



Research Paper

A Study on Impact of Artificial Intelligence on Social Media Marketing

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Abstract	Manuscript Information
<p>This paper's sole objective is to discuss the current impact & role of Artificial Intelligence in the field of 'social media marketing'. This paper is divided into various sections & will provide a comprehensive framework for understanding the role of various AI's impacting the business environment on social media. This review will discuss pros/cons, Analytics, Content, Ethical considerations, Case studies, Future outlook, etc. This Review will show how AI is disruptive & can help marketers & firms to gain a competitive edge in the business world.</p>	<ul style="list-style-type: none"> ▪ ISSN No: 2583-7397 ▪ Received: 03-06-2024 ▪ Accepted: 29-06-2024 ▪ Published: 01-09-2024 ▪ IJCRM:3(5); 2024: 14-19 ▪ ©2024, All Rights Reserved ▪ Plagiarism Checked: Yes ▪ Peer Review Process: Yes
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INTRODUCTION

Artificial Intelligence: Computer systems capable of performing complex tasks that historically only a human could do, such as reasoning, making decisions, or solving problems is AI. Study of making systems capable of simulating human intelligence & thought processes which comes in many forms –IBM. The capability of computer systems to mimic human-like cognitive functions such as learning & problem solving --Microsoft

A Brief History

Artificial Intelligence (AI) traces its roots to ancient times, with philosophical debates on the nature of intelligence. However, the formal beginning can be attributed to the mid-20th Century. In 1956, the term "Artificial Intelligence" was coined at the

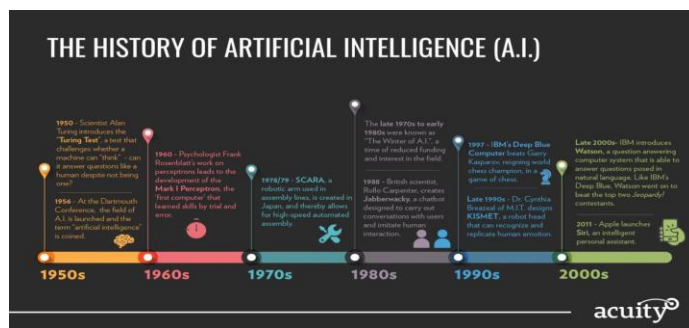
Dartmouth conference, where early AI pioneers Aimed to create machines that could mimic human intelligence. During the 1960s & 1970s, AI research faced challenges, leading to "AI winter". However, the 1980s saw a resurgence with the development of expert systems. The late 1990s & early 2000s saw a renewed interest in machine learning & IBM's "Deep Blue" defeating the world chess champion. In the mid-2010s marked a turning point with the rise of deep learning & neural networks, fueled by increased computing power & massive datasets. Finally, today AI is pervasive, impacting various domains like Natural language processing, image recognition & autonomous systems, and transforming industries.

AI in Shaping Marketing Strategies

One of the core benefits of AI is its ability to analyze large volumes of data & identify patterns that would be impossible for humans to detect. Through Machine learning algorithms, AI can analyze data from various sources, such as social media, search engines, and e-commerce platforms & provide insights to help marketers make informed decisions about campaigns. Moreover, AI allows marketers to optimize their campaigns in real-time. With the help of AI, marketers can monitor key metrics such as click-through rates, conversion & engagement rates to identify which campaigns are performing well. Another significant benefit of AI is that it can automate routine tasks. While AI can help marketers make data-driven decisions, it's still up to them to craft compelling messages that resonate with their target audience. Many big firms have already inculcated AI technologies in their operations like- Tesla, IBM, Amazon hub counter, Google, Salesforce, Oracle, Apple, Alphabet, etc.

Some of the famous AI Marketing tools

Market Muse, Surfer SEO, Seventh Sense, Jasper AI, chat fuel, ChatGPT.



OBJECTIVES OF THIS STUDY

- To study the impact of the current AI technologies on social media marketing.
- To understand various use cases of AI in content generation.
- To understand AI in forecasting & future of AI itself.
- Ethical considerations of using AI.

METHODS AND MATERIALS

Research Design

This paper follows the following research methodology- The whole research process of this paper was done through the secondary sources that are available on the web. These include various scholarly articles, blogs, websites, informative articles, AI itself etc. All these secondary sources of information are authentic & provide quality & valuable data acc. to the best of my knowledge.

FINDING & CONCLUSIONS

AI-Powered Analytics: How AI Tools Analyze vast amounts of Data: "Data analysis is inspecting, cleaning & modeling data to discover useful info. To conclude & make decisions." Common AI Techniques for Data Analytics-

- 1) Machine Learning- AI uses algorithms to process large volumes of data to identify patterns & create AI models. ML model learns based on the info. It fed, displays trends based on what it learned, or gives relevant output.
- 2) Natural Language Processing- helps computers interpret human language. Algorithms read large amounts of text to learn the meaning of words & how to respond to user input. AI can then analyze input text to generate new content or summarize existing info.
- 3) Computer vision- deals with how computers see & interpret images/videos. AI can track motion, identify faces & extract features from images.

How AI analytics differ from Traditional analytics

Traditional analytics is often a manual process that relies heavily on human data analysts to manipulate data & find patterns. This can be very time-consuming, especially when dealing with large amounts of data. AI & Machine learning can automate much of the data analysis process, providing the ability to process vast amounts of data quickly & often more accurately than humans. AI patterns can identify complex patterns & provide predictive insights that may not be readily apparent through manual analysis. Moreover, traditionally there is only structured data(rows/columns) whereas AI can handle both structured & unstructured data (video, images, text), hence providing a more thorough analysis.

Prominent Examples of AI-powered analytics-

- 1) Walmart's Global tech – to personalize shopping, optimize packaging, delivery, etc.
- 2) Amazon AI Analytics – for product recommendations, fraud, and customer service.
- 3) Healthcare/Medical research – AI can analyze large datasets to help users find new drugs, and analyze medical images to diagnose diseases.
- 4) Financial services & banking – fraud detection, credit assessment, trading & investing

Content Generation

Content generation is the name given to the process of creating digital media that is to be displayed on the internet. Anything that is contained on a website is called content & includes text, drawings, images, videos, etc.

Ways Real Businesses are using AI for content generation-

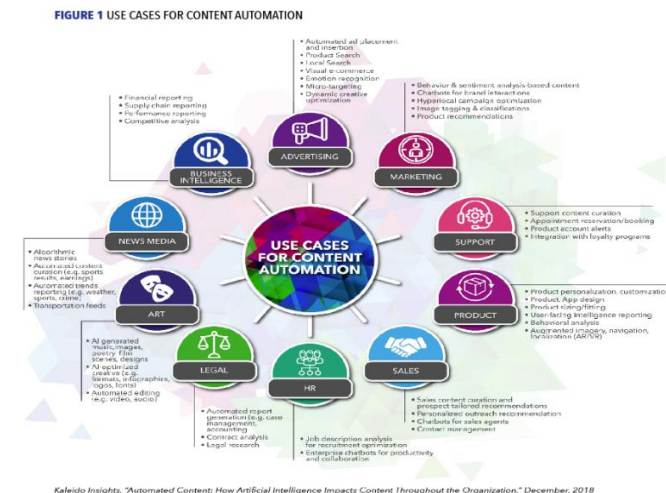
- 1) **Content idea generation-** When creative block sets in, you can always use AI tools for new ideas whether it's for blog articles, social media posts, newsletters, etc.
- 2) **Personalize content acc. To your audience-** If you're one of the people creating hyper-specific content (e.g. Supercars or dog food) you can use AI to personalize content by tailoring the delivery to specific users based on their preferences & interests. E.g. Adobe Target" uses AI to create personalized experiences for users.

- 3) **Streamline your research process-** AI can do scraping of the web for relevant data & present it digestible format. E.g. Using ChatGPT to create a vegan meal plan.
- 4) **Assist in the writing process-** Not just writing but grammar & proofreading & also ensuring that the right style & tone is followed. E.g.- Grammarly & writer.
- 5) **Making content more accessible-** features like ‘language translation’, ‘captioning’, ‘audio & image recognition’ etc. E.g.- Rewordify, VEED, Natural Reader.
- 6) **Supporting audio & visual content creation-** Deep Dream, pebbly, lumen5, DALL-E etc. All of these tools help you create visually appealing content.

Overview of the Best AI tools for content creation-

- 1) **Jasper.AI:** Overall best for blog posts, copywriting & creatives.
- 2) **Surfer SEO:** Best for SEO writing
- 3) **Ad Creative:** Best for ad creatives
- 4) **In video:** Best for video content generation
- 5) **Copy.AI:** Best for copywriting
- 6) **GETgenie:** All in one SEO assistant

Hence, the crux is that AI can create large amounts of content quickly & at a relatively low cost, freeing up human content creators to focus on more complex tasks.



Predictive Analysis & Trends

Predictive analytics is a branch of advanced analytics that make predictions about future outcomes using historical data combined with statistical modeling, data mining & machine learning. Firms employ this to find patterns in data to identify risks & opportunities.

AI in predicting Trends & Forecasting-

AI through Time series data to estimate & predict future development, without human touch. AI differs from traditional data analysis like ‘statistical methods like Linear Regression’. On the other hand, ML uses AI that involves more complex features

& predictive methods. AI is simply better because of the following-

- Traditional methods are limited because humans can't process vast amounts of data.
- ML is not dependent on human emotions & subjective opinions.
- AI can adapt to changes quickly.
- Traditional methods become less accurate over time.

AI delivers efficient & accurate forecasts based on data quality. It touches every aspect of a forecast cycle from driver data selection to the best blend of consensus forecast. Advanced AI & ML tools revolutionize the way businesses make predictions & strategic decisions. AI automatically puts data into the right structure & analyzes it in a couple of minutes. Finally, AI can enable more granular & dynamic forecasting which helps businesses forecasting which helps businesses segment their customers, products & markets. AI tools can optimize decisions based on the forecast such as production schedules. This can help businesses identify fluctuations at an early stage. AI suggests clear courses of action that consider internal constraints & predefined parameters. Finally, AI can also generate different types of charts to present projections.

AI in Strategic Decision Making

Businesses may proactively change their plans by using predictive modeling to foresee consumer behavior, market developments & operational issues AI helps with resource allocation, supply chain & inventory optimization. Modern algorithms streamline logistics, cutting costs & increasing effectiveness in revenue & customer satisfaction. Businesses may improve operational efficiency overall by streamlining operations and cutting waste. When using AI for decision-making, ethical issues, bias reduction & data protection must come first. Additionally, even while AI supports human judgment, it still requires human interpretation to connect AI-generated insights to broader corporate objectives. Businesses get the adaptability & intelligence necessary to succeed in today's dynamic & competitive market by utilizing AI to analyze data, forecast trends, & improve operations. AI technologies can uncover previously unattainable value & encourage long-term success when used responsibly. AI algorithms can help to de-bias important executive decisions. AI can provide executives with competitor data analysis which will help to create a more objective understanding of their rivals by processing or even predicting competitors' moves. There is consensus of the views that AI will develop predictive analytics which will enable AI to anticipate future events, select the best options & scenarios, and calculate probabilities like decision trees. The challenge of formulating strategic direction, which is highly conceptual falls to senior executives & depends on good leadership. Because of its complexity, strategy is one of the later domains to be affected by automation. In conclusion, use of AI in corporate performance optimization & strategic decision-making heralds a fundamental change in the way companies' function. Strong strategic thinking skills combined with sophisticated analytical tools will become

an essential competency for leaders making strategic decisions for their firms. These are just some of the benefits firms will get by leveraging AI in Strategy-

- 1) Enhanced Data Analytics
- 2) Deeper customer insights
- 3) Improved decision-making for competitive advantage
- 4) Detailed competition analysis
- 5) Personalized marketing
- 6) Process automation
- 7) Optimized supply chain
- 8) Financial analysis with machine learning
- 9) Talent management
- 10) Strategic simulation

Ethical Considerations

Though AI has ushered in a new era of marketing, as it becomes more integrated with marketing operations, it brings with it a set of ethical concerns that must be addressed with caution.

Ethical Implications

- 1) **Data security & privacy** – Handling client data is one of the foremost challenges since AI systems rely largely on data to produce personalized recommendations & more effectively target advertisements. Businesses must prioritize data security to secure customer data from breaches.
- 2) **Fairness & Bias** – AI algorithms may unintentionally perpetuate biases in data used to train them. This will result in unfair campaign outcomes.
- 3) **Accountability & transparency** – Businesses should provide detailed explanations of how AI-driven marketing decisions are made & give consumers the option to opt out of AI-driven targeting.
- 4) **Deception & manipulation** – AI can generate highly persuasive & convincing material, blurring the boundary b/w informed marketing & manipulation. E.g.- Deepfake Technology
- 5) **Job Relocation** – As AI handles various duties there is a risk that many humans may lose their job.
- 6) **Ease of access & inclusion** – AI solutions should be available to all including people with disabilities.

The UNESCO Approach in AI, which lays down 10 core principles –

- 1) Proportionality & do NO harm – The use of AI systems must not go beyond what is necessary to achieve a legitimate Aim
- 2) Safety & Security – Unwanted harms as well as security risks should be avoided
- 3) Right To Privacy & Data protection – Privacy must be protected & promoted throughout the AI lifecycle. Adequate data protection frameworks should be established
- 4) Multi-stakeholder & Adaptive governance & collaboration – international law & national sovereignty must be respected in the use of data.
- 5) Responsibility & Accounting – AI systems should be auditable & traceable. There should be oversight, impact assessment, audit & due diligence mechanisms.

- 6) Transparency – The ethical deployment of AI systems depends on their transparency & explainability.
- 7) Human oversight & Determination – All States should ensure systems do not replace ultimate human responsibility.
- 8) Sustainability – AI tools should be assessed against their impacts on sustainability.
- 9) Awareness & literacy – Public understanding of AI & data should be promoted through open & accessible education
- 10) Fairness – AI actors should promote social justice & fairness.

CASE STUDIES

Real-world Examples of successful AI implementation in social media marketing-

1) NETFLIX

Industry type: Entertainment

Use Case: Personalization

Netflix uses AI to give “Personalized recommendations”. We all know how excellent Netflix is with its marketing, but one thing that stands out is its use of AI for personalization.

Acc. To Netflix, “we do this by using the data about what content our members watch & enjoy along with how they interact with our service to get better at figuring out what the next great movie or TV show for them will be. The AI collects the data & recommends the shows, movies & even the artwork that you see is personalized acc. to the user.

Results: By inculcating AI early in the game, Netflix's recommended engine is worth over \$1 Billion per year, which as expected, comes from the personalized grid of suggestions that is catered only to the viewer's taste.

2) VOLKSWAGEN

Industry type: Automobile

Use Case: Predictive analysis

Volkswagen doesn't just automate its vehicles, currently, it is also automating its ad-buying decisions. Since the ad agency that was working with Volkswagen was giving personal interpretations about the ad buying decisions, the marketers at Volkswagen decided to rely wholly on data for which they decided to trust an AI so that they could invest less in campaigns & upsurge their sales.

Results: Volkswagen was able to cut the hidden costs that the media agency previously charged. Not only this, there was an increase in sales by 20% from Volkswagen dealerships.

3) NUTTELA

Industry: Food & Beverage

Use case: Design

The idea was that Nutella wanted to stand out in terms of packaging & make their products more desirable & brand more talkable. This transformative challenge was given to ‘Otilvy Italia’, a branding agency. They used AI & a dozen patterns to create 7 million one-of-a-kind labels as unique & expressive as Italian people are. And that's how ‘Nutella Unica’ was born.

Result: The 7 million jars manufactured for this campaign were sold out as soon as they hit the market.

Hence, all 3 case studies show that the induction of AI in various business operations proved to be beneficial in revenue, sales & customer satisfaction.

Overall Finding

- AI is a revolutionary & disruptive technology. It is gaining importance in the decision-making & strategy of marketers & all firms big or small. Which marketing campaigns to pursue & real-time performance of those campaigns can be measured.
- From product optimization to which ad will have the best click-through rates AI is gaining traction.
- Case studies of successful implementation of AI by Netflix in personalization, Volkswagen in predictive analysis & Nutella in design showcase the effectiveness of AI technologies.
- Research shows that AI has usability in numerous fields of content generation like Art, advertising, marketing, personalized content, writing, etc. It still requires a bit of human supervision though.
- AI can help in predicting trends, and forecasts through complex features of machine language & it doesn't use traditional statistical methods. This helps in Strategic decision-making for the future.
- As for the future of AI, it's still showing many potential advancements. Some of them are causal AI, conversational AI, Augmented reality, etc.
- Ethical considerations regarding AI do have merit to them. In the wrong hands, AI technologies can cause harm to society. A few areas of concern are accountability & transparency, deepfake technology, Data security & privacy, fairness & bias, etc.

Future Outlook

AI for sure is proving to be a disruptive & transformative technology forcing industries to transform in many ways. AI is going through rapid transitions and is ever-evolving & getting many breakthroughs in various domains. AI & its future potential advancements, emerging trends & technologies that can shape the future are as follows-

1) Generative AI

AI image & video generators -- AI can produce a video based on transcripts delivered by human prototypes from various tools like 'HeyGen'.

Personal AI – This is another trend in 'Generative AI' & has having more genuine conversational style than ChatGPT.

2) Autonomous AI Agents

"Microsoft Jarvis" & "AutoGPT" are examples. They can connect to & control other web services using APIs & perform actions like web searches, forms & API interactions. They make this possible by 'self-generating required prompts to reach a desired goal' & furthermore after executing prompts gather data to further refine its prompts.

3) Causal AI

This AI will possess more Human-like intelligence & will also assist in Analytics.

"Its main aim is to unfold the cause-and-effect relationship between marketing efforts & outcomes. E.g.- Causal Lens.

4) Conversational AI

This AI supports direct customer interactions or inquiries via web forms OR the firm's outbound communications such as email welcomes.

5) Augmented Reality

Many firms & brands, by AR, can give potential customers visual experiences in simulated environments & also immersive storytelling.

6) Logo Detection

Firms will use 'logo detection functionalities' to analyze images that feature their products across all social media platforms.

CONCLUSION

Just like 'The Industrial Revolution', the Manufacturing Boom' & then 'IT Boom', Our world is again going through a transition, witnessing another disruptive technology, which is "AI". After this, our world will never be the same again. All in All, AI is everywhere transforming & revolutionizing various industries.

Thanks to AI, Marketers can generate required content, target & segment the right market, and analyze their customers. Moreover, AI has found its /applications in now almost every business field. Its rapid evolution & soaring popularity have resulted in the adoption of it by almost every agency & firm, in the fear of losing to competition.

Hence, AI will find home in more & more operations of marketing in future, but yet still will not be able to replace 'human monitoring' mostly, at least for a few upcoming decades.

Recommendations

- Traditional & conservative outlooks 51001 or mindset (in terms of AI technology) must be with dynamic & forward-looking outlooks by firms, entrepreneurs & organizations. This approach is essential in today's world if the firm wants to thrive & survive.
- Application of AI wherever possible & AI experts should be on board every firm.
- Since, AI algorithms can analyze user behavior, preferences, recommendations, deliver tailored content, etc. It should be extensively used in personalization & targeting.
- Use of AI-powered chatbots will handle customer queries & instant responses saving firm resources & time.
- AI will play a crucial role in "Influencer marketing" since AI can identify influencers who align with a brand's target audience & value.
- Since AI can generate amazing social media content, this opportunity must be tapped.

- “Data is the fuel that powers effective social media marketing.” Hence businesses must use AI-driven data analytics.
- By analyzing patterns, and user behavior the right AI can detect suspicious activity, accounts, etc.

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