Chapter 3

Artificial Intelligence: Marketing’s Game Changer

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ABSTRACT

This chapter reviews the many new tools the advent of AI agents has placed into the hands of marketers and consumers alike. AI agents are redefining the roles and rules of the marketing game. While once marketing was the interaction between marketing professionals and customers, AI agents are taking key roles on both sides. The chapter shows how Artificial Intelligence Marketing Agents have begun to offer the marketer unprecedented marketing research and communication capabilities. However, at the same time AI applications are empowering the consumer to bypass or question the corporate marketing message. Virtual Personal Shopping Assistants (VPSAs) can learn consumers’ tastes, predict their needs, and optimize their product purchases. VPSAs are able to instantly match a consumer’s need against all accessible products that meet the consumer’s expectations and price points. The chapter concludes with recommendations for marketers to recognize the primary role that the consumer’s VPSA will play in the marketing game and adjust their marketing efforts accordingly.

INTRODUCTION

The idea of being able to call upon an all-knowing and all-powerful entity to answer your most important question or grant your greatest wish can be traced back through the centuries from the tales of Aladdin to the Oracles of ancient Greece. However, not until the emergence of the computer and its convergence with the internet, would the dream of instant answers to every personal query and concern move beyond wishful thinking. With the advent of the computer in the 1940’s, visionaries such as Vannevar Bush foresaw the utility of amassing, collating and interlinking all of the information that was important and relevant to one’s research and interests. In his 1945 treatise, “As We May Think,” Bush conceived the development of a memory index or extender which he named the “Memex” – in which one could access.
retrieve, annotate, interconnect and share the world’s record base. In 1958, John McCarthy expanded on Bush’s idea of ready and hyperlinked access to a global database with his suggestion that software should be written and designed logically and follow the lines of deductive reasoning. In his 1958 paper “Programs with Common Sense,” McCarthy argued that a computer program should be able to “draw immediate conclusions from a list of premises;” the conclusions should be “either declarative or imperative sentences” and “when an imperative sentence is deduced the program takes a corresponding action.” McCarthy’s paper is regarded as the first to propose that software design, based upon “common sense reasoning ability,” was the key to artificial intelligence. However, it would take four more decades before such AI applications would be realized. It was the mid 1990’s, with the commercialization and diffusion of the Internet, exponential growth in computing power and advanced software sophistication that fully functional intelligent agents would come to pass. And, it was at this time that the nature and function of the “intelligent agent” was 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. With recent advances in deep-learning algorithms (which function better as more data is processed) and neurosynaptic chips (with a brain-inspired computer architecture that mimics one million neurons and 256 million synapses) the role and scope of intelligent agents has begun to far surpass simple voice based keyword searches or simple smartphone commands such as “turn on Bluetooth;” Indeed AI agents have come a long way from the 1990’s when Blockbuster’s in-store kiosks used a filtering algorithm to make film recommendations to members based on their rental history and “made such interesting recommendations as a pornographic film to kids and Teletubbies to grandparents living in the same household... or the first intelligent agent for the Macintosh ....silently threw everything it found in the trash” when a user used an incorrect name of the destination folder (Ansari, Essegaier, & Kohli, 2000). Today, it is hard to imagine anyone who has purchased online who has not been presented with recommendations from a marketer. The ability to understand and predict subscriber’s tastes drives Netflix’s user recommendations system, which in turn translates into customer satisfaction and subscription maintenance. In 2009 Netflix awarded its now famous Netflix Prize of $1,000,000, for the best collaborative filtering algorithm that could, based only on a user’s previous ratings and the ratings by the general user community, predict the user’s ratings for other films the user had not viewed. As AI agent technologies have continuously improved they have come to play an increasingly important role in marketing strategy and customer relationship management.

It has become standard practice to analyze a consumer’s past and present consumption patterns and to make suggestions concerning current and future sales as well as cross- and up-selling. Advanced recommender systems are also taking into consideration more of the consumer’s unique context, in terms of current location, current status and immediate needs. Yet, as sophisticated as the current recommender systems may be, the next generation of AI agents represent a paradigm shift in AI Marketing applications. Rooted in cognitive computing, advanced sensor technology and natural language interfaces, the
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