WHITEPAPER

Machine Learning and Artificial Intelligence:

What it Means for Marketers

REVTRAX

Advances in machine learning and artificial intelligence are revolutionizing all aspects of business and industry. Companies are beginning to explore the effects of machine learning and artificial intelligence in the area of marketing, but most marketers have only scratched the surface of the potential applications of this technology.

In the U.S. alone, there are over 300 million potential consumers. Multiply that by the number of possible branded products in a given category, considering all of the different variants and configurations that are available for purchase. Then, think about how those purchase decisions are affected by previous brand interactions, the time of day, weather conditions, the user's device, and personal preferences, language, sentiment and more.

There is no way a person could access all of these variables and integrate them into actionable insights, and roll out any activity in real-time. For this, marketers rely on big data analysis to connect the dots. And for real-time, targeted, efficient activities, marketers rely on artificial intelligence and machine learning.

Artificial intelligence and its applications in machine learning can help a marketing team to control costs, micro-target consumers, conduct accurate demand forecasting, achieve actionable insights and measurable ROI, and eliminate waste in online and offline spend.

While people tend to use the terms machine learning and artificial intelligence interchangeably, there are distinct differences between the two. Artificial intelligence (AI) is the study of making machines that are inquisitive, that learn from their environment, and become capable of near-human problem solving; machine learning (ML) is an application of AI that provides a system that can review data and improve itself without being explicitly instructed to do so.

Machine learning in marketing refers to those applications that can review relevant data –perhaps with an emphasis on marketing spend and ROI, or consumer behaviors – and draw actionable insights for marketers from that data.

The Salesforce 2017 State of Marketing survey[1] found that 77% of marketing teams in high-performing companies use AI applications in marketing efforts, while only 32%

of underperforming companies do. Over the next five years, marketing leaders expect AI to have a significant impact on three areas of marketing: improving efficiency, advancing personalization, and providing customer service innovations.

AI and machine learning can help eliminate marketing waste, by allowing micro-targeting of those consumers most open to conversion and follow-on purchasing, as well as by assisting marketers to determine the ideal offer and type for maximum effectiveness. Marketers can achieve real-time responsiveness, as a system that runs mostly automatically can make retargeting decisions and structure dynamic content on the spot, in response to customer behaviors.

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Predictive analytics and forecasting is a crucial part of big data and machine learning for marketing. Demand forecasting has already been a focus of marketers, using trend analysis and purchase patterns to predict future

behaviors. However, when machine learning is applied to predict purchase preferences, marketers can accurately determine a purchase window and present the individual consumer with the right offer, at the right time, through the right platform.

1 https://a.sfdcstatic.com/content/dam/www/ocms/assets/pdf/datasheets/salesforce-research-fourth-annual-state-of-marketing.pdf

Reinforcement Learning and Marketing

"Why make a 30% off deal when 10% would work just as well for that customer? What is the optimal level of offer or redemption that will provide the best results for the company?"

In 2016, for the first time, a machine learning program named AlphaGo beat the world champion of "Go" – an ancient, but an incredibly sophisticated game – more complex than Chess, and extremely popular in Asia, and gaming circles. Experts herald this event as being a decade ahead of its time. However, just one year later the next iteration of Alpha, named Alpha Zero, beat the original program 100 games to 0.

The difference between AlphaGo and AlphaGo Zero is that Alpha Zero uses reinforcement, also known as unsupervised learning. Reinforcement learning occurs when a machine learning program has a built-in rewards system. Without human intervention, the algorithm uses trial-and-error to understand different ways to succeed within a specific context and receives positive reinforcement from inside the system. With reinforcement learning, an algorithm can learn to apply creative problem solving and strategic thinking to a particular situation. With the introduction of positive reinforcement, the system can then use data analytics to determine the success of chosen strategies and learn from any less-than-optimal results, incorporating these lessons into future strategic decisions.

What does this mean for marketing?

Cutting-edge marketing technology leaders believe that reinforcement learning can be applied to solve a variety of marketing problems. For example, the minimum offer level required to influence the purchase, a dilemma for marketing professionals across all industries.

Minimum offer level required to influence purchase

The ability to determine the ideal offer for a particular customer would give a company a substantial competitive advantage, by ensuring that they aren't subsidizing offers at a higher-than-required level.

Why make a 30% off deal when 10% would work just as well for that customer? What is the optimal level of offer or redemption that will provide the best results for the company?

Experts at RevTrax are applying the principles of reinforcement learning, demonstrated by Alpha Zero, to the problem of determining the ideal offer for an individual shopper. RevTrax A.I. Powered Offers will take the strategic problem-solving capabilities of Alpha Zero, and use them to ensure that the minimum offer required is the one offered to a specific customer. This always-optimizing dataset helps brands connect the dots between digital engagement and sales.

Machine learning has the potential to benefit both consumers and brands. Consumers benefit from having more relevant shopping experiences. Customized product recommendations are successful because they are relevant – people who like product X may be more interested in product Y as well. And receiving a digital offer on a specific item, just as you were considering restocking your pantry, benefits the consumer as well.

Brands benefit from machine learning with:

"When machine learning is applied to predict purchase preferences, marketers can accurately determine a purchase window and present the individual consumer with the right offer, at the right time, through the right platform."

Reduced costs. Automated tasks that are 'set-and-forget' reduce investments in employee time and resources that marketers could better apply to strategic objectives. The entire team can become more productive and efficient. Companies can eliminate waste that occurs naturally as the result of mass marketing by customizing each offer to the minimum amount to influence purchasing decisions.

Streamlining marketing efforts. With machine learning, companies can apply customer behavioral data to accurately predict which segments of the population are most likely to **become customers. This activity goes beyond traditional data analytics because machine learning algorithms can incorporate results of marketing efforts and use them to improve strategic decisions in future endeavors. Marketing departments can streamline campaigns, using micro-targeting results from machine learning programs to focus on those customers that are most likely to be affected, without wasting effort and resources on less likely candidates.**

Advanced personalization. The Boston Consulting Group[2] measured a 6-10% increase in revenue for those companies that have incorporated personalization tactics in their marketing. They also predict that over the next five years, there will be a significant shift in revenue from the companies that personalize poorly, or not at all, toward the small percentage of companies that get it right. In another survey, 78% of respondents said that personalized content increases intent-to-purchase, while 88% said that personally curated content improves how they feel about a brand.

Barriers to personalization include poor data quality, omnichannel integration, complex execution, and inability to measure ROI. Machine learning can help tear down each of these barriers to success: by automatically gathering and analyzing high-quality customer data, providing actionable insights, and automatically executing personalized interactions with dynamic content. Data collected in the machine learning process can give marketers an accurate measurement of ROI, which can be used to maximize the effectiveness of marketing spend.

Machine learning is becoming a primary, necessary tool for the modern marketing department. While it's possible to build a home without power tools, it is certainly not recommended and represents a waste of valuable time and resources. Machine learning and artificial intelligence enable marketing professionals to maximize their results, creating efficient, compelling, dynamic, personalized messaging to improve interactions with every customer, every time.

2 https://www.bcg.com/publications/2017/retail-marketing-sales-profiting-personalization.aspx

3 https://pages.onespot.com/Personalization-Imperative-Report.html?utm_campaign=MIG&utm_source=pr&utm_medium=website