI for digital marketing. As per the opinion of Zhang & Song (2022), data is the fuel that powers the AI-based digital marketing process. The collection of data and maintaining privacy for the collected data is found to be a challenge for digital marketing. On the other hand, Sun, Bocchini & Davison (2020) stated that incorporating reliable practices is one of the major challenges that impact the implementation of AI in digital marketing. Moreover, from the above discussion, it can be contemplated that data is the most important aspect of implementing AI for digital marketing. Thus, assuring ethical data practices can be beneficial for the incorporation of AI in digital marketing.

METHODOLOGY

The methodology of an empirical study is associated with the process of the study that aided in the development of the results. In addition, developing the results based on the objectives of the study falls under the methodology of the study. Therefore, in order to analyse the impact of AI in managing social media and digital marketing primary quantitative analysis is conducted. As per the opinion of Pennington et al. (2022), the primary quantitative method is beneficial at the time of analysing social issues or topics that have a social influence. Therefore, the data collection method was primary and the method of analysis was quantitative. The collection of data was done with the survey. For the survey, a questionnaire was created with 10 variable-related questions and 3 demographic questions. Demographic questions aid in analysing the impact of demographic factors on the responses Agnihotri (2020) sampling of the participants was done through random sampling methods. 65 participants were selected for the analysis and the development of the study is based on the respect of the participants.

After the collection of the data, a quantitative method of analysis was incorporated for the analysis of the data. As per the opinion of Sashi, Brynildsen & Bilgihan (2019) quantitative methods of analysis aid in contemplating the relationship among different data sets. Therefore, through the quantitative methods of analysis, a detailed analysis of the digital marketing process was conducted. In order to analyse the relation among variables IBM SPSS

software was used and a table of ANOVA, Model summary, and quotient was presented. In addition, correlation and descriptive analysis of the data set was done to understand the nature of the data set. Thus with the help of secondary quantitative methods of analysis, a detailed investigation of the topic was done.

FINDING AND ANALYSIS

Demographic Analysis

Gender

What is your Gender?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	18	27.7	27.7	27.7
	Male	37	56.9	56.9	84.6
	Others	10	15.4	15.4	100.0
	Total	65	100.0	100.0	

Table 1: Gender

(Source: IBM SPSS)

Table 1 of the empirical analysis is associated with the gender of the respondents. The frequency of the participants based on age can be seen in the above table. It can be seen that male participants were 56/37 out of 65. In addition, the female population showed a frequency of 18 participants. Whereas, there were 18 participants who identified themselves with other gender categories.
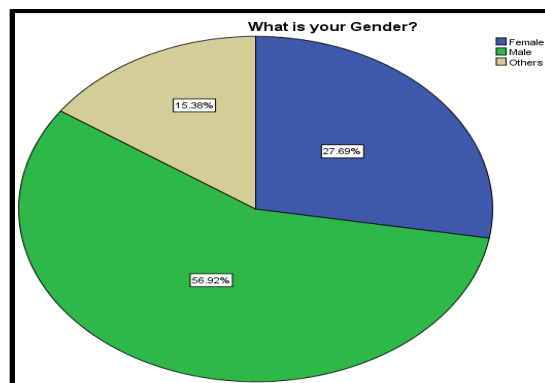

Figure 5: Gender

(Source: IBM SPSS)

Figure 5 is the pie chart that illustrates the percentage of the participants based on gender. From the above pie chart, it can be seen that the male population is 56.9% of the total population. The female population had 27.7% representation in the population and there were participants who identified themselves with other gender categories. The percentage of such participants who identified themselves with other gender categories represented 15.4% of the pie chart. Thus, based on the gendered analysis it can be stated that the male population was dominating the overall population. However. Other categories had a fair representation thus based on the age the data set can be considered well diverse.

Age Group

What is your age?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 20	20	30.8	30.8	30.8
	Between 20 to 35	37	56.9	56.9	87.7
	Between 35 to 60	8	12.3	12.3	100.0
	Total	65	100.0	100.0	

Table 2: Age Group

Table 2 of the study is associated with the age of the respondents where the frequency of the participants based on age can be comprehended. According to the table participants below the age of 20 had a representation of 20 and the age group between 20 to 35 had a frequency of 37. In addition, between 35 to 60, there were 8 participants.
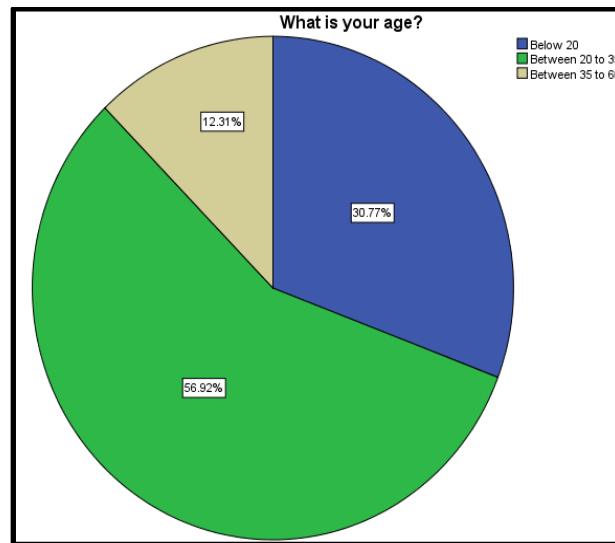
Figure 6: Age Group

Figure 6 of the empirical analysis is associated with the age group of the participants where the percentage of the participants can be seen. It can be seen that participants between 20 to 35 represented 56.9% of the population. Similarly, participants below 20 years of age represent 30.8% of the overall population. In addition, there were participants between 35 to 60 years of age representing 12.3% of the overall population. There were no participants above the age of 60. hence, from the above analysis, it can be contemplated that the middle age group was dominant in the nation and the diversity of the participants was between the ages of 20 and the age of 60.

Income Range

What is your monthly Income?				
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Above RS 50000	10	15.4	15.4	15.4
	Between RS 18000 to 30000	45	69.2	69.2	84.6
	Between RS 30000 to 50000	10	15.4	15.4	100.0
	Total	65	100.0	100.0	

Table 3: Income Range

Table 3 is associated with the income range of the participants and the frequency of the participants can be seen. As per the above table, it can be seen that participants' earnings are between RS. 18,000 to 30,000 had a frequency of 45 out of 65. Additionally, the income range between RS. 30000 to 50000 and above 50000 had a frequency of 10 each.
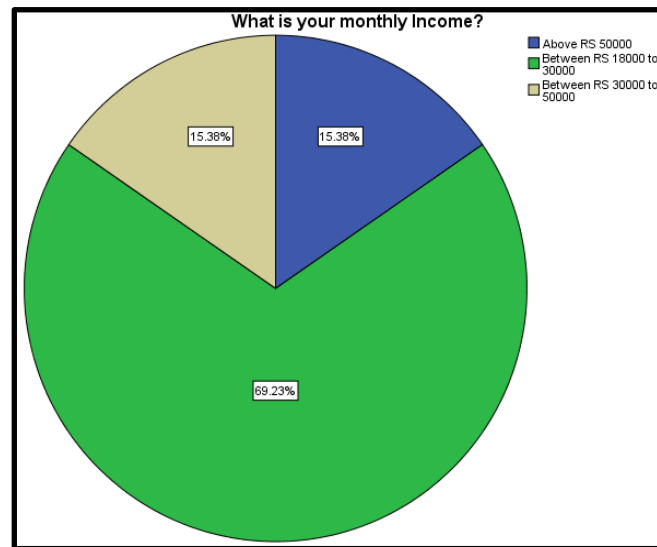
Figure 7: Income Range

(Source: IBM SPSS)

Figure 7 is associated with the percentage of income range of the participant where accurate representation is illustrated. According to the above pie chart, it can be seen that the income range of 18000 to 30000 covered most of the pie chart. The percentage of the same is 69.2%. Similarly. Participants earning between RS. 30000 to 50000 and more than 50000 had a representation of 15.4% each. Thus, based on the analysis it can be contemplated that the earning group is dominated by the middle-income group.

Statistical Analysis

Descriptive Analysis

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
DV	65	2.00	6.00	3.4615	1.22573
IV1	65	2.00	4.00	3.1538	.66687
IV3	65	2.00	5.00	3.2923	.99566
IV4	65	2.00	6.00	3.3692	1.13975
IV2	65	2.00	5.00	3.3538	1.05224
Valid N (listwise)	65				

Table 4: Descriptive analysis of different variables

(Source: IBM SPSS)

Table 4 of the empirical analysis is associated with the descriptive analysis of the data set. As per the opinion of Bozkurt, Gligor & Babin (2021), Descriptive analysis is essential for assessing the performance of a data set. Evaluating key performance metrics, monitoring development over time, and pinpointing areas for success can be achieved with the implication of descriptive statistics. Moreover, the relation among data sent can be contemplated by analysing the relation among mean and standard deviation of a data set. The dependent variable has a mean value of 3.4615 and a standard deviation of 1.22573, as can be observed.

The first, second, third, and fourth independent variables also showed mean values of 3.1538, 3.2923 3.3692, and 3.3538, respectively. However, the corresponding standard deviation values are 0.66687, 0.99566, 1.13975, and 1.05224. According to Wibowo et al. (2020), it is possible to identify the relationship between the mean value and standard deviation value spread and the behaviour of the dataset. Since the mean value is greater than the standard deviation the responses are grouped around the mean value. In addition, the means are greater than the standard

deviation indicating that the majority of participants agreed with the survey's statements. It is also possible to consider that the data set's distribution is not particularly wide.

Hypothesis 1: *There is a relationship between management of digital marketing and Content management*

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.471	.221	.209	1.09011

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.289	1	21.289	17.915	.000
	Residual	74.865	63	1.188		
	Total	96.154	64			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	6.189	.658		9.399	.000
	IV1	-.865	.204	-.471	-4.233	.000

Table 5: Linear regression analysis

(Source: IBM SPSS)

The results from the regression statistics in Table 5 of the empirical study are related to Hypothesis 1. As can be seen, the significance value is 0.000, which is less than the accepted limit of 0.05. As a result, it can be said that there is enough data to justify the variable. The R-value and R-Square for are 0.471 and 0.221, respectively. Therefore, a 47% change in independent variable 1 can have an effect on the dependent variable. Furthermore, there is a 22% possibility that this can occur.

Hypothesis 2: *Management of social media and digital marketing can be improved with the implication of resource allocation based on AI*

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.114	.013	-.003	1.22741

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.243	1	1.243	.825	.367
	Residual	94.911	63	1.507		
	Total	96.154	64			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.017	.512		5.891	.000
	IV2	.132	.146	.114	.908	.367

Table 6: Linear regression analysis for Hypothesis 2

(Source: IBM SPSS)

The linear regression values that are shown in Table 6 of the empirical analysis, are linked to Hypothesis 2. The value is sufficiently supported by the evidence if the significance value is less than 0.05 (Cheng et al. 2021). It can be seen that the second hypothesis has a significance level of 0.367. Hence it can be stated that there is a lack of evidence that supports the dependent hypothesis in addition, the R-value and R square change values are 0.114 and 0.013. Hence it can be comprehended that an 11% change in the second independent variable can impact the dependent variable. In addition, the chance of such occurrence is 1%. Thus, it can be stated that the second independent variable has a significant impact on the dependent variable.

Hypothesis 3: *Management of social media and digital marketing is directly influenced by the appropriate use of AI algorithms*

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.240	.058	.043	1.19922

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.552	1	5.552	3.861	.054
	Residual	90.601	63	1.438		
	Total	96.154	64			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.435	.518		8.571	.000
	IV3	-.296	.151	-.240	-1.965	.054

Table 7: Linear regression analysis for Hypothesis 3

(Source: IBM SPSS)

The linear regression analysis of the third hypothesis is related to Table 7 of the statistical analysis. As can be observed, the third hypothesis' significance value is 0.05, which is equal to 0.05. As a result, it may be said that the hypothesis is supported as long as the value is less than or equal to 0.05 (Almohaimmeed, 2019). Additionally, the R square change value is 0.240, and the R-value is 0.058. Therefore, it may be said that the dependent variable can be affected by the third independent variable's 24% change. Additionally, it may be deduced from the R square change value that there is a 5% possibility of such an event.

Hypothesis 4: Targeted marketing strategies are directly related to the management of social media and digital marketing

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.236	.056	.041	1.20060

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.343	1	5.343	3.707	.059
	Residual	90.811	63	1.441		
	Total	96.154	64			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.316	.468		9.222	.000
	IV4	-.254	.132	-.236	-1.925	.059

Table 8: Linear regression analysis for Hypothesis 4

(Source: IBM SPSS)

The regression analysis of the fourth hypothesis is presented in Table 8 of the empirical analysis. The significance value is 0.59, which is equal to the standard range of 0.05 (Eti, Horaira & Bari, 2021). Therefore, it can be stated that the fourth variable has a significant impact on the dependent variable. As a result, it may be concluded from the significance value that the second hypothesis is supported.

Correlation Test

Correlations		DV	IV1	IV2	IV3	IV4
DV	Pearson Correlation	1	-.471	.114	-.240	-.236
	Sig. (2-tailed)		.000	.367	.054	.059
	N	65	65	65	65	65
IV1	Pearson Correlation	-.471	1	.367	.402	.335
	Sig. (2-tailed)	.000		.003	.001	.006
	N	65	65	65	65	65
IV2	Pearson Correlation	.114	.367	1	.422	.775
	Sig. (2-tailed)	.367	.003		.000	.000
	N	65	65	65	65	65
IV3	Pearson Correlation	-.240	.402	.422	1	.840
	Sig. (2-tailed)	.054	.001	.000		.000
	N	65	65	65	65	65
IV4	Pearson Correlation	-.236	.335	.775	.840	1
	Sig. (2-tailed)	.059	.006	.000	.000	
	N	65	65	65	65	65

Table 8: Correlation test between a dependent variable and independent variables

(Source: IBM SPSS)

The correlation test between a dependent variable and independent variables is shown in Table 8 of the analysis. The significant value and other matrices related to the variables are shown in the table above. According to Sadeghi et al. (2020), when the significance of the dependent values is less than the typical distributional value of 0.05, there can be a significant correlation between the dependent and independent variables.

Additionally, when the Pearson correlation value is close to 1, co-relation can also be considered. Moreover, positive and negative effects on the variable may be understood using the Pearson correlation, according to Knotts et al. (2020). As can be seen, there are several Pearson correlations that are both positive and negative for various values. The relationship between the variables is said to be positive when the correlation is positive, and the opposite is true when the correlation is negative.

DISCUSSION

In order to analyse the impact of AI on the efficient management of digital marketing and social media management a quantitative analysis was conducted. For the collection of the data primary method of data collection was employed and a qualitative method of analysis was used. Through the quantitative analysis, it was noted that the management of the content has a direct relation with the management of digital marketing through social media. As per the opinion of Khan et al. (2019), content news is based on data and needs to be backed with evidence in order to manifest accurate ROI. Therefore, content is found to be one of the essential aspects of digital marketing. Similarly, it was contemplated that resource allocation of AI is closely associated with the efficient digital marketing process. However, through the quantitative analysis, it was noted that the implication of resources based on AI can be challenging. Moreover, as AI is in the initial phase such challenges can hinder implementing AI for digital marketing.

Additionally, through the quantitative analysis, it was seen that the implication of an accurate AI algorithm can be beneficial for the process of digital marketing. As per the opinion of JagadeeshBabu, Saurabh & AditiPriya (2020), AI algorithms have a significant impact on digital marketing, changing tactics and increasing effectiveness. Moreover, personalization of the campaign is possible through the implication of appropriate AI algorithms. This focused strategy optimizes the use of resources while maximizing the effect of marketing initiatives. Hence, implementing such systems in the digital marketing process aids in achieving a better ROI for the business. In the

end, the use of AI algorithms in digital marketing transforms how companies interact with their customers. Hence, it can be stated that a better outcome can be achieved with the implication of AI as personalization based on consumers' needs is possible. For instance, client care chatbots that are AI-powered offer real-time replies, rapidly answering questions and raising general client happiness. This automation guarantees a consistent and effective client experience while also saving time.

Additionally, targeted marketing was found to be an effective aspect of digital marketing. As per the opinion of Arya, Paul & Sethi (2022), with the implication of AI, it is possible to achieve a better estimation of consumer demand. Hence a better marketing campaign can be created. Moreover, AI algorithms aid in the analysis of the data related to the consumer and pitch to relatable consumers. The conversion rates increase at an affordable cost.

CONCLUSION

Thus, a quantitative analysis for contemplating social media management was conducted in the following study. Moreover, the implication of AI for managing digital marketing and management was presented in the study. Different factors associated with the management of AI are presented in the study. It was noted that factors such as content management and AI algorithms are directly related to an efficient digital marketing campaign. Primary data was collected for the study and quantitative analysis was conducted for the study. It was noted that data security and data management are essential factors that can be achieved with the implication of AI in digital marketing. Thus, a streamlined analysis is presented through a reliable quantitative analysis of different factors. In addition, through the primary quantitative analysis the study was developed with reliable data and relation among the data was presented coherently.

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