A Review on Digital Marketing Management
During the Pandemic Period

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ABSTRACT

This research explores how digital marketing contributed to a significant change in the world and the shifting of the business from offline to online. Nowadays, due to Digital marketing, organizations' products access digital channels like versatile applications, website pages, and social media.

With a change in the digital landscape, the advent of new technologies, and the increasing amount of information available about customers, it is hard to imagine more marketing without data analysis. Data-driven access allows businesses to create a compelling and personalized customer experience. Data-driven marketing is a very complex process-oriented by digital data, activated by intelligent tracking, and creates interactivity directly by treating each customer as a potential buyer. Businesses and entrepreneurship, during this strategy, create a background with knowledge, trends, and digital philosophy by maximizing profits, thanks to statistical and computerized analysis of data grouped through forms of e-commerce sales and more. The application of data and digital technologies in marketing has undergone several exciting stages of transformation. Each stage has helped transform and augment the scope and role of the marketing function within the organization.

We draw upon past literature and systematically track the applications of data-driven marketing and digital technologies over time. It came up that the whole world has been operating online for more than a year since 2021, shaping the old with the spread of Big Data. Nowadays, modern marketing experts are well aware of the importance and necessity of data-driven strategies. High demands, expectations, and, of course, instant results for customers require informed decisions and actions based on specific data. Let us look at precisely what data-driven marketing is and how a marketing strategy can help your brand achieve its business goals.

INTRODUCTION

Data-driven market research provides various businesses, managers, and marketing research experts with a concrete picture of their customers' buying habits. Knowing buying trends helps these companies to tailor their marketing and sales strategy to the consumer. In this way, the business creates a clearer idea of the products required and consequently is as close as possible to the customer preferences, significantly triggering sales increase.

Today, companies no longer work by producing the product and then selling it on the market. Hence, firms are adopting a pull production system based on predictive marketing analysis able to detect consumers' needs and preferences.

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The main goal of data-driven marketing is to increase customer productivity and experience.

Guessing does not work in DDM. It does not argue which creator is better but first selects the leading contenders; then, the market will decide.

Data-driven marketing provides information that helps tailor campaigns to each customer. By personalizing creators, marketing messages, and data-driven value propositions, customers discover that your marketing communicates with them on a personal level and thus is more responsive to your products and services.

Peterson brings a rare innovative way to research design issues. He has extensive experience in the analysis of quantitative and qualitative data. Dr. Peterson is the author of the book published by SAGE "Sustainable Enterprise", a Macro marketing.... Data-driven marketing is a simple strategy of using a potential buyer's information for optimal and targeted purchasing through creative messaging and media interaction. Without hesitation, we can say with conviction that it is one of the most transformative changes in digital advertising that has taken place in the history of computerization. The increasing quality and quantity of data collected by marketing have been followed by an "explosion" in creative production and automation technologies. These emerging technology sectors **mar-tech**[**] and **ad-tech**[††] now enable the personalization of every aspect of the marketing experience.

Merchants Tried to Utilize Knowledge from Customer Transaction Data to Sell the Right Product to The Right Customer at The Right Time (Kumar, Venkatesan, & Reinartz, 2006). The result was a renewed effort to make marketing more relevant from a client's perspective rather than just the firm (Shah, Rust, Parasuraman, Staelin, & Day, 2006).

2.1 Progressive DDM Creativity.

Recently, some social networks like Facebook have created new formats that do direct marketing without the need to navigate for a similar product or service. The person navigating this social network at a time when he cannot influence or even count appears a mandatory promotional message "ads" that are activated without the will of the person who is exploring or playing a solitaire game.

The message is generally a combination of keywords belonging not necessarily to the same social network but to different search engines. These keywords are presented to the consumer in the context of the "medium" he is executing. (DDM) means that creative needs are personalized based on some of the data attributes of the person you are exploring in a search engine like google, social media like Instagram, or even when reading a simple article and involuntarily will click on a specific ad. At this point, the digital data platform, referred to above as intelligent tracking, comes into play.

Through the root of the keywords, there are generated algorithms that, by interacting with certain websites, create a direct advertisement (ads) offering to the person who is navigating or who is reading an electronic newspaper the products and services that he is interested in because for these products he has conducted a "search" and has left traces.

2.2 Interweaving data and marketing

Perhaps the computer logic of computer science seems poor because it stands only above zeros and ones, but that is where its advantage lies. Combinations of these two digits of the binary system have also been able to interpret matter, so the more data generated, the closer we are to succeed. Businesses need to generate as much data as possible and make it work to help them sell and market their products.

[**] Mar-tech, otherwise known as marketing technology, is the term for the software and technological tools that businesses use to plan, implement, and measure marketing campaigns.

[††] Ad-tech, is a term that defines advertising technology. It includes a range of software and tools used by advertisers, advertising agencies, publishers and other industry actors to strategically plan and manage their advertising activities.

Successful data analysis helps market professionals to plan leading-edge marketing campaigns, keep up with sales trends and achieve high-level customer loyalty.

Data-driven marketing helps companies use all the data at their disposal to make current customers more satisfied and reach new customers.

DDM aims to increase sales and make them more efficient through market segmentation of customers. Using data also helps predict buying behavior or to predict when customers will buy certain items. In order to create a DDM that gives results, managers must know how: • Information with collected data can help in planning goods; • The division of customers into market segments should be as accurate as possible; • Build a 360-degree view of a customer base. DDM (or database marketing) assists managers and marketing professionals at all levels of the business in accelerating sales through analytical penetration.

2.3 Artificial Intelligence AI

Artificial Intelligence can be defined as the science that develops the architecture needed for devices to work like the human brain. AI has for years aimed to develop computer devices that process "smart" data and make decisions in perfect autonomy like the human being himself. The most significant debate that computer science knows today is that we are moving from intelligence to artificial super intelligence. Leading experts and CEOs of Intelligent Businesses that implement technologies believe that soon, almost every decision that will be made will be influenced by technology on AI.

Marketing is no exception to this influence, and it will see change with a hop even faster and with an almost wider adoption than any other. Companies must adapt to new buying patterns in an AI-enabled world to stay in business. Learning and implementing Artificial Intelligence innovations will keep the business at the forefront of the next technological revolution, while the rest will play a challenging game to reach the "leader." It is essential to contrast by focusing on systems that think and reason versus systems that operate. All this should not mean that AI researchers see their work as separate from others.

2.4 Machine Learning (ML).

Machine Learning (automatic learning) is the algorithm thanks to which intelligent devices improve over time, just as it happens with the human brain. Without Machine Learning, it would not be possible to put Artificial Intelligence to work.

It is not wrong to say that (ML) is the study of statistical algorithms and models that computer systems use to perform specific tasks without using prior guidance, relying on models and conclusions.
Machine Learning algorithms build mathematical models based on data to make predictions or decisions without being programmed in advance.

ML algorithms are used in various applications, especially where it is difficult to develop a conventional algorithm. (ML) Automatic learning is a discipline focused on two interrelated questions:
   a. *How can a computer system be built that is automatically improved through experience, "experience"?*
   "b. "*What are the basic theoretical laws that govern any learning system, whether they apply to computers, people or organizations?*"

The study of automatic learning is essential both for addressing scientific and engineering questions and for the software to become as practical as possible by producing and distributing it in many applications. Automatic learning covers various assimilation tasks, such as learning to classify emails as inbox or spam, to the point of learning how to recognize faces and images, and then you manage to control the robots to achieve the intended goals.

3. METHODOLOGY

3.1 ANALYTICAL APPROACH TO A DDM

In data-driven marketing, a guide needs to be as simple and practical as possible to analyze the market for the products to be offered.
The analysis of data in DDM should have as its main focus the way which enables the best decisions to be made to realize an "input" advertisement that cannot be contested by a navigator, applicant, or browser.

The instruction manual when dealing with direct marketing on the customer should be oriented in performing the analysis as follows: • Analysis of customer behavior (age, preferences, consistency, shopping habits); • Product analysis (in series, handmade, smart); • Cost analysis (variable costs, fixed costs, direct costs); • Price analysis (competitive price, cheaper price, promotional price); • Demand generation analysis (elastic / inelastic, online demand); • Extensive marketing analysis (4-P, marketing chain, distribution channels, culture); • Digital marketing analysis (sms, notification, smart application); • Advertising analysis (paid ads, mandatory to see 20sec); • Media analysis (on social networks, online games, e-mails);

All of these analyzes basically have a numerical database with grouped data. Theories on marketing analysis tend to be academic, emphasizing the accuracy of statistical significance that is rarely achievable in the business world.

Companies marketing of all sizes requires understanding the division between the analysis of data and the interpretation of the results.

From this manual derived from the above analysis, we can reach conclusions on performance appraisal. Even in large enterprises, decisions are usually made quickly when the data are as detailed and accurate as possible. Other resources in marketing analytics are often overly focused on perfecting a narrow marketing area, such as paid advertising on a particular search engine.

3.2 The research in marketing

Business entrepreneurs use a variety of marketing strategies to attract as many customers as possible and improve profits.

Through theoretical and applied methodologies, marketing creates advantages and superiority and has made a difference. Marketing research is a key to determining the best promotional or advertising strategy.

In marketing research, some "levers" can help a specific business evaluate the market more objectively by being more concrete and closer to the target group's preferences. Today it is proven and confirmed that in all cases when data drive marketing research, the marketer is very close to the preferences and requirements of the consumer.

Marketing research has begun to delve into marketing practices that can be enabled by transformational technologies such as artificial intelligence, mixed rea ents of the world with the help of technology), Shah & Shay, 2019). For example, machine learning (a subgroup of artificial intelligence) is one of the most popular transformation technologies that is widely adopted by firms (Teradata 2017).
It turns out that the marketing and sales function is adopting machine learning / artificial intelligence faster today (Columbus, 2019).

Marketing practices are also increasingly embracing other transformative technologies such as IoT or Internet-of-things (a system of interconnected computer hardware - physical and digital) that are connected to the Internet and capable of collecting and sharing data on the network without requiring any human-to-human or human-to-computer interaction.

Collectively, transformational technologies are opening up a daunting opportunity for marketing applications.

 In summary, we have witnessed an interesting evolution of data-driven marketing in an ever-changing business environment that has become digital and technology-enabled.

Over time, this evolution has helped expand the role and scope of the marketing function. It comes up that the marketing function plays a decisive role in the development of the customers' involvement, in the management of creative communication, and in the implementation of data-driven and technology-enabled marketing practices that are important for the firm, the customers but also financially responsible.

Collectively, this contributes to what Sheth (2020) calls a *digital and data 'tsunami'* that will significantly influence future research and bring about or has brought about a paradigm shift.
Earlier, techniques were looking for data, but in the future, data will be looking for techniques, especially in the age of social media like Twitter, Facebook, YouTube, WhatsApp, and Instagram. Sheth (2020) identifies six promising areas of research opportunities in digital and data-driven marketing. These are (i) extraction of the text, (ii) biometric data, (iii) video analytics, (iv) emoji analysis, (v) model recognition and (vi) forensic research.

However, there are some challenges for marketing researchers as they embrace the six new research frontiers. He argues that these challenges will be related to (a) data processing - ensuring that the data collected is relevant and authentic; (b) data analysis - selecting the appropriate set of techniques to analyze complex and diverse data, and (c) knowledge - relating to multi-type perspectives or overcoming prejudices regarding the interpretation of complex data; and (d) half-life of knowledge - changing context can challenge the declining half-life of marketing knowledge.

3.3 DDM process

Marketing is always an element of cost for any company; the main task is to understand which part of the budget goes into the abyss and which part is appropriately invested and helps the company increase profits.
In particular, the data-driven approach helps assess which solutions work, test different hypotheses, and suggest useful knowledge for product promotion. To configure data-driven access, you need to go through 4 steps 1. Data collection. 2. Data processing and analysis. 3. Use of data (hypothesis testing). 4. Performance evaluation.

3.4 AI and ML and Auto ML the keys to Digital Transformation Nowadays.

Artificial Intelligence (AI) and Automatic Learning (ML) (Machine Learning) are the main areas of investment for organizations focused on digital transformation.
AI helps us remove a lot of fatigue from figuring out how to relate all this data. It helps professionals who deal with data analysis how to read the data correctly and then to determine how it should be used better.

All this includes data cleaning, modeling, and basic data profiling.
Automatic Learning implementations have successfully brought about significant improvements in outcomes in various industries, increasing the "wavelength" for decision-making, accountability, accuracy, and consistency of outcomes.

Despite the increase in demand and investment in automatic learning systems, most enterprises have not yet exploited ML to its full potential and are in their first steps. There are gaps in both resources and experience.

3.5 Knowledge Graph create analytical perspective

Laying the foundation with the Knowledge Graph of the platforms, they create an analytical perspective. The Entrepreneur Knowledge Chart is at the heart of many AI and ML investments in analytics platforms. This chart "studies" clusters between all entities in the system, such as users, data, models, widgets (GUI a control element in a graphical user interface), formulas, clicks, filters, and more.

To understand the successes of these platforms, create an analytical perspective by getting to the core and understanding the collective wisdom of the organization that has this BI, which leads to more "human" and context-aware results from the AI platform engine.

The algorithms of these companies that generate AP (analytical perspective) are still awaiting patents that empower the knowledge graph with anonymous historical data from 5-10 years from all past interactions of clients that they have analyzed about data usage, widgets (objects), and control panel. Perspective analytics is created for an e-commerce type trading from the analysis done and presented graphically. In addition to the standard treatment according to the five steps above, we can also create additional articulated analytics.

3.6 Predicting future results and visualizing trends from historical data.

Predictive and descriptive analysis is ready to change sales, and companies that fail to adapt to new realities and adopt new practices will be left behind. The predictive action model, or analytical perspective model, is the primary weapon of 21st Century corporate sales.

However, how can you use this new dynamic resource to bring value to your business?! There are several ways that you can orient yourself: • Use one of the last remaining sources of competitive advantage; • Re-engineer the sales function to optimize success levels; • Implement a more effective data analysis model to drive efficient change; • Increase operational effectiveness and decision making; But in fact, with the rapid movement of information where the entire world economy is being seen increasingly as a local economy, today there are fewer competitive advantages than ever before to gain space.

Predictive analysis is the essential method behind this new standard, and data-driven guidance is the most practical guide to full and efficient implementation.

Forecasting and AI trends on AP-creating platforms are ML-enabled advanced, orienting, and trending features that can be implemented based on time series data, including Row; Area; The column.
Both forecasting and trends are complementary features; Forecasting on these platforms allows us to see predictive movements in the future, while AI trends show what has happened in the past. With Foresight, Business Analysts can generate three credible ideas as follows for future values and achieve advanced forecasting skills using data-driven capabilities that allow business users to spot trends and

Nowadays, during predictive analytics, hard work is being done for these platforms to display the ability to include or exclude data for specific dates (e.g., if an organization wants to exclude data from the COVID-19 period, this will be possible).

4. CONCLUSION

The implementation of Digital marketing allows you to discover new markets and businesses globally with just a tiny investment.

Companies can adopt various social broadcasting marketing methods, which make successful campaigns with the required quality and satisfaction value.
Nowadays, social media and digital marketing have boosted the quality of product advertising, and satisfaction is a crucial feature in any sales practice.

With the recognition of the right objective, the market also plays a dynamic role in the success or failure of any marketing training, whether it is social media marketing, digital media marketing, or non-use of social media for marketing promotion.

In today's digital economy, organizations are in a race to transform into Intelligent businesses, with the primary goal of empowering human resources at every level of the organization to make data-driven decisions and improve business results.

However, despite significant and growing investment in data and analytics, many organizations are still struggling to drive widespread adoption. In fact, numerous studies show that in most organizations, only one-third of individuals are benefiting from existing analysis.

Having an Intelligent Business (BI) application separated from other business applications is simply not enough. While reporting and control will continue for quite some time, truly transformational organizations strive to ensure that analysis is comprehensive by embedding an analytical perspective in every application and ensuring that individuals can turn knowledge into immediate action directly from their analysis environment.

Moreover, analytics creates additional revenue promoters and business models.

Business nowadays is no longer a novelty but normality to stay close to customers' needs and an obligation for the enterprise to have continuity. The benefits of data-driven marketing Data are the main subject for all marketing activities. With this important ingredient, move from simple, general advertising to a personalized approach to each customer. Data-driven marketing allows one to be ahead of the competition and increase customer loyalty to a brand. The happy customer will surely share the experience with friends and colleagues, which, as a result, will increase brand awareness, user engagement, and trust in a brand. In summary, quality data-driven decisions are good decisions that help your company grow faster and generate revenue. Pure magic and an eternal dream for any business!

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