# Chapter 5
# Marketing and Artificial Intelligence:
## Personalization at Scale

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## ABSTRACT

*Technologies are changing marketing due to the amount of information available to consumers, along with information being generated by consumers. Marketers face a challenge with greater volume and variety of data generated at a faster rate than ever before along with fragmentation of channels. This data when combined with artificial intelligence presents an opportunity to marketers to provide value add at a granular level and a personalized customer experience round the clock 24/7/365. Treating customers as individuals by offering an optimized personalized offering, sending the right personalized message at the right time through their preferred channel is the promise of data fed into AI algorithms. Artificial intelligence has the potential to transform companies by making sense out of an insanely voluminous variety of data being generated with its ability to serve customers more effectively and efficiently, personalizing at scale.*

## INTRODUCTION

The successful marketer today needs to be conversant in new technologies transforming businesses overall and marketing in particular. One such transformative technology is artificial intelligence (AI). The objective of this chapter is to help the reader understand the impact of AI on marketing. The first part of the chapter covers what AI means and why AI is becoming more important in marketing. This is then followed with an overview of how AI works, its numerous applications in marketing, and its current and future impact on marketing.

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## What Is AI?: Through the Lens of Intelligence

Discussion of AI would be incomplete without an understanding of the concept of intelligence itself. In the simplest terms, intelligence involves intake of information, followed by processing, leading to other types of actions as a result. Intelligence has been defined as the capacity to reason validly about information (Mayer, 2004). Intelligence has also been referred to as the ability to "face problems in an un-programmed manner (Gould, 1981)". Simple though the definition sounds, intelligence is not uni-dimensional.

The multiple intelligences theory views intelligence as a multi-dimensional concept with seven different types of intelligences (Gardner, 1983). These include logical mathematical reasoning, musical intelligence, bodily kinesthetic intelligence, spatial intelligence, interpersonal intelligence, intrapersonal intelligence, and linguistic intelligence. These intelligences could also be treated as representing the multi-dimensional nature of the concept of intelligence itself (Morgan, 1992). As Morgan (1992) states, an element that is common to intellectual functioning is the ability to solve problems through information processing. However, the granular distinction of such intelligences (Gardner, 1983) or as referred to as cognitive capabilities by Morgan (1992), is relevant to the field of artificial intelligence.

The purpose of AI, from the time the term was coined, has been to emulate the human mind and brain which is complex in its functioning. Artificial intelligence refers to such intelligence emulated by computerized machines, with the term attributed to John McCarthy, although envisioned earlier by Turing (Horvitz, 2016).

## How Good Is AI at Emulating Human Intelligence Today?

The early vision for AI was foreseen in 1840s by Lady Ada Lovelace, the first person to be credited with creating an algorithm and considered the first programmer (Computer History Museum, 2019). Lady Lovelace who was friends with Charles Babbage, envisioned the analytical engine created by Babbage to one day move beyond computation to creation of music. This was a huge leap in vision given the age they were living in.

Recently, DeepMind Technologies (a wholly owned subsidiary of Alphabet Inc.) created AI AlphaGo Zero which defeated another earlier created AI AlphaGo by teaching itself to perform better (Greenemeier, 2017). This feat is remarkable for two reasons. First, it taught itself as opposed to human fed data to its predecessor. Second, it taught itself to play a game of Go, an ancient game that is complex. In addition, AlphaGo Zero used a more efficient algorithm requiring less data and computing power that it learned all on its own.

While AlphaGo Zero exhibited human traits of reasoning and decision making, what characterizes humans is also creativity, linguistic conversation, and emotions. Linguistically, programs such as Amazon's Alexa, Apple's Siri, Google's Hey Google, and Microsoft's Cortana have made progress in the ability for users to interact with machines to find answers and set up tasks. Yet they lack human qualities of understanding context and relevance. However, even here Google is continuing to make inroads by trying to come up with answers to questions asked on its search engine through continuous improvement. Amazon's Alexa also shows the ability to continue a conversation involving a query through recommendations intended to provide solutions.

Today, many bigger companies are using AI techniques to venture beyond routine tasks to increase productivity, efficiency, and value-add to creative products such as video games and other forms of