

# ARTIFICIAL INTELLIGENCE IN BUSINESS MANAGEMENT



**Mohammed Majeed**

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# **Artificial Intelligence in Business Management**

Authored By

**Mohammed Majeed**

*Department of Marketing, Tamale Technical University,  
Ghana*

## **Artificial Intelligence in Business Management**

Author: Mohammed Majeed

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## FOREWORD

The world is in the era of digital transformation, which is affecting society and businesses alike. One of the major enablers of recent times is artificial intelligence (AI). This book is for business managers/owners and workforces who are looking to understand how the use of AI transforms the business sector. Most people have at least one encounter with AI every day. There are many ways in which AI can be applied to the management of businesses, including the enhancement of control operations, the reduction of complexity in decision-making, the eradication of human error, the simplification of work procedures, and the consolidation of business data. As AI improves and becomes more widespread in our daily lives, the stigma that it is only seen in scientific fiction dystopias is beginning to fade. Hence, the author's goal for writing this book is to provide business leaders the knowledge on how to apply artificial intelligence in managing their businesses. Artificial intelligence is often considered a supporting tool rather than an alternative to human intellect and innovation. By the end of the book, readers will have a firm grasp of AI progress and the part it plays in boosting operations across industries. Managers can then devise a plan to help workers acquire new skills and adjust to the changing nature of their jobs as a result of AI evaluations. Therefore, it is crucial to evaluate this technology with an eye toward its potential advantages, practical uses, and room for future development.

**George Kofi Amoako**  
Ghana Communication Technology University

## **PREFACE**

The goal of this book is to provide business leaders the knowledge on how to apply artificial intelligence in managing their businesses. As a result of AI's success as a key marketing weapon, it has quickly become one of the business sector's most fashionable catchphrases. Artificial intelligence has been around for many years, but its current renaissance can be ascribed to the proliferation of large data, the decrease in cost of computing power, and the advancements in general technology. This book adopts a cross-disciplinary strategy toward the use of AI by serving as a unified resource for students and practitioners in the fields of business, economics, and other related fields. Corporate executives, directors/managers, software developers, and those who implement AI can gain valuable insights into the application and implications of artificial intelligence and machine learning from this book. The subject matter of this book explores many projects that go beyond simple data management and accessibility to showcase the growing role of artificial intelligence and machine learning in the enterprise data space. Spatial methods for tackling marketing and commercial strategies, as well as insurance and healthcare systems, are discussed, and the significance of cultural assets is investigated for the sake of evaluating risks and protection.

**Mohammed Majeed**

Department of Marketing, Tamale Technical University  
Ghana

## CHAPTER 1

# Artificial Intelligence and Aspects of Marketing

**Abstract:** Over the course of the next few decades, AI will permeate every industry on the planet. Improvements in the AI environment are reflected in recent tendencies in AI-driven robotics. Changes in how businesses view, use, and invest in artificial intelligence are a clear indication of this shift. Businesses may want to consider using AI marketing to produce leads and conversions because of the clear advantages it delivers, such as having complete, transparent, accurate, pertinent, constant and fast data. The AI-generated programs will, more or less, supply the information essential to expanding marketing activities. Now that AI is more readily available, many businesses are using it in their advertising campaigns. There are many ways in which artificial intelligence might improve marketing and advertising, and businesses that embrace AI-driven strategies will undoubtedly see increased success. In order to strengthen customer relationships and accomplish marketing objectives, businesses can benefit from using AI to customize content, improve campaigns, and enrich the consumer experience.

**Keywords:** Advertising, Big data, Customer, Data, Marketing.

## INTRODUCTION

The use of artificial intelligence (AI) is revolutionizing several sectors of the economy. Increasing processing power, decreasing computational expenses, the easy accessibility of large data, and the development of predictive techniques and models have all contributed to the rise of AI in marketing. Artificial intelligence (AI) is being widely used in several fields of marketing today [1] and this trend is expected to continue. Businesses may save time and effort by using AI to automate routine tasks. Gathering information, analysis, and further assessments of consumer or economic developments that may affect marketing efforts all feed into the automated judgments made by AI marketing. Artificial intelligence is widely utilised in the fast-paced world of digital marketing. The goal of artificial intelligence marketing (AI Marketing) is to enhance the customer experience by predicting your customers' next steps based on historical data and applying AI concepts like machine learning. Retail businesses and marketers can reap significant benefits from incorporating AI into their operations. With the help of AI, online shopping has surpassed brick-and-mortar stores and has become an integral part of the growing digital revolution [1] meeting consumers' urgent



requirements and providing them with greater convenience. In marketing, AI is utilized to make suggestions for handling customer interactions. Artificial intelligence (AI) may develop a profile for each consumer by combining numerous data sources and systems, helping businesses better understand their customers and their motivations for making decisions.

## **Literature Review**

### ***AI and Marketing***

Finance, as well as government, medical care, recreation, retail, and other sectors all use AI in their marketing efforts. Campaign success, client satisfaction, and the effectiveness of advertising activities are only a few of the results that can be achieved through various use cases. Marketers are utilizing AI to solve a number of problems with programmatic marketing. Bidding on real-time ad space that is relevant to target viewers is facilitated by ML on programmatic marketplaces. There's some speculation that AI could help streamline marketing processes by cutting down on human error [2]. Artificial intelligence (AI) is defined as the practice of programming a computer to perform activities normally requiring human intelligence and emotional, cognitive, and physical faculties. Instead of seeing AI as a single, monolithic intelligence, the "AI intelligence view" takes into account the fact that, like humans, AI can be programmed to have specialized intelligence for various purposes. Mechanical, cognitive, and emotional AI intelligences are ranked in order of increasing difficulty for AI to address them [3]. Artificial intelligence (AI) describes computer-based devices that can learn, reason, and carry out activities just like humans. Simply said, AI-powered tools have the capacity to carry out operations that would ordinarily need human intelligence, such as problem-solving, data analysis, and decision-making. Absolutely, Marketers have already embraced AI in a wide variety of applications, including chatbots that provide 24/7 customer care, AI-powered sentiment analysis tools used to monitor social media feeds, robust data analysis tools, and highly targeted content production. Hyper-personalization and pinpoint targeting are two areas where AI is making a significant impact in marketing and advertising campaigns [4]. Firms can better target campaigns and develop more relevant, engaging content across social media posts, subject lines, and blogs with the help of AI algorithms that analyze data to learn about our customers' behavior and preferences.

## **Core Elements of AI Marketing**

### ***Big Data (BD)***

BD is actually a rather simple concept which means a marketer can collect and organize lots of data with little effort. This information can then be used by marketing teams to send the most relevant message to the most relevant person at the most relevant time *via* the most relevant channel. According to Dekimpe [5], retailers can utilize big data to fine-tune dynamic best response pricing algorithms that take into account customer preferences, competitive moves, and supply parameters.

### **Machine Learning**

When trying to make sense of this massive data warehouse, marketers might benefit from machine learning tools. Marketers can learn more about the causes and probabilities of specific activities by using these tools to spot trends or common occurrences and make accurate predictions about common insights, responses, and reactions. A subfield of artificial intelligence, machine learning allows computers to teach themselves new skills by analyzing large amounts of previously collected data. However, machine learning can only draw inferences from the data that has previously been given to it; it cannot produce new information or ideas on its own; it can only identify patterns in the data.

### **Powerful Solution**

Digital advertising platforms powered by AI have human-level comprehension. This means that the platforms can rapidly and accurately discover meaningful patterns and correlations in massive data volumes. The ability of AI systems to read free-form information like social media posts, natural language, and email responses is based on their ability to interpret emotion and communication in the same way that humans do.

### **Challenges of AI Marketing**

The tools for artificial intelligence remain in their infancy. As a result, many marketing departments might not know how to effectively implement AI marketing even if they need it. Marketers face new complications as a result of implementing these solutions. The following difficulties with AI marketing have been raised by Tjepkema [2]. There could be downsides to employing AI in marketing as well as advertising, but there could be downsides to using any technology.

---

**CHAPTER 2**

# The Impact of AI on Customer Experiences in the Tourism and Hospitality Industry in Emerging Economies

**Abstract:** The use of AI technology in the hospitality sector is revolutionizing how hoteliers conduct business by increasing the potential for a seamless guest experience, accelerating growth, and maximizing revenue. Hence, this chapter looks at changes brought about by AI on the tourist industry's focus on customer service and the hospitality industry in emerging economies. AI is used in hospitality *via* chatbots; data analysis; a wide range of languages; effectiveness and automation; voice-activated functions; easy reservations; and hyper-dynamic pricing. On AI on customer work history in the hotel and tourist sector, the following were discovered from literature: applying intelligence to improve business procedures; contacting and talking to clients; responding to comments from our clients; understands customers language; customers self-service; information; reservation, and checking out; fuels the visitor's journey/experience; provide better service; enhance the reservation process; make predictions; teamwork; and consistently provide for the needs of guest/customers; and customer loyalty; customer issues resolution; analyzing the competition; predictive segmentation; projecting occupancy; improved productivity and effectiveness; visitors/guest satisfaction; easy and efficient reservations; proactive servicing; personalization of customer service; AI helps the promotion/marketing of hospitality sector; monitoring of brand or company; paperless or electronic registration; safety enhancements; better customer interactions; and accurate forecasts. Finally, AI and the future of hospitality are contingent on: Assimilation into the Internet of Things; greater participation; increased scope for customization; best experiences; and VR and AR. It was concluded that indeed, the hotel business is predicated on satisfying customers and meeting their ever-evolving needs. Therefore, AI will fundamentally alter the hotel sector.

**Keywords:** AI, Artificial Intelligence, Customer, Experience, Hotels, Hospitality, Tourism.

## INTRODUCTION

During the epidemic, digital transformation sped up in virtually every sector. Similarly, the hotel and tourism industry was not an exception. When it comes to customer support, digital touchpoints and services are no longer a luxury but a

necessity [1]. The use of AI-driven technology solutions and robotic systems in the hotel business is on the rise all over the globe [2]. Many hotel companies are seen integrating AI into their central delivery systems in order to provide their guests with frictionless, high-quality service [3, 4]. Online shoppers aren't going back to brick-and-mortar stores anytime soon, so it's more important than ever to provide a seamless experience when planning, purchasing, and modifying a trip online. In reality, artificial intelligence (AI) refers to machine intelligence that can perceive its environment and answer appropriately using deep learning algorithms, providing services that are both reliable and, in some cases, superior to those provided by humans. In relation to the field of hospitality, AI-powered devices play a crucial role by addressing customer inquiries, providing pertinent details, and suggesting recommendations instantly. These devices empower guests to actively manage and regulate the ambiance of their accommodations (such as through the utilization of ALEXA). Additionally, they facilitate comprehensive customer services from start to finish, encompassing virtual check-ins and check-outs, laundry services, room maintenance, travel and tour arrangements, and food services, among others, through the application of robots and robotic technologies [6, 7].

A number of academics *e.g.*, [8, 9] argue that when consumers lack the information necessary to make an educated purchase, they turn to their social networks for guidance. Clients in the hospitality and travel sectors might possess an insufficiency of the essential expertise and competencies to determine whether or not it is appropriate to accept and implement AI services, as the widespread application of artificial intelligence tools and methods is still in its infancy. Due to this, many academics believe that customers' perceptions and attitudes toward AI services are highly based on the opinions, judgments, and attitudes of their social group [3, 10]. However, when passengers encounter problems like flight delays or cancellations, they often prefer to speak with a real person. Customers have high expectations for customer service, and they want to deal with employees who are sympathetic and knowledgeable about their problems. Guest and traveler allegiance can be rebuilt by reducing the stress associated with getting there [1]. Customers who are exposed to AI-driven technologies are not expected to acquire a deep understanding of how these products work before using them for the first time. More importantly, tools and gadgets with artificial intelligence are robustly designed to replicate the front-line experience by delivering reliable information, answering inquiries, and offering continuing support to customers. In light of the preceding, the goal of this chapter is to analyze how AI is changing the hospitality and tourism business in developing countries. This chapter contributes to the literature by examining whether and to what degree consumers' experience of AI-enabled hotel service interactions is impacted by the presence of artificial intelligence (AI) within the hospitality service.

## LITERATURE REVIEW

### AI

AI is defined by Mahmoud *et al.* [9] as a computer technology based on how humans use their brain's circuits and nervous system to reason, draw conclusions, and make decisions, despite the fact that they typically function very significantly. AI, or artificial intelligence, is essentially the capacity of a computer or automaton to perform tasks that would typically be performed by a human. Automation and big data have the possibility of improving the customer experience in the hospitality industry by personalizing services and providing virtual assistance. Automating customer service, on the other hand, involves using machines and robots to carry out individual activities [11]. Therefore, it is crucial to include AI and robots in service delivery when implementing cutting-edge “technology in the tourist and hospitality industries” [12]. The use of artificial intelligence (AI) is changing the way hotels operate by increasing the scope for which a seamless stay may be created, as well as accelerating growth and maximising income. Additionally, AI technology can help the improved design of organizational workflows and operating models. In an increasing number of hotels, ingeniously designed systems optimize financial reporting, demand planning, and the issuance of work orders. Automation must always function flawlessly in the background and learn from each new data set so that workers in the foreground can better comprehend and meet the requirements of their customers. Concentrating on core duties, prioritizing activities, and implementing digital services, such as ego at check-in, unlocks untapped employee potential. In the hospitality and tourism industries, AI technology in the form of autonomous service machines [8] is bringing about the 4th industrial revolution [13]. Over the past few years, serving robots have become deeply connected to the operations of hotels around the globe, with the implicit or explicit goal of achieving dual value through ambidextrous cost reduction and service quality improvement strategies [14, 15]. A central core system assumes responsibility for data control and security with the aid of individualized programs and a cloud-based network. In the future, hotels with multiple operations will confront significant interoperability challenges. Direct added value can only be created if visitor profiles flow centrally across brands, hotels, and booking systems into one system. The adaptable user interface is readily compatible with existing hotel solutions. The AI-driven user experience facilitates innovative thinking, facilitating distribution networks, internet analytics, and customizable enterprise applications. Furthermore, the novel AI technology provides extremely correct projections for delivery and the ability to make crucial economic choices on any machine and at any time.

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**CHAPTER 3**

## Machine Learning for Marketing Practitioners

**Abstract:** Machine Learning (ML) has an impact on many facets of life, and it manifests itself in the shape of intelligent devices and intelligent applications, which are designed to analyze and anticipate customer behavior, requirements, and preferences in order to provide tailored experiences. The purpose of this chapter was to investigate the effect of ML on marketing in general. It has been found in previous studies that ML impacts on consumer response, customer relationships, consumer preference, social media marketing, *etc.* In addition, ML automates jobs, reduces expenses, and improves workflows. A detailed overview of existing academic research is provided in this study, which covers the present and emerging applications of ML within marketing.

**Keywords:** Applications, Customer, ML, Marketing, Social media, Technology.

### INTRODUCTION

To stay up with customer expectations, corporations are increasingly depending on learning algorithms to make things easier and more convenient for consumers. A resource-conscious mindset and a focus on returns on investment have altered marketing over the last few decades, making it an indispensable aspect of most companies [1]. Today's marketing is social media-based, with a focus on customer involvement as a key to long-term profitability. There have been many advancements in artificial intelligence (AI) over the last few years. Due to the vast range of applications, including computer vision, speech recognition, and economics, it has become increasingly popular. Intelligent diagnosis and treatment are only some of the new topics that are being created as a result of this convergence of traditional knowledge and cutting-edge technology. Many techniques, such as neural networks, deep learning, and computer vision, have been developed by AI to help with more difficult tasks. More robust approaches for generalizing scientific discoveries could be applied with ML, which has a number of potential advantages.

In addition, many papers have used ML methods in internet/digital marketing applications, such as website [2] and advertising morphing, media schedules [3], assortment personalization [4], online sales, multi-armed bandit to study the exploration *versus* exploitation tradeoff (Kim & Lim, 2016) and dynamic pricing

using multi-armed bandit experiments [5] learning from users' profiles [6]. The marketing sector has been jolted by digital disruption, which has forced companies to re-think their operational strategy [3]. Disruptive technologies have created a chasm between organizations and their customers that prevents the classic marketing governance funnel from working. The value of marketing may be increased and more engaging experiences can be provided for tomorrow's consumers if the latest technologies are used. There is a wide variety of computer vision and machine learning applications for marketing. As a result of this, they can help customers discover products based on their visual characteristics; scrape data and content from social and video channels; track consumer behaviors and emotions in real time; and use visual data for product personalization, contextual and programmatic advertising among other tasks [7].

With regard to large data and complex marketing contexts, academics face a severe obstacle. There has been an increase in the use of machine learning as an alternative to statistical and econometric models, which are becoming increasingly complex. Many machine learning methods have been employed in academic marketing research for prediction and insight production. These include support-vectors, topic models [5], ensemble trees, deep neural networks [8], network embedding [8], and more. As a result, they are particularly useful in situations when typical quantitative methods do not work. However, the use of machine learning methods in marketing is still in its infancy, and existing research is a little dispersed in their findings [9]. Hence, ML literature with marketing applications will be discussed in this chapter.

## **Literature**

### ***Machine Learning***

Mathematical approaches are used to understand the patterns in data and create predictions based on these patterns, which is what ML is all about. Mathematical models are the building blocks of artificial intelligence, and ML is the most important one (statistics, probabilistic, neural networks). They are used to find patterns in data, and learn, or predict output values from massive datasets. Artificial Intelligence (AI) was first developed in the computer science literature and has recently made great progress in corporate applications. Pattern grouping and pattern description by machines play an essential role in a wide range of technical and scientific fields, such as biological sciences and social sciences, medical sciences and marketing, as well as computer vision and artificial intelligence [10]. Data pre-processing, search algorithms for feature selection and classification analysis, regression methods, clustering algorithms, attribute/subset

evaluators, association rules, and efficient GUI aid are all part of ML's capabilities.

### Components of ML for Business

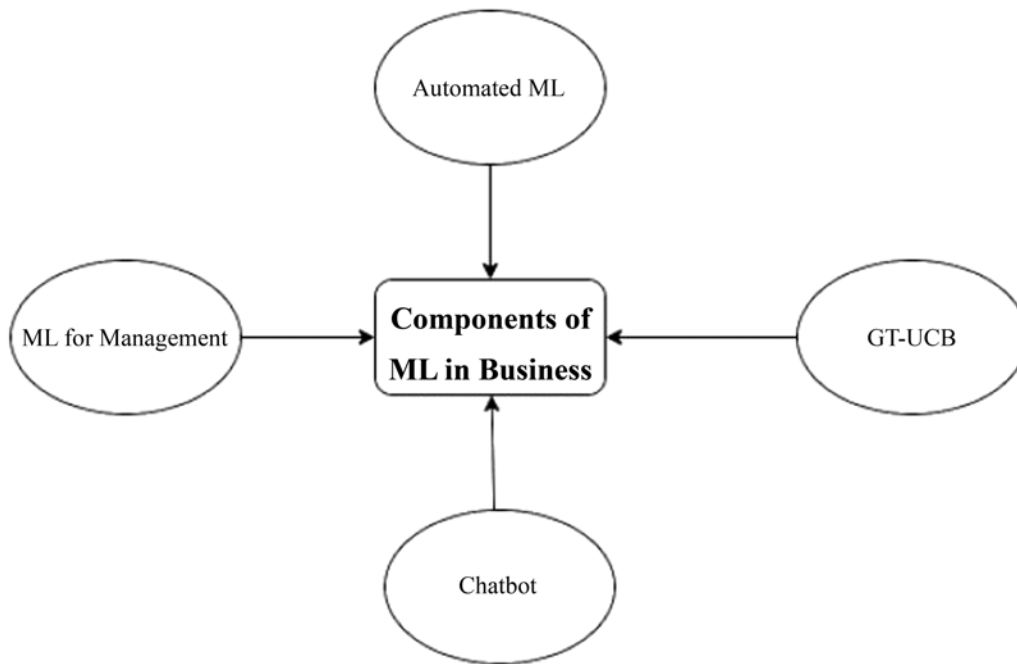


Fig. (1). Components of ML for Business.

### Automated Machine Learning (AML)

According to Krasnokutsky [11], customer relationship management and marketing analytics can benefit greatly from AML in helping to strengthen client relationships. Customers today demand highly personalized and contextual offers, which are getting increasingly difficult to deliver due to the multiplicity of devices that each client has access to. Customers can get in touch with businesses in a variety of ways, including *via* calling, texting, or stopping by a physical location. Analysis of customer data will require the resolution of identity management across devices and IDs as well as data type and style convention issues for various sorts of data (text, photos, audio). In order to better understand the consumer journey to buy, AML is offering new techniques to marketing by allowing organizations to communicate with customers on a deeper and more personal level [12]. Marketing attribution models developed by AML allow extensive “what-if” assessments of various marketing actions and varied combinations of marketing touchpoints [11].



**CHAPTER 4****Artificial Intelligence (AI) on Management of Finance and Accounts**

**Abstract:** The goal of this chapter is to shed light on how AI is being used in financial and accounting contexts. The rise of AI is having a profound effect on the accounting and financial industries, just as it has on every other sector of the economy. The best approach for financial experts and their businesses to remain successful and engage the coming generations of workers and consumers is to use AI-enabled tools for accounting and finance. The era of AI and robotics is just beginning. However, technological advancements mean that more and more accounting aids are becoming accessible. Saving money, getting more done, and having more reliable data are all possible thanks to AI. In addition, it provides accuracy to businesses during the employment process. Laborious and mundane accounting tasks may be eliminated. In conclusion, AI has had a spectacular effect on the bookkeeping and finance business, shifting attention away from mundane tasks like payroll and toward more cutting-edge methods.

**Keywords:** AI, Accounting, Accountant, Finance, Organization, ML.

**INTRODUCTION**

Accounting and finance is a crucial but intimidating and costly element of every business. Accounting experts ensure the smooth and efficient running of all financial aspects of a business [1, 2]. Some examples of these tasks are keeping the company's general ledger (GL) and preparing and evaluating financial statements (such as cash flow, revenue statement, and balanced sheet). There is a high opportunity cost associated with all of these activities since they involve significant amounts of interpersonal communication; also, no matter how attentive an employee is, mistakes can always happen [3]. Financial management software that incorporates artificial intelligence is becoming increasingly common due to recent developments, and this is having a major impact on the bookkeeping and finance business [4]. Accurately finishing accounting activities that used to take hours or even days is now possible with the help of AI [5]. With its ability to process records using machine learning and computer vision speedier than before, AI can often offer immediate feedback on financial concerns, making daily reporting feasible and economical [6]. This knowledge equips businesses to take

preventative action and make course corrections in the face of potentially damaging data patterns. Sourcing and buying goods, billing, orders for goods, reports of expenses, bills for accounts receivable and payable, and more can all benefit from the computerized authorisation and handling of records made possible by artificial intelligence (AI) technology [2].

Artificial intelligence is becoming increasingly important as a disruptive force in many fields as our global economy gets more and more dependent on technology [7]; the financial services and finance industry is no exception. Artificial intelligence (AI) is having a spectacular effect on the field of accounting and finance, opening the door to improved productivity and simplification. In this chapter, we'll take a close look at how artificial intelligence (AI) will change the accounting and finance industries in the future.

### **Chapter Contributions**

The goal of this paper is to draw attention to how various branches of artificial intelligence (AI) are altering the landscape of the accounting and finance (A&F) industry. Rapid advances in technology have prompted a rethinking of what is expected of A&F experts. New competencies for these experts are proposed in this research. Future prospects and difficulties associated with AI are discussed in this paper. It provides guidance on how A&F experts can accept and learn to utilize technologies powered by artificial intelligence.

## **LITERATURE**

### **AI**

Only AI software can learn from massive amounts of data and then modify its behavior accordingly. However, it is also a real-time learning system that can be implemented across a complete business [8] system. The phrase “artificial intelligence” (AI) is commonly used interchangeably with “automation,” “machine learning,” and “machine intelligence.” While connected, these phrases each have their own distinct meaning. The following definitions will shed light on how these terms are used in the context of AI in the field of accounting. One example of automation is the use of robots in the automobile manufacturing industry to carry out tasks previously performed by humans [9]. The purpose of using machine learning to analyze data is to identify patterns and draw conclusions. A recognition that makes restaurant recommendations based on your preferences; it gets better at figuring out what firms need over time. Machine intelligence is a more advanced form of AI that incorporates complex algorithms and the principles of logical reasoning [10]. A good case is online chatbots that resolve IT issues or boost your credit limit; they add further levels of intelligence

that simulate acquiring knowledge, setting priorities, and problem-solving to take on increasingly complex situations. If creative brains are allowed to flourish without being shackled to menial chores, we can bring about an upsurge that will benefit experts and their clients [1]. By using AI to take care of repetitive duties, accountants free up mental space for strategic and innovative problem solving. They can draw upon their combined knowledge and skills to examine data produced by AI and derive actionable insights and useful business intelligence. Alternatively, they can focus on building intimate relationships with businesses and individuals in order to better serve their unique requirements.

### **AI in Finance and Accounting**

Artificial intelligence (AI) can now be put to work assisting professionals in the financial sector. As a result of machines taking over mundane, time-consuming jobs, and human productivity in the financial sector has increased. In the world of accounting and financial services, AI is becoming increasingly important. Professionals may boost performance for themselves and their teams by using AI to help them with mundane, repetitive chores [4]. Accounting and finance are not immune to the widespread effects of AI, which are felt across all industries. The use of AI in bookkeeping programs is a relatively new development. Like every other field, the accounting and finance business is being profoundly affected [7] by this development. AI-completion in the field of accounting. The use of AI can simplify a wide variety of bookkeeping duties.

### **Incorporating AI Into Corporate Policy Enforcement**

Artificial intelligence (AI) can speed up the process of finding accounting information noncompliance concerns and assist in enforcing company standards [2]. For instance, AI can examine employee spending habits by reviewing their credit card statements, bank statements, and trip bookings [8] to identify any purchases that go against business policy. This aids auditors in making rapid assessments of error rates and guarantees that procedures are followed.

### **Robotic Intelligence Can make Entering and Analyzing Information much more Efficient**

The use of AI can ease the burden of keeping track of transactions on the part of finance departments [4]. For instance, AI can make it easier to keep tabs on spending. It can read information from scanned receipts and assign an appropriate category to an outlay of funds automatically [8] based on the type of purchase made. It generates reports that consolidate cost data for easy review by management.

**CHAPTER 5****The Role of Artificial Intelligence on Firm's Human Resources Management**

**Abstract:** The purpose of this chapter is to look at the implications of AI for HR administration. Using AI in human resources is not novel. But as the technology advances, it is gradually integrated into more and more tools and programs. AI has the ability to increase productivity and speed up the decision-making process, but it also presents serious moral concerns. Recruiting, initial orientation, instruction, and continuing analytics have all been simplified thanks to AI. Data-mining an organization's HR system with AI can reveal which staff members are most likely to leave, allowing for more targeted efforts to retain them. To back up the organization's commercial plans, AI will additionally assist to discover gaps in skills and expertise. There is no doubt that AI has the potential to improve processes and increase output. HR departments everywhere can benefit greatly from this tech's ability to track and analyze employee actions and habits. Companies today are embracing technology advancements in order to compete in today's intricate market.

**Keywords:** AI, Employees, Human Resources, Robot, Technology.

**INTRODUCTION**

Artificial intelligence operates in accordance with predetermined algorithmic directives. Machines are put through their paces to see whether they can mimic human intelligence. Artificial intelligence (AI) is an emerging technology utilized across all industries to enhance productivity and performance by simulating human intellect in different contexts. Artificial intelligence (AI) has the potential to mimic human intelligence and perform at peak efficiency. Robotics is a subfield of artificial intelligence concerned with HRM but is also used in language recognition, figuring out solutions, and other areas of human interaction with machines. AI is simply the term for intelligence performed by machines. The evolution of AI has transformed the HR sector by giving personnel access to algorithms and machine learning techniques to improve efficiency, mitigate bias, and make better decisions [1]. However, owing to its current limitations and drawbacks, several firms have been cautious to adopt AI for new use cases. In this piece, we'll look at how AI is influencing HR, what to think about before implementing it, and where this trend may go from here. Since AI

apps can evaluate, anticipate, and diagnose, they can assist HR departments in making more informed decisions, which in turn improves businesses [2]. Human dummy will answer questions to aid interrogator in correct identifications. Proponents of the Turing test argue that an algorithm is smart if its interrogator is unable to discern the difference between the computer and a human.

Because AI relies on chatbot agnostic solutions and algorithms to carry out tasks like hiring, instruction, and growth and development, as well as many others, it can significantly lessen the workload of HR managers. What's more, integrating AI into HR will improve the process and pique workers' interest in their jobs [3]. It streamlines administrative processes by reducing the need for documentation and making it easier for human resource managers to do things like grant leaves of absence based on requests made at a given time, make employee information readily available online so that all workers have access to it, and generate automatic schedules and reports. Significant progress has been made in using machines to do work traditionally done by humans to handle human resources, and this trend is only expected to increase in popularity in the near future. This is because AI makes it possible for HR managers to spend less time on administrative tasks, and it also assists in the selection of candidates by analyzing their resumes and the information they provide. The goal of artificial intelligence (AI) in an organization is to speed up and improve the accuracy of the different management processes [4]. Using IA in HRM enables the collection of data to be included in a larger plan for increasing efficiency and decreasing overhead expenses [5].

The emergence of AI has presented the human resources sector with an opportunity to lead the way in terms of technical innovation. Artificial intelligence (AI) has the potential to revolutionise the human resources business in many ways. Until recently, human resources (HR) technology mostly benefited businesses by streamlining processes and reducing overhead costs [6]. Improvements in technology have made it possible for human resources departments to address pressing issues, boost productivity dramatically, and have a far-reaching effect on the bottom line. Human resources are becoming increasingly strategic and important to the business thanks to AI. Greater efficiency and optimization in corporate operations have always been enabled by technological advancements. The ways in which people engage with technology are about to be revolutionized by artificial intelligence. Hence, this chapter looks at the role of AI in HRM.

## **LITERATURE**

### **AI**

The field of computational science, also known as “artificial intelligence” (AI) is focused on the development of sophisticated computers that can perform and respond in ways that mimic those of humans. With the help of AI, robots can do activities that would otherwise need human cognition. When we refer to artificial intelligence (AI), we are referring to the study of smart ways to solve problems and the creation of smart computer systems. There are many branches of AI, including machine learning, AI, and cognitive computing. Artificial intelligence (AI) refers to machines that can make decisions without any input from a human operator. That is to say, machines are capable of acquiring knowledge of their environment and acting accordingly [1]. Artificial intelligence (AI) is a subfield of computer science that studies computer programs that are capable of learning and interacting with the world around them. Agent dialogue systems, self-driving cars, and picture recognition software are just a few examples of these types of machines.

### **AI and HRM**

Over the past few years, AI has risen to prominence as a discussion topic in the mainstream media. Artificial intelligence (AI) is an emerging technology that can be characterized in a number of ways but is vital and fundamentally disruptive. As defined by Kaplan and Haenlein [7], machine learning is “the process by which a computing system acquires the knowledge and skills necessary to independently plan for, analyze, and make decisions in pursuit of a goal or set of goals” [7]. The importance of understanding how AI influences our daily lives may not be immediately apparent to someone who is not active in the field of computer science. The number of ways in which AI is being put to use increases exponentially, and its presence in everyday life grows ever more pervasive [1]. As a result, there will be more use of AI in HR management. In reality, AI is already being used to improve the hiring, initial orientation, instruction, and continuous analysis of a company's workforce. Although this essay will delve deeper into what this process comprises and how an AI software might accomplish these aims, a foundational understanding of AI is necessary. The use of AI to enhance HR functions including recruitment, employee development, and retention is a recent development. Human resource management is only one area where AI can be put to use. Artificial intelligence (AI) solutions, for instance, have been implemented in the HR sector to streamline candidate applications and hiring procedures [8]. Metabolic monitors, sensing and tracking devices, and computational analyses of large data sets are just a few examples of AI-based

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## **The Role of AI in Promoting Responsible and Sustainable Tourism**

**Abstract:** The hospitality and tourism industry has recently undergone a profound transformation driven by information and communication technologies developments thanks to innovations in Artificial Intelligence and its tools. However, although the literature on AI and tourism is growing, scientific research on these themes is still fuzzy and fragmented. This study's objective is to provide an overview of the literature state-of-the-art related to sustainable tourism and technological innovations, offering insights for further advancing this domain. I employ a comprehensive review of websites, articles, books, chapters, and cases collected from Web of Science and Scopus databases.

**Keywords:** Artificial Intelligence, Sustainability, Technologies, Tourism, Travel.

### **INTRODUCTION**

There has been a recent discussion on the potential applications of artificial intelligence (AI) in the hospitality sector. The travel and tourism sector is booming as cities get back to normal following the global epidemic. National tourism has also increased significantly in most wealthy and emerging developing nations, while international visitor numbers have nearly doubled during the previous 30 years. At the same time, travel and tourism as an industry has expanded to nearly every country, becoming crucial to the economies of many places financially, politically, and socially (UNEP, 2005). There are more clients than ever, thus the hospitality business must rely heavily on technology to meet their needs. Therefore, numerous advancements are being applied to reduce complexity, improve efficiency, and increase contentment among the clientele. The potential benefits of AI for the tourism sector are vast and extensive. The way individuals travel is changing as a result [1]. Industry ARC predicts that by 2026, the hospitality and tourism AI industry will grow to more than \$1.2 billion, with a compound annual growth rate (CAGR) of more than 9.7 percent between 2021 and 2026. Many lodging facilities rely substantially on providing outstanding client service in order to establish their online presence, and artificial intelligence (AI) can help with this in a number of ways. These include improving personali-

zation, providing more tailored suggested changes, and ensuring quick response times even when staff is unavailable. Every iteration of AI is more trustworthy and more appealing as a commercial option. Companies in the tourism sector in particular are utilizing AI to carry out a wide range of administrative and customer service responsibilities [2]. The travel industry is ripe with potential uses for AI systems. Travelers benefit from AI because it makes it easier for them to find accurate information, move around more freely, make more informed decisions, and enjoy a higher quality vacation overall [2]. Artificial intelligence (AI) has applications across the board in business, particularly in marketing and productivity [3]. In addition, some studies [2, 4] predict that AI will lead to more socially conscious vacationing.

The ever-expanding significance of artificial intelligence (AI) in our daily lives has led to its introduction into hitherto unexplored areas, such as tourism and the way we interact with history. More than ever, it is crucial to enhance individual experiences by linking an ever-present and contextual past, present, and future time and place due to the growing reliance on technology in the travel, tourism, and leisure industries. Cultural and heritage tourism has seen the introduction of AI-based technology to aid in travel and leisure activities, with the technology increasingly penetrating sites, places, and spaces to facilitate the creation and automation of experiences in venues such as historic districts, museums, amusement parks, festivals, and events [5]. A more complete picture of the past is now possible because of the incorporation of AI into cultural and heritage tourist experiences all over the world. As a result, AI and smart tourism are fast altering the ways in which they interact with visitors, while also empowering them to create an individually tailored experience based on the careful pairing of newly acquired information with previously stored memories [5]. Although a survey by the McKinsey Global Institute shows that tourism has the lowest adoption of AI compared to other industries [6], AI technologies may help shape the sustainable development of the tourism industry, as argued by works such as [7]. It is unclear, however, to what extent artificial intelligence has actually been able to serve the sustainability agenda. Hence, the purpose of this chapter is to assess the state of research into the role of AI on sustainable tourism within the context of the tourism industry.

### **Chapter Contribution**

Since tourism is in a unique position to both contribute to and pose obstacles to environmentally friendly growth, this chapter is crucial. For starters, this is because the industry is rapidly expanding and has a significant impact on the economies of many nations and tourist hotspots worldwide. Second, because of the unique interactions between tourists, businesses, natural areas, and local



populations that make up the tourism industry. Users are able to discover more accurate and timely information, have more freedom of movement, make better decisions, and enjoy better vacations thanks to AI. From a corporate standpoint, AI has applications across the board, but mainly in marketing and increasing output. It is anticipated that AI will inspire more environmentally responsible vacations by encouraging customers to view their trips from a more altruistic vantage point.

## **LITERATURE REVIEW**

### **AI**

According to the definition provided by Copeland [8], artificial intelligence (AI) is a digital transformation technology that allows a digital computer or computer-controlled robot to execute tasks typically associated with intelligent beings. Synthesizing human intelligence in machines, typically computers, is known as artificial intelligence. The phrase is often used to describe the effort to create machines with cognitive abilities similar to those of humans, such as the capacity to reason, acquire meaning, make generalizations, or gain insight from experiences [8]. What they mean by “AI” is often just a subset of the larger technological devices, such as neural networks. Machine learning algorithms, the backbone of AI, need particular software and hardware to be developed and trained [9] for use in the field. Artificial intelligence (AI) systems typically function by taking in massive amounts of training data that is labeled, analyzing that data for relationships and trends, and then using those patterns to forecast future outcomes. Thus, an image recognition program may learn to identify and characterize objects in photographs by analyzing millions of instances, and a chatbot, on the other hand, can learn to make lifelike dialogues with humans by reading examples of text. Generative artificial intelligence (AI) is a fast developing field that can generate realistic content including literature, graphics, music, and more from scratch [9].

### **Sustainable Tourism**

One of the world's most dynamic markets, tourism is crucial to the economies of poorer nations. It's undeniable that countries all around the world would benefit from the tourism industry's ability to create jobs and boost their economies. The synergy between tourist growth and biodiversity protection can be ensured if the potential of growing tourism activities in rural regions is studied. In the tourism industry in particular, modern technologies like Artificial Intelligence (AI) can bring about the transformation essential to work toward a sustainable future. Concern for economic, social, and environmental issues, as well as attention to improving tourists' experiences and meeting the needs of host communities, are

## CHAPTER 7

# Artificial Intelligence and Innovation in Organizations

**Abstract:** The current digital revolution is increasingly centered on the digital transformation and the related AI operations. The business and industrial settings have yet to feel its full effects, problems, and opportunities. Here, innovation is what really drives success in the business world. However, innovation is now an essential outlook that ought to be ingrained in every employee and all operations of a company to maximize its potential for success and the satisfaction of its people. In this light, the proliferation of AI in corporate settings appears to be altering the ways in which businesses generate and oversee new ideas. It has helped to progress a wide variety of sectors, including the financial sector, the education sector, the transport industry, and others. This report set out to add to the growing body of research on artificial intelligence's impact on corporate creativity. As this chapter made clear, scientific and technological progress is accelerating, with AI serving as the main attraction. Understanding innovation leadership is about the fact that data is growing exponentially. It is argued that, in general, AI systems can relieve managers of technical and time-consuming research while simultaneously improving processes for creativity. This frees up managerial time and energy to devote to imaginative approaches to issue handling and the growth of new forms of innovation. This research is novel because it seeks to add spark based on information about the potential effects of AI on the creative process.

**Keywords:** AI, Firms, Innovation.

## INTRODUCTION

Current (contemporary) society is profoundly impacted by the digitalization process that is still in progress [1]. AI technology, one of the newest developments in this digitalization process, is widely seen as a panacea for a wide range of issues. Many people believe that AI will be a crucial technology for the expansion of the economy in the future. An increasing amount of attention is being paid in the present to the digital transformation and the AI processes that go along with it [2] in the context of the digital revolution. The industry and business climate have yet to feel its full effects, problems, and possibilities. Here, innovation is what really drives success in the business world. Innovation may boost both a company's bottom line and the quality of life for its employees, so it's

no longer an afterthought but rather a central focus for all employees and all operations [3]. However, some businesses may have an edge in applying AI expertise to the development of truly revolutionary new products and services [4]. Clearly, businesses vary in their abilities to understand and exploit AI's benefits [5]. The effects of this technological shift are felt most acutely by small and medium-sized businesses (SMEs) [6, 7]. Investment (for example, in data infrastructure) in developing and maintaining an AI system is not cheap. Realizing the benefits of artificial intelligence often necessitates substantial intangible investments (such as human capital). Artificial intelligence (AI) and machine learning have been gaining scholarly attention for their potential to displace humans in the workplace, create new jobs, and alter traditional management practices [3]. The basic idea is that AI can outperform humans in terms of quality, efficiency, and results under particular information processing limits [8, 9].

Both academics and business leaders have long recognized the connection between innovation management and a company's ability to stay ahead of the competition and expand. Innovation management research and knowledge generation is expanding rapidly, although it is still highly dispersed and interdisciplinary [10]. This fact makes it difficult to focus and keep up with the accumulation of information, evidence, and studies in this field [11]. Companies' ability to innovate technologically has been shown to contribute to overall economic growth [4]. In this chapter, we look into how companies' AI-related knowledge affects the development of innovation (new products, services processes, *etc.*).

### **Chapter's Contribution**

This chapter enriches innovation by adding the ongoing conversation on innovation within the context of AI research and development. Despite these cautions, the chapter helps fill a significant void in the field of AI research and paves the way for future studies of AI's effect on different types of innovation and its long-term consequences. This chapter contributes to the field of innovation management by clarifying the role of AI algorithms in innovation of the future.

## **LITERATURE REVIEW**

### **AI**

Since Alan Turing originally addressed the question of whether machines can think in 1950 [5] the landscape of artificial intelligence (AI) has changed dramatically. Today, AI is altering the economic and social landscape. It has the potential to increase productivity, boost quality of life, and contribute to solving

global problems including climate change, resource depletion, and health crises. As more and more people are utilizing AI applications, however, it's possible that ethical, legal, security, confidentiality, along accountability issues will arise. By outlining the state of the art in AI from a technological, economic, use case, and policy perspective and highlighting key public policy implications, this paper contributes to a common understanding of AI in the near future. Its secondary goal is to promote harmony among ongoing debates on a national and worldwide scale. Artificial intelligence (AI) is currently thriving in both the public (government, research institutions, educational institutions, *etc.*) and commercial (business, design studios, *etc.*) sectors. As defined by Bennett and Hauser [12], artificial intelligence (AI) is “a set of computational techniques that enable computers to perform tasks typically associated with human intelligence, such as translating languages, visual information recognition, speech recognition, and decision making.” According to Ottinger [13], AI refers to “machines or computer programs that can perform tasks normally performed by human intelligence.” Machine learning and deep learning are used for things like computation, learning and adapting to new conditions, processing very huge data sets, and making predictions. Recent advances in artificial intelligence have led some scientists to assume a new creative process, machine learning, has emerged. Machine learning and deep learning are still in their infancy, but they have the ability to bring about a new revolution if attention is paid to the organizational and policy repercussions of AI [14]. It is possible that new and aggressive entrant companies in a particular sector could create a big competitive edge over potential larger and older rivals if there are rising beneficial results in the extent of data collection that firms can obtain and use. Having authority over data alone, rather than the more conventional intellectual property or demand network effects, is the driving factor. Considering this potential may cause a change in how businesses approach innovation. However, new entrants and researchers' ability to investigate will be weakened by demands and incentives to keep data private [4]. Management algorithms should generate a shift in which a vast volume of data with complicated relationships aids in the decision making process. Some mathematical models are more effective at cataloging and organizing information sets than human judgements [15], and these models make work easier for everyone involved. While machine learning may have an effect on lowering the expenses of innovation activities, it also has the potential to inspire a new perspective and frame of mind in regard to creating. Spending on study can be reduced by using an integrated AI conceptual framework. Some AI developments inside research operations enhance knowledge availability and add to “lab productivity.” In addition, AI and ML can pose a threat to the ever-increasing expenses associated with the innovation process, particularly in the field of information processing [16], which could result in lower than expected FDSM

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**Mohammed Majeed**

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Prof. Mohammed Majeed is a senior lecturer (Ph.D.) at Tamale Technical University, Tamale Ghana. He is the head of the Marketing Department. His current research interest includes, value co-creation, branding, hospitality and tourism, digital marketing/social media etc.. Prof. Majeed holds doctor of business administration (DBA), M.Phil. and MBA marketing, postgraduate diploma in management practice, HND marketing. He is a part time lecturer in many Ghanaian public universities and a reviewer to many journals in management, hospitality, and marketing. He has publications in Emerald, Springer, Palgrave, Cogent Business & Management, Rutledge, Bentham Science, Taylor & Francis, etc.