The Impact of Artificial Intelligence and Virtual Personal Assistants on Marketing

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INTRODUCTION

As marketers and consumers simultaneously adopt Artificial Intelligence (AI) services and applications, the dynamic of the process of exchange between the buyer and seller in the marketplace is being fundamentally altered. Clearly, the Internet and social media have radically altered not only the roles and relationships, but also the differential advantages held by marketer and consumers in the marketing game, as consumers can now find (via Google) and buy (via Amazon and more recently via Facebook) anything, anytime, anywhere on the recommendation of friends and family (via FaceBook) or other customers (via Yelp) and communicate globally the transaction in 140 characters or less (via Twitter). Traditionally, marketing has been something done *to* the consumer. Products were pushed. Communication was one-way and intrusive. Commercial messages remained mostly brief, designed as much to entertain as to inform and often provide the consumer with little more than a catch phrase in the guise of a slogan or jingle. With the advent of the Internet and emergence of social media, the communication pattern of the marketing game expanded from strictly "outbound" with the marketer doing all the talking, to include "inbound," wherein the consumer searches, contacts, and transacts with the marketer. Marketers no longer can simply buy consumers' interest; it must be earned. Consumers increasingly rely on each other for product and service information and recommendations. Rather than the customer being targeted by the seller, the seller seeks out the buyer. However, as significant and swift this change has been (given social media is but a decade old), arguably the greatest change is still to come with the advent of AI. As marketers and consumers begin to fully take advantage of what AI agents have to offer, the nature and process of the facilitating exchange in marketplace will dramatically change. As AI agents increase the knowledge and insight marketers have regarding consumers' product preferences and buying patterns, those same agents decrease the consumers' susceptibility to the marketer's message and manipulation. As AI agents search, evaluate, recommend, and finalize purchases, the actual consumer may actually be removed from the final purchasing decision.

This entry will review the state of the art in AI, with a particular focus on applications in marketing. Based on the current capabilities of AI in marketing, the author's explore the new rules of engagement. Rather than simply targeting consumers, the marketing effort will also be directed at the algorithms controlling the consumers' virtual personal assistants (VPAs). Instead of exploiting human desires and weakness, marketing will need to focus on meeting the user's actual needs. The level of customer satisfaction will be even more critical as mar-

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keting will need to focus on establishing and maintaining a reputation in competition with those of similar offerings in the marketplace. This entry concludes with thoughts on the long term implications, exploring the role of customer trust in the adoption of AI agents, the security requirements for agents and the ethical implications of access to such agents.

BACKGROUND: APPLICATIONS OF AI BY MARKETERS

The term Artificial Intelligence (AI) was first coined in 1956, and has evolved over a half century of steady progress in building computers that can manipulate symbols (both logical and linguistic). In the mid 1990's, with the commercialization and diffusion of the Internet, exponential growth in computing power and advanced software sophistication fully functional intelligent agents have come to pass, and the term "intelligent agent" has been formally defined:

An intelligent agent is software that assists people and acts on their behalf. Intelligent agents work by allowing people to delegate work that they could have done to the agent software. Agents can, just as assistants can, automate repetitive tasks, remember things you forgot, intelligently summarize complex data, learn from you, and even make recommendations to you. (Gilbert, 1997)

Whether termed an agent or assistant or defined as artificial or virtual, these emerging applications are an amalgamation of many technologies – voice recognition, linguistic sciences and natural language processing, machine learning, cognitive computing, analytical and predictive statistics, neural networking, and deep-learning algorithms.

Marketers are currently utilizing an array of advanced AI platforms, services and technologies. The scope of activities and functions that AI is already being applied includes:

- Basic market research (i.e., consumer behavior and psycho-analytics),
- Media and creative strategy (i.e., media planning, message design, and pricing),
- Customer service, sales, and relationship management.

Basic Market Research

AI has already enabled marketers to understand qualitative input from surveys, in addition to the quantitative survey results. Using tools from companies like Luminoso Technologies and Kanjoya Inc., marketers can automatically analyze text input on surveys and social media platforms to understand meaning as well as the emotions of the subjects (Rusli, 2014). Marketing firms currently employ AI agents, particularly exploiting an ability of AI to simultaneously enhance both intelligence and emotion (Mceleny, 2015). With the ability to analyze structured and unstructured data from credit cards, sales databases, social networks, location data, and web pages, marketers can ascertain trends in consumer preferences and sentiments as well as calculate sales probabilities.

AI has been applied to the real time analysis of human emotions. Advanced image processing has matured to the point where emotion recognition can be done either via a webcam or using a camera in a physical setting (and emotion detection in verbal interactions has an even longer history) (Eaton, 2012). Using AI techniques, the user's reaction to a product or to an advertisement can be interpreted, and the stimulus can be modified accordingly. For example, a viewer displaying positive emotions towards the product can already be cajoled into completing a transaction (or can be shown additional positive messages to encourage the transaction), while for negative reactions the viewer can be offered more explanations (if the emotion detected is confusion or a blank stare), a different set of options (if positive and negative emotions are displayed) or a different offering altogether (if strong negative emotions are encountered).

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