

Artificial Intelligence Applied to Digital Marketing in Machine Learning

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Abstract. Based on the theory that both manual and cognitive tasks can be replaced by Artificial Intelligence, this study explores, using a qualitative research method, the impact of Artificial Intelligence (AI) in Digital Marketing. An analysis of interviews with 15 experts from different industries related to Marketing and AI shows that AI have impact in Marketing processes and the impact will be bigger in the future. The study reinforces that many of the manual and repetitive tasks of a marketer's life can already be replaced by AI, and the use of machines working together with humans are the key to better marketing results. The challenges and ethical aspects that lead to a slow or non-adoption of AI have been addressed, and one of the major obstacles is that humans aren't yet confident in technology and, they are not yet ready for this cultural change. Based on these findings, business decision-makers and managers need to prepare their companies and employees for the implementation of AI in Marketing.

Keywords: Artificial Intelligence Marketing Digital Marketing Machine learning Integration

1. INTRODUCTION

Artificial Intelligence is integrated into our lives, although many people are unaware of its presence. This misconception is evident from the fact that only 50% of responses from the PRNewswire (2018) consumer awareness study state that they have never interacted with AI technologies and 23% are unsure whether they have ever interacted with AI. technology. There are many examples of AI that operate in the background of most modern technologies (smartphones, computers, smart TV's, etc.) revealing an apparent lack of knowledge about what consumers think AI is and how AI is applied daily. This paper presents the results of an exploratory study with a quantitative methodology, based on 15 interviews with specialists, which provided a better understanding of the impact of AI on digital marketing. The article presents the main aspects related with Artificial Intelligence and Digital Marketing, the used methodology, the analysis and discussion of results of the research and finally the study conclusions. AI is present in the daily lives of people and businesses, an example of which are

voice recognition, image recognition and handwriting suggestions available on today's smartphones.

a.) Artificial Intelligence

According to Russell and Norvig (2016), Artificial Intelligence is computerized systems that capture data to perform tasks of intelligent beings in order to maximize their chances of success. Strong AI (Artificial General Intelligence) is a machine with consciousness and mind, and this machine has intelligence in more than one specific area. Weak AI (Narrow AI) focuses on specific tasks (autonomous cars derive from Narrow AI). In addition, there are authors who hypothesize that computers may be better or smarter than humans, so there would be a new AI term, called Artificial Super Intelligence, but right now it's hypothetical.

Consumer industries, such as retail and high tech, tend to see more potential in AI applications in marketing and sales because frequent, digital interactions between companies and customers generate larger datasets for AI techniques. E-commerce platforms can benefit from AI because of the ease with which these platforms collect customer information, such as click data or time spent on a website page, and can customize promotions, pricing, and products for each customer. dynamically and in real time. The study uses cases that using customer data to customize promotions, for example, using individual offer personalization every day, can lead to a substantial increase in sales

b.) Natural Language Processing – NLP

Natural Language Processing (NLP) enables AI systems to analyze the nuances of human language to gain meaning, among others, from blog entries, product reviews, billions of daily tweets, Facebook posts, etc. Swedbank, a Swedish bank, uses a virtual assistant with NLP to answer customer queries on its website's home page, allowing customer service employees to focus more on sales without sacrificing service.

c.) Image and Voice Recognition

Image recognition helps marketers understand images and videos that people share on social networks and “show” consumer behavior. Consumers identify details about the offerings pictured in the image, and marketers benefit from the details of contextual consumption. Selfies reveal the marks used, even when not explicitly mentioned in the publication, and the personal details of users. When a celebrity shares a photo about an unidentified product, image recognition recognizes both the product and a potential social media influencer. San Diego-based Cloverleaf uses image recognition on its smart shelf display platform. Equipped with optical sensors, the display collects customer demographics such as age and gender and analyzes shoppers’ faces to gauge their emotional reaction to the product. The closer consumers are, the more personalized the content will be. Speech recognition allows AI to analyze the meaning of the words reproduced. Sayint, a call center service provider, uses voice recognition to monitor and analyze customer calls. Technology helps Sayint understand customer needs, improve caller performance, and increase customer satisfaction and Artificial Intelligence in Business gets real.

d.) Problem Solving and Reasoning

Marketers implement AI to understand hidden insights into consumer-generated content, narrowly defining the problem they want to solve and how they will approach data analysis. These core processes generate pattern detection in the data, improving the ability to predict future behavior. Marketers may want to segment their market based on the varying psychography of their customer base, possibly to determine who their “best” customers are and why those customers would buy their offers against competitors. The personality traits that are important in people’s lives eventually become part of their language. AI can “reason” with comments and posts on people’s social networks, and can reveal personality trends, values and needs. AI-based profiles derived from consumer analysis may be relevant to future marketing decisions. North Face, using IBM Watson, uses AI to determine which jackets consumers may be interested in, based on available data. The system begins by asking where, when, and what activities the consumer will be wearing the jacket and based on the weather forecast for that location and the wearer’s gender, narrows the search to six options. Based on activity, rearranges alternatives from “high match” to “low match”. This will save the wearer time by avoiding hundreds of

jacket options, many of which would not even meet your functional needs. This is a way to increase the quality of the customer experience throughout its decision-making journey.

e.) Machine Learning

Machine learning is a subcategory of AI that uses computer programs to learn and improve throughout experiments, processing huge amounts of data. It is the fastest form of AI and is the primary source in the AI industry for marketers. By detecting patterns in data, machine learning systems can “reason” and propose the best options 160 T. Ribeiro and J. L. Reis for the stated consumer needs, more efficiently than humans. In addition, the system remembers everything that was previously calculated, storing all memories in a knowledge base and uses machine learning to learn from your previous experiences and problem solving (Big Data). It is a system that can make predictions, for example predicting consumer retention rates. Consumer retention rate is the metric that measures the percentage of consumers who break up with a business over a certain period, or how long a user spends on a landing page. Machine learning gives the marketer the information foreseeing possible customer abandonment, so marketers can use strategies to keep them interested in the brand.

2. MATERIAL AND METHOD

This work is an exploratory and descriptive study on a specific theme. The methodology that supports the research is qualitative and, above all, descriptive. Based on the context of the AI tools applied in marketing, presented in the previous points, this study made an analysis focused on the perspective of the people who work with AI, although consumers always assume themselves as central and structuring figures in research, due to their constant relationship with them. The first part of the study provided the theoretical underpinnings based on secondary information from scholarly articles, journals, reports and books. In the second part, the primary data collection was performed to be analyzed together with the theoretical bases.

i.) Research Objectives

The research developed allowed to understand the strategies of companies that use AI, the benefits, the challenges presented, the ethical issues and to understand the impact that these practices are having on companies' income. It was considered relevant to understand which elements are considered essential for the successful implementation of an AI strategy in Marketing. This research work is a contribution for companies to support the implementation of a successful AI strategy in Marketing.

ii.) General and Specific Objectives

The purpose of this study is to understand the current situation of Artificial Intelligence in Marketing, analyzing how AI currently impacts Marketing and the impact it will have in the future. Identify the key benefits of implementing AI in Marketing. Understand the key challenges and ethical aspects of integrating AI in Marketing. Assess how companies are using AI in Marketing and what are the uses of AI applications and what problems they solve. Check if Small and Medium Enterprises (SMEs) are able to integrate AI into Marketing. Understand the impact AI has on marketing today, and what it will have in the future.

iii.) Interview Data Collection

To collect primary data to meet the objectives, interviews were conducted as a qualitative study method. For semi-structured interviews, the interview script was not rigid, and the answers were open. The questions asked were based on the knowledge obtained during the literature review. The choice of specialists was made through contacts via LinkedIn or by contacting companies directly. In the profiles of respondents there are computer science professionals, data scientists, consultants and marketers. Notes were taken during the conversations with the experts and were extracted and summarized the essential content, and then analyzed according to the research objectives. The evaluation and discussion of the results was guided by the research questions defined and the literature review.

3. RESULTS AND DISCUSSIONS

After collecting data obtained from the interviews with the specialists, data were described and analyzed. Next, all factors that influence the slow integration or non-integration of AI in Marketing will be collected and described. It will then show how companies are using AI in their marketing strategies, and whether SMEs are able to integrate AI into their Marketing processes and finally will be made an analyze of the impact that AI has on marketing costs and revenues. The main expected benefits will be lower costs and higher revenues. AI delivers benefits on acceleration, faster results, accuracy, better results and relief, reducing tasks that it is not essential for people to do more because it is not a good use of their time. Machines can do better and on a much larger scale. A human can try to read 10 000 social networking posts in five minutes, but certainly won't do it. The machine can reduce and remove repetitive or unimportant tasks from marketers' lives, for example, a report by a marketer that would last about eight hours can be done by a machine in eight minutes. This way you can reduce repetitive task costs and direct marketers to tasks that are more about creativity, strategy, and decision making. AI enables the marketing team to deliver a personalized user experience without being overly intrusive.

Artificial Intelligence already enables marketers to optimize websites by customizing them for different users, for example by offering them personalized messages and distinctive designs based on their profile and needs. AI will enable organizations across all industries the ability to rebuild personal relationships with their customers. Data provides powerful insight into customers' current needs as well as valuable information about their future needs . With all the benefits that come through AI, questions and problems also arise.

In recent years, according to respondents, marketers have wondered how marketing can deliver value without being too intrusive (externally) and how marketing can reshape and empower people within companies (internally) to work in this logic. A successful AI strategy can only be effective when there is strong technical (technology, data, processes) and organizational (people, capacity, culture) technical capability. Failure to do so may result in poor performance, even if the company is working with partner companies in some of its AI activities. Another of the most mentioned aspects is data quality and what companies do with data. Many companies have no idea where data is generated and what they can do with data, they do not have data that

has a unique view of customers and is properly validated and sanctioned by the company. For AI to be successful, it requires large data sets. However, most large companies have a lot of data locked in various marketing systems they already use.

The key is to be able to connect to systems, use this data and unify it - since data is unified around individual customer profiles, AI can tailor campaigns and marketing experiences specifically for everyone. The largest use of AI in Marketing is through machine learning. In the old days the brute force of computational power was used, all movements had to be defined, but with the use of machine learning the algorithms learn for them. Machine learning is an important underlying AI technology that is used to create models that can identify patterns in complex data sets. Marketing is more about personalizing content, the best techniques are based on it. Clustering models use unsupervised algorithms to do segmentation, that is, they calculate how much one client looks like another and put them in the same cluster if there are similarities. These models improve the customer attraction process - they automate the process, identify audiences and similar targets, and enable marketing to spend to be optimized by segmenting, predicting, and identifying segments more efficiently. They are used to perform more accurate, fast and effective segmentation and targeting. These are the must-have models, meaning that virtually every company should have today.

4. CONCLUSIONS AND FUTURE WORK

From the data obtained from both the consulted studies and the interviews carried out within the context of this work, it is concluded that AI will have more impact on the future of marketing and that even SMEs can implement AI. Companies that are currently conducting marketing activities without AI-based solutions must be prepared for change. Developing training for a successful AI strategy in Marketing can only be effective when there is strong technical (technology, data and processes) and organizational (people, skill and culture). The first step in any AI Marketing strategy is to review the company's business and communication strategy. Once the company's business and communication strategy are clear, the best use cases should be identified to help the company achieve its objectives. That is, what are the problems the company wants to solve that with the help of AI can help achieve the company's strategic

goals. In the implementation phase, the company needs to think about how to turn its artificial intelligence strategy into reality. Companies need to understand how AI projects will be delivered; those responsible for each action; actions/projects that will need external support. Companies must consider what technology is required to achieve their AI priorities. Companies must understand and define whether it is best for their business objectives, to have an AI team within their own company, or whether will use solutions designed by other companies.

To have a better understanding the impact of AI on business on the marketing, this study must be completed through with testimonies from business managers more conclusive about the picture of AI's impact. On the other hand, as demonstrated throughout this paper, the target client is always present, and in future work it is important to understand the impact on their lives.

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