

TECHNOLOGY

How to Harness AI Technology for Marketing Success

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There are two sets of capabilities that lead to successful use of AI in marketing.

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The marketing world is currently undergoing a “post-AI-hype” sobering. Despite the exciting promises made by the providers of artificial intelligence, many businesses have either not seen positive business gains on their AI marketing investments or have been frustrated with the duration and cost over-run of their AI marketing initiatives. Recent studies from Boston Consulting Group, KPMG, Dimensional Research, IBM, and academic

research suggest that an alarming rate of 50% to 90% of the AI projects have either failed or run into significant problems and delays. Because of the large gaps between firms' expectations and actual performance, AI marketing sits at the very top of Gartner's 2019 hype cycle for digital marketing and managers are wondering what went adrift in their AI marketing initiatives.

How AI can enhance marketing

In principle, AI collects and leverages large and diverse data on customer transactions, journeys, attributes, and sentiments to build machine learning and predictive algorithms of customer behaviors to generate personalized product recommendations, content, communication (via chatbots for instance), and acquisition strategies. The promise of AI is low-cost, fast, accurate, adaptive, and human-like decisions that will save the firm costs and increase revenue dramatically through improved customer acquisition rate and boosted customer satisfaction. Although AI has generated science fiction-like excitements and potentials via automated medical diagnostics and self-driving cars, given the current level of intelligence in AI and the mission-critical nature of driving and medicine, AI, in reality, will be most adopted by marketers in the foreseeable future.

Based on our examinations of AI's current performance, the recent case studies, the nascent academic research on customers' interactions with AI, and our conversations with top managers in U.S. and international firms, we discuss the conditions that are needed for AI marketing to succeed.

Firms thinking about investing in AI marketing need to realize that:

- AI marketing changes the business model and customers' perceptions of the business – given the newness of the technology, customers can be resistant to AI in the short-term. Thus, firms should closely monitor metrics on satisfaction, customer sentiments, retention rates, and cross-product purchases, as well as compare differences in customers acquired pre- and post-AI and be ready to rebalance AI and employees' roles in customer service.

- AI marketing is not a quick solution for increasing company performance and needs constant monitoring and fine-tuning. Firms that are winners in the AI game need to possess strong market-sensing and analytics capabilities to complement the technology and overcome AI's limitations. Firms should invest in these capabilities early as they take time to nurture and become integrated into a firm's DNA.

The mixed success of AI in marketing

There are many inspiring examples of AI as marketing competitive advantage in disruptive start-ups. For instance, Stitch Fix curates personalized clothing items by integrating data provided by customer surveys, their Pinterest boards, and the preferences of similar customers. The video-sharing platform Tiktok stole an entire generation of young users away from the tech giant Baidu by forming a more accurate understanding of the contents and more accurate personalized recommendations based on users' viewing habits.

There are also many prominent examples of established firms implementing AI to advance their businesses. Amazon Go's sensor-laden and AI-powered convenience stores are aimed to understand offline customer browsing and shopping behaviors and then link these offline behaviors with online behaviors – an ambitious step towards omnichannel retail in urban settings. Starbucks' predictive system underlying its mobile loyalty programs provided personalized marketing messages and promotions by analyzing customers' purchase habits such as favorite beverages, purchase frequency, time of the day, location, and responses to promotions. In addition to increasing customer engagement and spending, the large-scale analyses from millions of transactions per day inform corporate strategic decisions such as new product introductions and locations for future stores.

However, as promising as it sounds, recent history is littered with high-profile AI failures. These range from Microsoft's 2016 incident where its chatbot Tay was corrupted by Twitter trolls' racists and misogynistic comments, to YouTube's ad pairing algorithm debacle where ads from large businesses such as Coca-Cola were paired with offensive video contents that its algorithm failed to flag. Further, in 2018, Amazon stopped using AI for recruitment as it was biased against female candidates. In principle, AI would screen

thousands of resumes and spit out the top 5% of candidates, thereby improving efficiency in the hiring process. However, the bias occurred because the algorithm was trained and benchmarked using current engineering resumes and employees, who happen to be predominantly white males.

Marketing and data analytics capabilities are crucial determinants of AI success

These examples highlight the limitations of the current AI technology as well as the roles of human employees and the organizational capabilities in ensuring AI marketing's success.

Contrary to popular beliefs about the AI's human-like intuition and empathy, the current state of AI is known as "Weak AI" or "Narrow AI" because its use is confined to analyzing pre-defined range and context as specified by human programmers. Weak AI constitutes the fundamental processes behind Siri, Alexa, and most AI marketing applications.¹ Given that the business world is working with Weak AI, AI success still relies heavily on humans and the human capabilities that can define, evaluate, and refine the processes.

So what is the difference in AI marketing success and failure? From a marketing perspective,² we found that there are two sets of capabilities that are important for AI marketing success – marketing capabilities and data analytics capabilities.

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Marketing capability refers to the organization's ability to efficiently transform marketing resources into revenue. Firms with strong marketing capabilities are customer-centric, are adept at market-sensing, and have strong marketing assets processes in place to satisfy customer needs and resolve customer problems. These firms highly value marketing and often have marketing experts in C-suites. Strong marketing capability allows firms to more effectively set up the rules and context that allow the Weak AI to operate. They can then sense the marketplace based on collected data, diagnose whether the outputs from AI and

customer responses make sense and make the appropriate adjustments to the rules and contexts. In short, firms with strong marketing capabilities know what customers want, and can deploy AI to add efficiency to the already effective customer acquisition and service process.

AI by itself fails to create synergy with existing marketing processes. Without strong marketing capability, firms would not know which process to deploy AI, how to make sense of the results from AI-based output, and what metrics should be used to monitor and measure AI and firm performance. As a result, firms would waste the initial AI investment and cause organizational disruption without realizing any benefit. For example, e-commerce firms that deploy AI such as chatbots in their customer service could be bad at other parts of the business such as clumsy website design, navigation, or check-out processes. They could also make the mistakes of reducing too much of human-based customer service, which could cause customer frustration. Another example could be a firm that rolls out an AI-enabled, value-add service feature, but is inept at communicating this innovation to potential customers.

Data analytics capability refers to a firm's technology-enabled ability to harness insights from customer and market data such as customers' response to marketing actions,³ and fine-tune these marketing actions to optimize their effectiveness. Strong data analytics ability allows firms to extract insights from the data gathered from AI and draw appropriate conclusions. Also, as AI adoption often involves new software and new data types, understanding how to merge and convert the old data from the legacy CRM systems and preserve seamless customer insights is a testament of data analytics prowess.

To illustrate how strong capabilities can support AI marketing success, Amazon's retail operation is famous for its customer-centricity and its rapid response in solving customer problems. In recent years, Amazon has also built up a strong analytics capability by hiring thousands of data scientists and economists to comb through the massive data generated for insights, and the behavioral data collected from their Go stores can further enhance Amazon's already deep insights into customer behaviors. Starbucks has built its entire business on providing rich sensory customer experiences, from its store décor to music selection, and on forging strong relationships with customers. In the case of Stitch Fix, recommendation outputs from AI are not used blindly - they augment the company's

human stylists' decisions, who possess profound domain knowledge about fashion trends and appropriateness to avoid potential mishaps. AI marketing initiative winner such as Nike, Coca-Cola, Apple, and Wholefoods all possess superior marketing and analytics capabilities.

These examples demonstrate that marketing capability and data analytics capability allow firms to better understand customer-facing areas that could benefit from AI automation, so that AI can be developed and targeted with a business objective and expected results in mind. To avoid the pitfalls in AI investment, these capabilities also allow firms to foresee human biases and potential misuse in the market place – factors that would help to better train and improve AI models. Again, the inputs to the AI and the associated outputs are only as good as the humans that set the rules and contexts.

These insights are echoed by industry surveys as well as our conversations with executives from companies large and small who struggled with AI marketing implementation to increase performance. Enamored by its potential, many companies have spent tens of millions of dollars to install big-data and AI infrastructure before deciding what data are useful and how the infrastructure can be used to improve specific marketing actions. As a result, many of these initiatives stalled and the collected data have been left unused. This backpadding is akin to the common mistake found in many entrepreneurial organizations that have spent time and effort on product development and design, before deciding on strategic issues such as understanding target customer needs and meaningful differentiation from the competition.

Customers can be averse to AI marketing in the short-run

At its core, firms generate profit from maintaining and enhancing existing customer relationships and acquiring new customers.

Academic research in marketing and information systems suggests that customers can be resistant to AI in marketing roles and that AI could disrupt the existing customer base. Even when AI performs as or better than expected, customers still experience anxiety. For

example, customers think that AI product recommendations rob them of their identity and their individual uniqueness, and could undermine their perceived autonomy from their own search process. Many customers have a negative preconception that AI robots are inferior to humans, and that AI is only useful for low-involvement products and not for the eliciting of emotion and motivation often required for high-involvement products. Therefore, firms should carefully monitor attitudinal and behavioral metrics such as customer satisfaction, repurchase frequency, and retention rates. They should then identify any changes compared to pre-AI integration, investigate the root causes for the changes, fine-tune AI parameters and rebalance the roles of AI and employees in customer service.

For firms with many diverse products such as e-commerce retailers, tracking expansions in the types of products purchased by customers would provide an idea of the performance product recommendation in broadening customers' horizons. Just like firms would experience short-term transitional pains among its employees and current processes, firms should also expect existing customers to be overwhelmed and confused in the short-run before forming new habits with the new marketing process. This crucial period is where human expertise and marketing capabilities come in - firms with strong marketing capabilities can, through timely interventions and superior customer service, reduce the transitional pain from mainly human-based marketing to AI marketing.

On the new customer side, because the acquisition process has now changed with AI,⁴ the firm is likely to end up with more but diverse types of customers. We have known for a long time that how customers are acquired and onboarded determines their subsequent behaviors and profitability. Therefore, firms should closely monitor the behavioral and profitability difference between those that were acquired before and after AI, compare the practices that caused these differences, and combine the best of both AI and human approaches.

Customer and firm anxiety with AI will diminish down the road

History repeats itself. It is important to have a historical perspective and to understand that the current customer and firm sentiments with AI are not new to the world of business innovations. Whenever a new technology significantly changed existing business processes and customers' past habits, customers and firms experienced similar sentiments. In the early days of e-commerce, security concerns about putting one's credit card online and product delivery reliability emerged. As e-commerce technologies and delivery logistics matured and the customer experience became more seamless over time, customers seldom think twice about buying online, and retailers do not hesitate to open up an online presence. Disruptive innovations such as streaming music, SaaS, and cloud storage went through the same stages that AI marketing is experiencing today.

It is also interesting to remember that the current AI-sobering reflects the upward spiraling evolution of AI's own history. When the term "artificial intelligence" was first coined at the Dartmouth Conference in 1956, its futuristic and sci-fi style promises were exhilarating and prompted the developments of many algorithms. However, AI suffered its first set of disillusionment from the mid-1970s to the early 1980s when it lacked business applications. Interests in AI was briefly revived in the 1980s through the business application of deterministic "if-then" styles of data-driven expert systems and the first popularization of AI in the movie "The Terminator," but then again experienced a period of relative silence until the beginning of this decade. As computers became cheaper and more powerful, customer data more readily available, predictive accuracy drastically improved, and new customer-facing applications such as Siri, Alexa emerged, prompting the current AI renaissance.

If history is any guide, with the improvement of better AI technologies, learning from firms' own and other's mistakes, and identifications of new business applications, we are confident that AI will be a new norm in business.

It is worth noting that unlike years ago, where most of the technologies needed to be developed in-house, firms that implement AI marketing now often rely on specialized vendors such as Infinia ML and consulting firms such as Accenture to set up their AI initiatives. Therefore, the technical bar for benefitting from technological innovation has

lowered. Accordingly, firms' technological capabilities - the organization's capacity to convert technological resources to technological output - that once determined competitive advantages are not as crucial today as marketing and analytics capabilities.

Perhaps, in the distant future, when AI becomes truly contextual, it will render the current marketing and analytics capabilities less vital. Perhaps the definition of these capabilities will evolve, or we will uncover some other new capabilities that will determine the competitive advantages of firms in the future. Until then, the winners of the AI marketing revolution will be those with superior fundamental, long-standing, and human-based capabilities.

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1. A higher level of AI is called "Strong AI" or "General AI", which can "learn how to learn", extend beyond the initial human programming, and mimics human intelligence and decision making. In these situations, the models can adapt to complex and changing conditions while offering holistic thinking. These are exemplified in popular culture by characters such as "Samantha" and "Jarvis" in the movies "Her" and "Iron man", However, achieving strong AI is distant and recent surveys indicate a 50% chance of achieving this by 2050. ↩
 2. Any business innovation integration success also depends on strategic commitments and organizational culture factors such as incentive for risk-taking and employees' willingness to change. In this article, we focus on the capabilities in marketing as they more directly affect AI marketing's success. ↩
 3. Such as responses to pricing, promotion, product recommendations, and recently new shopping channel nudges. ↩
 4. For example, AI can now acquire more and diverse customers through new acquisition channels, personalized acquisition offers, acquisition through chatbot, and increased conversion rates through each step of the acquisition process. ↩
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