Blockchain and Artificial Intelligence

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The World Rewired

Edited by
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DE GRUYTER

ISBN 978-3-11-066114-9
e-ISBN (PDF) 978-3-11-066445-4
e-ISBN (EPUB) 978-3-11-066134-7

Library of Congress Control Number: 2021941384

Bibliographic information published by the Deutsche Nationalbibliothek
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available on the internet at http://dnb.dnb.de.

Cover image: Ryzhi/iStock/Getty Images Plus
Typesetting: Integra Software Services Pvt. Ltd.
Printing and binding: CPI books GmbH, Leck

www.degruyter.com

Preface

Over the centuries there have been key defining moments where jump shifts in technology suddenly opened up new opportunities for the human race or changed how we interacted with our world.

This book takes a look at how the emergence of two such technologies – artificial intelligence (AI) and blockchain – is already starting to redefine how the world around us works and how that world interacts with us.

The first time that the two words "Artificial" and "Intelligence" were put together was on the 31st of August 1955, when Prof. John McCarty from the University of Dartmouth, together with M. L Minsky, N. Rochester and C. E. Shannon, asked the Rockefeller foundation to fund a summer of research on Artificial Intelligence (AI).

Artificial intelligence is any task performed by a program or machine, which would otherwise require human intelligence to accomplish it. It is the science and engineering of making computer systems demonstrate human-like intelligence, especially visual perception, speech recognition, decision-making, and translation between languages.

There are two types of AI, General AI and Narrow AI. We are still currently experiencing Narrow AI – AI programs capable of solving one specific problem. General AI is still work in progress; it can be defined as an artificial intelligence program capable of tackling every kind of problem it is presented with. This is similar to an extremely powerful human, and you can think of it as the robot from *Terminator* (but hopefully a peaceful version of it).

AI has already affected our lifestyle either directly or indirectly and is shaping the future of tomorrow. It has become an intrinsic part of our daily life and has greatly impacted our lifestyle with the increased use of digital assistants on mobile phones, driver-assistance systems, chat bots, texts and speech translators, and systems that assist in recommending products, services, films we watch, music we listen to and customized learning.

The second technology addressed in this book, that of blockchain, is perhaps best known for "Bitcoin" and other crypto currencies like "Ethereum" but separate to its application as a currency of exchange, the underlying technology called Blockchain, the programming language if you like, that makes it all possible, is in itself a very powerful tool with many applications in the financial services industry and elsewhere.

Although the mechanics of blockchain are extremely complex, the basic idea is simple: to decentralize the storage of data so that such data cannot be owned, controlled or manipulated by a central system. It gives the potential to create blocks of data, that are irrefutable, immutable, and so can be trusted as they are spread across a network of computers making it far harder to hack or attack multiple systems and change the data on all of them. Because of this decentralized nature, it provides a very high level of security for data.

https://doi.org/10.1515/9783110664454-202

This technology could change the way that ownership, privacy, uncertainty and collaboration are conceived of in the digital world, disrupting sectors and practices as diverse as financial markets, content distribution, supply chain management, the dispersal of humanitarian aid and even voting in a general election. This is why the field of blockchain in the IT sector is growing very fast.

Blockchain technology provides one of the most secure and safe online transactions and has shaken every industry. Due to its numerous benefits, many companies and professionals have started to adopt blockchain technology. It is estimated that blockchain technology has already been adopted by more than one-third of the companies in the world.

Blockchain technology is very transparent as everything is visible to all the participants from the beginning. This reduces the chance for any kind of discrepancy in the system because nothing is hidden. It is also considered the most reasonable in the world from a cost perspective to use for developing solutions, with a lot of the languages freely available as open source for developers to use. If one compares it with traditional software development models, it is a lot less expensive and many companies are now looking to take advantage of this fact and save costs in their economic model; it is starting to prove especially beneficial for the banking and financial industry, something we look at in this book.

The most obvious area where AI and blockchain have already had a huge impact is information technology operations, but there are many areas where they are already changing how businesses interact with us as human beings. Having researched the key business areas where the two technologies are having a combined impact for this book, I selected the most interesting areas which are touching the vast majority of our working and private life in some way. For example, the accounting industry where AI is already revolutionizing the analysis of what is usually a big data problem; maritime and shipping where blockchain and AI are helping the documentation that moves commodities and vessels around the world and analysing weather patterns and routing of vessels; human resources in selecting and finding the best candidates from thousands of resumes; marketing with targeted advertising and information. This list goes on; many of the areas where AI and blockchain are touching our lives already are subtle and so I hope you will enjoy reading this book and find it a useful eye opener to the applications and developments in AI and blockchain that are impacting the world we live in.

Tom James

Acknowledgments

A huge thanks must go to my editorial and research team which includes my son Kiren Chong-James in the UK, Aditya Kumar in India, and Justine Butler in the UK. Your dedication to the project and support was invaluable. Thank you!

I must also give a massive thank you to all of my family who encouraged me to keep pushing on with this book project despite the many difficulties and delays caused by the Covid lockdowns around the world.

Last but certainly not least I would like to dedicate this book to my old school friend, Andrew Fox, who sadly passed away well before his time during the Covid Pandemic in 2020. His passion for computers when we attended school together inspired me to start learning computer languages and work with them since the early 1980s.

https://doi.org/10.1515/9783110664454-203

Contents

Tom James

Chapter 1
Marketing

Artificial Intelligence

Artificial intelligence (AI) frameworks continually take a shot at the foundations of famous items and services like Netflix, Amazon, and Google. As great as these disruptions have been, recent years have seen in a brief time AI clearing an even more profound path into promoting and helping brands improve each progression of the client's venture. As business and technological innovations in AI have gained wider adoption, instruments accessible only once to big business organizations have now opened the door to small- and medium-sized organizations.

Imaginative ideas of an engineered cognizance created by people – a wild development along the lines of science fiction motion pictures – are probably not going to be realized soon. Current AI, though simpler than a sci-fi sapience, are no less disruptive to the world. Today's AI are frameworks capable of performing assignments that would otherwise regularly require human intelligence and oversight. Capable of incorporating aspects of critical thinking, perceiving feelings, playing complex strategy games, and even diagnosing diseases, AI are increasingly matching or surpassing their human counterparts. One only needs to participate in an AI showcasing arrangement to illustrate how much the gap between information science and execution is vanishing.

What is AI in Marketing?

Artificial intelligence marketing (AIM) is a technique for utilizing client information and AI innovations like machine learning to predict your best course of action.

Computer-based intelligence in promoting is the utilization of client information, AI, and other computational ideas to anticipate an individual's activity or inaction. It can take on colossal quantities of information and help advertisers effectively portion them into processable categories. After all relevant information is considered, advertisers can further organize information groupings to make modified content for their crowds. With AI, organizations can make incredibly well-informed promotion strategies to focus on the correct potential clients. This will enable computerized advertisers to take care of clients with the correct content on the correct channel at the correct time.

https://doi.org/10.1515/9783110664454-001

Why is AIM Important?

AI is leaving an enormous impression in advanced marketing. An investigation by Smart Insights shows that out of 100 senior advertisers from various enterprises, 55% of organizations are executing or previously considering utilizing AI in their marketing.

AIM is a practice that allows advertisers to crunch tremendous quantities of marketing information during investigations of internet-based life, messages, and the wider web. Additionally, shorter time periods spent on data collection and processing assists advertisers with boosting effort execution and return on investment (ROI). This gives advertisers and organizations more opportunity to concentrate on other significant assignments.

This is practiced by utilizing big data analytics, machine learning, and different procedures to pick up knowledge and insight into intended interest groups. With these parcels of knowledge, you can make increasingly powerful client contact focuses. Regardless of whether you are participating in email marketing or providing client service, AI takes out a significant part of the mystery associated with client interactions.

AIM will help content advertisers comprehend who precisely their intended interest group is, and accordingly make an individual encounter personalized for clients. On a grander scale, it very well may be utilized to automate forms that were once subject to people. Content generation, PPC promotions, and even website design are all potential applications for AI marketing. It is easy to see why AI will continue to grow in significance beyond 2021.

How to Use AI for Marketing

AI has increasingly been integrated into every industry with benefits not just limited to decreasing human intercession in complex and simple tasks. Usage of AI has concurrently led to an increase in the quality of productive output, by helping people carry out their responsibilities better, with less effort. As such, fields like social media, consumer electronics, robotics, travel and transportation, finance, healthcare, security, surveillance, e-trade, etc., today are already profiting by means of AI.

A good example of where we might see the dynamic benefits of AI is in the creation of a website. Ordinarily, building up a site without at least some expertise in HTML, CSS, and JavaScript is inconceivable for a business. Be that as it may, AI has made it conceivable. Well-known web designers like Wix utilize AI to construct sites. The only human interaction required is in providing the substance, pictures, and page format. Then your expertly crafted site is good to go. Such benefits in skill and efficiency form the new normal in digital marketing.

Digital Marketing

Digital marketing and AI are intrinsically linked. In computerized marketing, there is an imperative to process huge quantities of information. AI encourages computerized advertisers to process information faster, which provides them with the free time and attention to make advanced methodologies more effectively.

Online advertising is one of the most significant components of computerized marketing. It encourages organizations to contact their intended interest group as quickly as possible. A larger part of online promotions we see today are controlled by a muddled conveyance framework fueled by AI, which is classified as "programmatic advertising." The program encourages the purchasing and selling of advertisement spaces. It conducts barters where these advertisement spaces are sold and purchased in timespans measured in fractions of milliseconds.

"Personalization is the new cool." According to Evergage, 96% of advertisers concur that personalization is the way to convey an awesome client experience. AI has made it conceivable to make sense of the preferences, standards of conduct, interests, and exercises of a huge number of individuals consistently. It does so by gathering and breaking down client information while considering factors including (but not limited to) physiography, socioeconomics, gadgets, and geography. The greater the personalization, the greater the odds of change.

AI helps achieve this personalization by doing the math and examining information, two tasks in which AI frameworks are exceptionally proficient. Computer-based intelligence utilizes measurable models and programming to foresee a client's future activities by considering their past conduct and attributes. Along these lines, AI encourages advertisers to find out about their clients, for example, finding out what cost do they expect for a specific item. In view of the information, likewise, AI can anticipate what sort of highlights clients expect in the item update. Advertisers can use this information to make slogans and run battles with the end goal of pulling in more clients and expanding the odds of transformation.

Right now, in the era of auto-created messages, individuals are anticipating customized/personalized messages that are pertinent and personally appealing to them. Computer-based intelligence can assist you with sending a modified email for your email marketing efforts by examining client conduct and inclinations. Simulated intelligence dissects many gigabytes of information to identify the correct title and headline that will catch a client's eye. Likewise, it can locate the correct time, day, and recurrence to send the email, which further raises the odds of transformation.

Sales Forecasting

Sales forecasting is enormous business. If you can reliably foresee the demand of a specific item or administration service you will sell in a given day, you can more

readily stock inventory, staff your offices better, and learn more from your business' records, which in doing so you will gain a competitive advantage in the market.

To further assist in forecasting, you can utilize AIM for processing social affairs information about past arrangements. AIM will contemplate the information from messages, gatherings, and certain event calls. AIM can relate the information to the result of the potential deals of your present and future campaigns.

Customer Experience

Through the information assembled by AIM arrangements, it tends to be simpler for advertisers to comprehend what their client's needs are, and when they need it. Advertisers can also make client profiles to make it simpler for them to categorize individuals who are keen on their item from the individuals who are yet considering or unlikely to ever buy (see Figure 1.1).

> By 2025, as many as 95 percent of all customer interactions will be through channels supported by artificial intelligence (AI) technology – Microsoft

AI can be effectively utilized to provide savvy, advantageous and educated client involvement at all points along the client venture. This will bring about reconsidered client encounters and start-to-finish client experiences that are incorporated into an experience, which feels progressively natural to clients.

AI's greatest effect without a doubt will be to change client assistance by making it mechanized, quick, and hassle free. Salesmen, call center specialists, and workers in other client assistance jobs can't be relied upon to ingest and comprehend a client's whole history before every discussion, as this would be an unreasonably time-consuming task for any person. AI, however, is presently making this task a conceivable reality.

AI is helping organizations make encounters that regularly incorporate information of consumer patterns with shoppers' day-to-day routines. Customers will no longer change their example of correspondence while collaborating with brands to fulfill their requirements. Wise expectation and customization will cause clients to feel as though every item or brand experience was custom-made only for them.

Organizations will have the option to evaluate individual customer inventories and purchaser practices to anticipate and order merchandise to homes before they're even aware they are coming up short. Self-driving vehicles will utilize their frameworks to identify the most efficient favored courses and in-vehicle amusement selected from a personal profile based upon past conduct will enhance everyday drives and excursions. Requesting assistance will become a simpler process as AI with the ability to understand and emulate feelings will make client-experience collaborations smoother and streamlined across all channels.

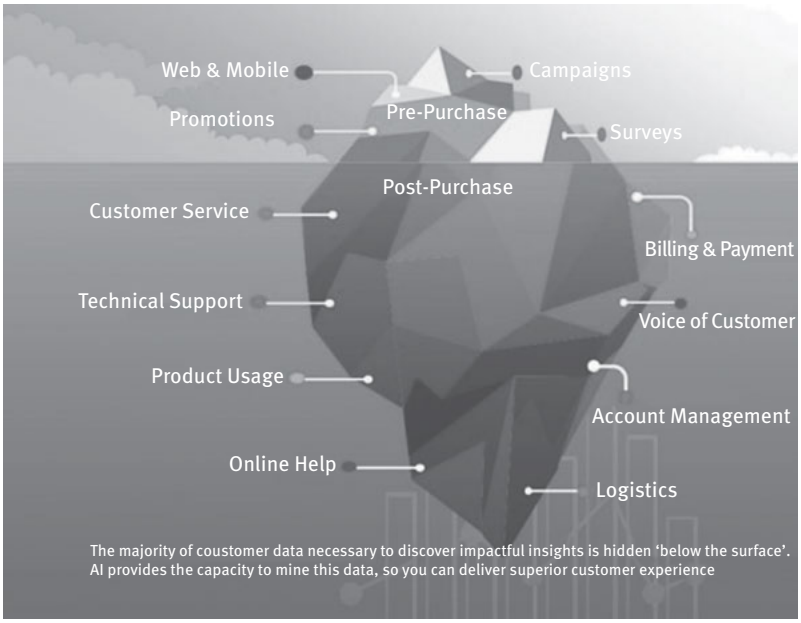

Figure 1.1: The Big Data Map of customer data necessary to discover impactful insights for business.
Source: www.pointillist.com; https://www.pointillist.com/blog/role-of-ai-in-customer-experience/

The intensity of AI-empowered client analytics is that it can filter through a greater and progressively complex information space, and in this manner reveal a lot more business opportunities – even opportunities you may not have been aware you ought to be searching for. Therefore, you can invest your energy organizing these bits of knowledge into useful categories as opposed to manually and endlessly poring over a deluge of hidden information.

Programmatic Ad Targeting

Fundamentally, programmatic ad targeting is computerizing all or parts of the promotion purchasing process utilizing programming-driven innovation. The customary method for purchasing/selling advertisements is a long, monotonous procedure that begins with contacting a sales rep, setting up the conditions of an agreement and afterward having it executed. The eventual fate of AI in digital marketing changes that into a simpler robotized process.

With the information from cookies of mobile applications and sites utilized/visited, the AI can target individual clients that match the sponsor's or business' measures. The models the AI constructs to evaluate probability of success and failure can

be based upon anything from area, age, sex, and time, among other things. If the model predicts value, the advertisement purchasing framework will consequently offer on the impression and display the winning content.

Facebook's advertisements offer a case of this in practice. Facebook allows advertisers and publicists to utilize information investigation in computerized marketing to make custom profiles to target and retarget their promotions. This is information you share via web-based networking media platforms when you consent on the end-user license agreement (EULA).

Chatbots

Be it for enquiries purchasing, or just making a good complaint, messaging apps like Facebook Messenger, Viber, and WhatsApp have made it simpler for a client to connect with organizations and mention what's at the forefront of their minds. It's free and simple to use for many individuals. Despite the great potential to engage with customers, the tragic reality about utilizing messaging applications for organizations, particularly for large organizations, is that it very well may be difficult or impossible to answer each time a client communicates something specific. Envision answering to a great many messages inside your work hours, and a large portion of them are posing a similar inquiry!

So, what do you do to stay aware of your clients and answer their inquiries? Enter the chatbot – an AI program that can reenact a discussion with a client in normal language.

Chatbots allow organizations to set preordained responses to clients and customers' inquiries as often as possible, for example, by assisting them with finding and purchasing an item they like. This essentially decreases the time that is required for human intercession and reaction, therefore, setting aside time and cash to be spent elsewhere.

From style to well-being or insurance, wise chatbots are already being employed to give engaging client care. At times, they're even greater at making customized content than people.

Chatbots approach a huge number of client information focuses. They can aggregate location-specific requests to identify designs, spot tedious issues, and anticipate what's causing issues for a specific client. Frequently, this makes them more proficient than any human client care rep.

However, chatbots aren't constrained to coordinating client care operations. For example, look at the conversation in Figure 1.2 and guess which one looks more humanlike?

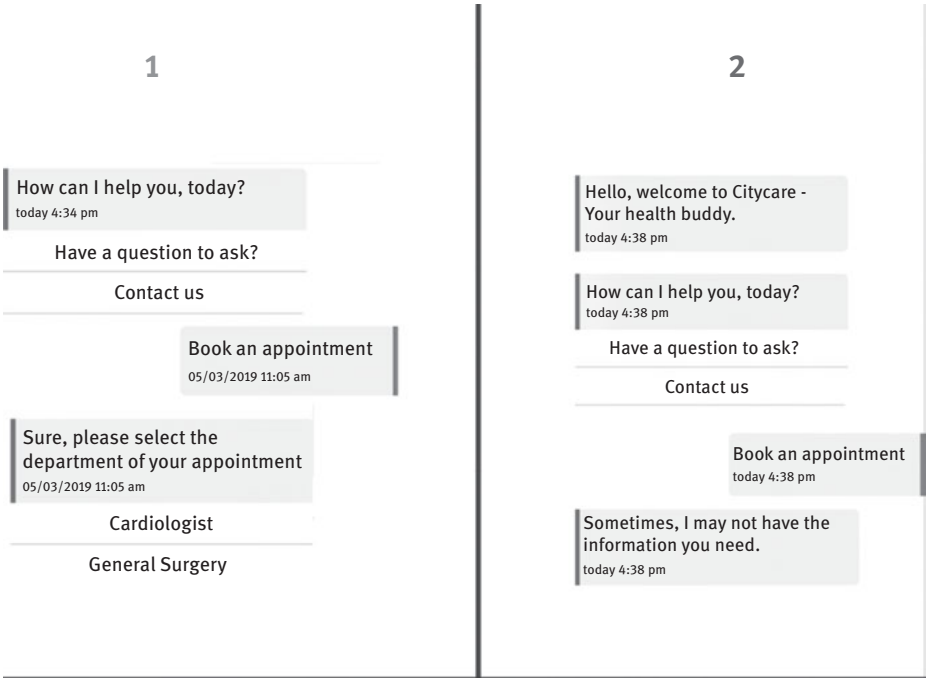

Figure 1.2: Conversation with a chatbot.
Source: *Chatbots Magazine.*

Number 1. Isn't that so?

AI gives a human touch to each discussion a chatbot strikes up. The bot comprehends the client's question and triggers an exact reaction, by using a framework that simulates the way people can see each other's anxiety and give a reaction in a like manner.

Table 1.1: Chatbot with AI vs. Chatbot without AI.

Chatbot with AI Vs. Chatbot without AI	
Answer FAQ	
Yes	Yes
Understand unique query	
Yes	No
Personalize response	
Yes	No

Table 1.1 (continued)

Chatbot with AI Vs. Chatbot without AI	
Learn from past conversations	
Yes	No
Improve future conversations	
Yes	No

Source: Author.

From Table 1.1 we can conclude:

1. A Chatbot with AI powers makes your bot fit and keen to answer complex questions. The collaboration is conversational, natural, and energetic.
2. Chatbot gains from each discussion it has with the clients. It experiences the past cooperation to improve the present reaction. This action assists with improving the proficiency of bot reaction. In addition, assists with understanding your client's decisions and inclinations.
3. Keen connections spare the client's time by helping them to locate the correct data and address their inquiries.

Speech Recognition

Need to feel what it's like to have an AI assistant like Jarvis from the Marvel film "Iron Man"? All things considered, Jarvis is conceivably still far ahead of present-day technological capabilities, however, that doesn't mean the creation of a true AI assistant won't occur at some point in the future. At present, we have comparatively promised AIs with speech recognition capabilities – Siri, Google Assistant, or Alexa among others – each constituting an AI chatbot with voice recognition capabilities capable of assisting users with various queries.

These AIs can perceive certain expressed words and convert them into the content to be executed in the correct order. Speech recognition is even utilized in applications, for example, Google Maps, Shazam, and different handheld devices.

So, by what method would marketers be able to exploit speech recognition for their campaigns? According to projections on virtual assistant ownership, >55% of families will have a savvy speaker by 2022 up from only 13% in 2018. Furthermore, deals from vocal shopping orders are predicted to soar to US$40 billion in 2022, up from just US$2 billion out of 2018. Assuming the predictions are accurate, this speaks volumes (pun intended), as far as the need to utilize speech recognition in any marketing effort goes.

The general speech and voice recognition market is estimated to reach US$21.5 billion by 2024 from US$7.5 billion out of 2018, at a compound annual growth rate (CAGR) of 19.18%. The development of the speech and voice recognition market can be ascribed to the high development potential in medicinal services application, developing interest for voice confirmation in versatile financial application, fast expansion of multifunctional gadgets or smart speakers, and the developing effect of AI on the precision of speech and voice recognition (see Figure 1.3).

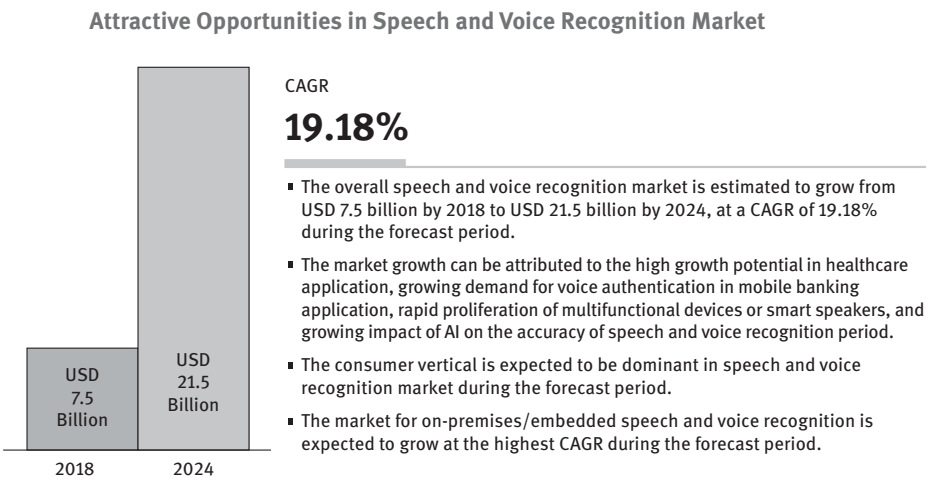

Figure 1.3: Attractive opportunities in speech and voice recognition market.
Source: Markets and Markets Analysis.

When contrasted with speech recognition, the voice recognition advertising industry is estimated to develop at a higher rate from 2021 to 2024 inferable from the developing utilization of voice recognition in multifaceted validation frameworks in Banking, Financial Services, and Insurance (BFSI), government, and defense verticals (Figure 1.4). In North America and Western Europe, an enormous number of banking clients use telephone banking services. A significant number of these money-related foundations are embracing voice-based validation answers for acknowledging or dismissing versatile exchanges from a client. Moreover, the market for voice recognition innovation is observed to grow higher in the administration, finance, and enterprise verticals during the following two–three years. This warrants emphasizing the information security worries due to cyberattacks and data breaches by intruders increasing concurrent to the high development of the voice recognition showcase.

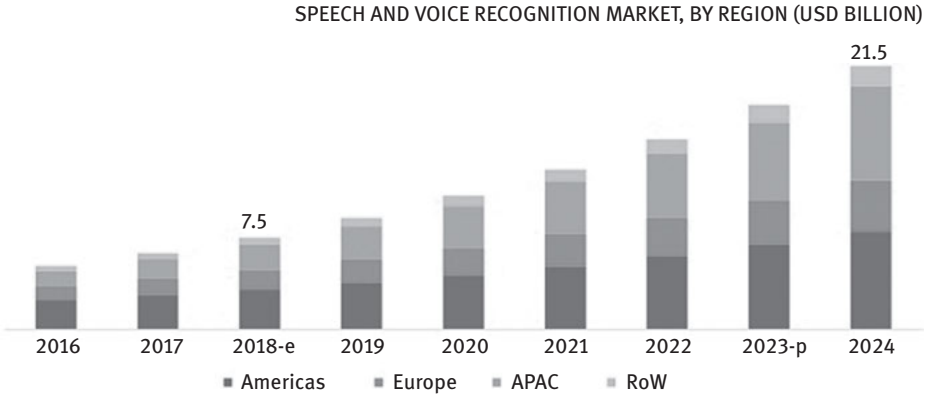

Figure 1.4: Speech and voice recognition market, by region (USD billion).
Source: Industry Experts, Secondary Research, and Markets and Markets Analysis.

Content *G*eneration

The manual age of substance and content generation is full of dull procedures. Instead, envision having a site that can create its own substance. You don't need to recruit essayists or editors, and you'll have a self-supporting site that can procure results for you. Life would be simpler for you as an advertiser. Imagine a scenario where you realized that AI calculations would already be able to go this far.

This is called content generation. You've presumably perused generated content without knowing or seeing it. Tragically, AI is not yet able to make long and smoothly composed articles by CEOs, industry pioneers, bloggers, and other skilled scholars offering expert information and analysis. Where it excels (as of this composition), is in generating straightforward stories and narratives. For example, stock updates, monetary reports, sports news, etc.

If you need assistance in creating customized content for your site, there's another method to do, it's called content intelligence. In contrast to content generation, this furnishes makers with information-driven input and bits of knowledge for progressively powerful substance that will yield better outcomes (see Figure 1.5).

At present, content marketing has expanded into a worldwide industry. It's pervasive to the point that some allude to it as the main kind of marketing.

Computer-based intelligence is approaching the point where it can possibly both minister and produce content, at that point placing it before the comparative skill of ideal individuals on the right platforms. This innovation is now robotizing the content age on an essential level, yet in the end, AI could create practical subjects for authors, or even create beginning drafts of substance dependent on specific parameters.

Figure 1.5: Content marketing vision.
Source: www.curata.com

On the strategy side, AI can possibly assist advertisers with mapping out a start-to- finish content procedure. As of today, some marketing techniques are providing this component. I anticipate it will also have the option to create far reaching reports providing details regarding content activities, with next to zero human work included.

Dynamic Pricing

This AI is frequently referred to as customized evaluating. It's an appraisal system wherein an item's cost is dictated by demand as well as supply. A genuine model is the costs of ride-sharing applications that increases as the number of requests rises or when you can't discover a rebate when you have to buy an item on the web.

An application's bot or site's bot can screen your predictive analytics use cases, for example, cookies, history, web searches, and different exercises, to furnish you with constant reestimations. This implies you get lesser discounts as well as more significant expenses for the item/service you need right now. It sounds unreasonable, but there are always different sides to a story.

Clients can profit by dynamic pricing when the demand for an item is low. A genuine case of this is when lodgings/hotels go unsold. To help increase the odds of a secured business opportunity, dynamic pricing can offer serious value for clients to create business opportunities.

80% of study members considered value the absolute most significant factor in a buy.

Even though they are mind boggling models, these dynamic pricing AI models are grounded in an exceptionally basic idea:

Convey the correct cost for each client while expanding income for the business.

Have you at any point wondered how Uber, Amazon, and Airbnb entered established markets and pulverized all their rivals in business? One of the significant common factors of success for these three tech goliaths is that they've integrated dynamic pricing as a central spoke for their marketing operations, matching the immediate supply to the immediate demand in the market for the optimum price.

Here's a model of this in action: the charge of an Uber ride is considerably lower than an ordinary taxi. When there's a cultural event likely to drive up demand, for example, when there's a match or a ball game coming up and the demand spikes, the costs also will see a rise to match demand. To watch the game, you must pay progressively because of the demand. The upside is, provided you tolerate the increased fare you will also benefit from the consistent availability of Ubers to hire despite the recent increase in demand. Since the fares are better there will be more drivers around the ballpark, thus allocating the availability of services where the demand has also increased. As these cultural events end, the demand returns to the market normal and the accessibility increases as the cost decreases to match the lowered demand.

What are the Core Benefits of AI in Marketing?

AIM has been gaining more attention among advertisers considering the benefits it provides. As indicated by an ongoing PwC study, 72% view AI as a "business advantage."

Increasingly Intelligent Searches

As cutting-edge innovation arrangements develop more brilliant and intelligent frameworks, it's important to remember that customers are getting more intelligent as well. Because of online networking and rapid-fire search engines (says thanks to Google!), individuals find what they are searching for quicker than any time in recent memory. AI and large information arrangements can really break down these search arrangements and assist advertisers in identifying and prioritizing areas where they should center their endeavors.

More Astute Ads

Advertisers are plunging their toes into more astute promotions, with account-based marketing arrangements and AI assistants providing valuable assistance with rapid

analysis of huge sums of internet data. With another medium of information accessible, online advertisements can become even more effective and wide-reaching. AI arrangements can delve profoundly into keyword searches, social profiles, and other online information for human-level results.

Refined Content Delivery

With AI, advertisers can take information and targeting to an entire new level. Audience analytics can go past the regular socioeconomics level, to comprehend customers on an individual basis. Presently, marketing personnel can utilize AI to both recognize potential customers or purchasers and convey the perfect content that is generally applicable to them. With big data, machine learning, and AI joined, there is very little a wise marketer can't accomplish.

Depending on Bots

Client assistance and retention is another territory where AI in the future will play an emerging critical role. Before long, chat functions and other direct-to-consumer engagement will be controlled by AI bots. Numerous organizations can spare representative time and expenses with these strategies. AI bots additionally approach a whole web of information, data, and search narratives, making them substantially more effective than their human partners.

Continued Learning

Perhaps the most promising feature of AI is that it can really be "educated," learning how to fuse recently revealed experiences into new campaigns, enhancing efforts to target the most significant and promising of clients. Over time, these AI arrangements will turn out to be progressively more intelligent, more conversational, and more capable of adept real-time decision-making.

What is the Future Ahead for AI in Marketing?

The future of AI in marketing is likely to see impact marketing methodologies, including plans of action, deal procedures, and client assistance alternatives, such as client practices. These looming changes may be best comprehended utilizing three illustrative cases from assorted businesses.

In the transportation business, driverless, AI-empowered vehicles might be coming around the bend, promising to adjust both business models and client conduct. Taxi and ride-sharing organizations must advance to avoid from being outcompeted by AI-empowered transportation models; demand for accident coverage (from individual clients) and breathalyzers (less individuals will drive, particularly in the wake of drinking) will probably decrease, though demand for security frameworks that shield vehicles from being hacked will increase in demand. Driverless vehicles could also affect the engaging quality of land, since (1) driverless vehicles can move at quicker speeds, thus drive times will lessen, and (2) drive times will be increasingly beneficial for travelers, who can securely work while being headed toward their daily goals. In that capacity, living in remote areas may turn out to be progressively appealing, versus the case today (see Table 1.2).

Table 1.2: Industry usage of AI.

Industry or Usage Context (specific firm or AI application)	Description
AI in driverless cars (e.g., Tesla)	In the future, AI- enable cars may allow for car journeys without any driver input, with the potential to significantly impact various industries (e.g., insurance, taxi service) and customer behaviors (e.g., whether they still buy cars).
Online retailing AI (e.g., Birchbox)	AI will enable better predictions for what customers want, which may cause firms to move away from a shopping-then-shipping business model and toward a shipping-then-shopping business model.
Fashion-related AI (e.g., Stitch Fix)	AI applications support stylists, who curate a set of clothing items for customers. Stitch Fix's AI analyzes both numeric and image/other non-numeric data.
Sales AI (e.g., Conversica)	AI bots can automate parts of the sale process, augmenting the capabilities of existing sales teams. There may be backlash if customers know (upfront) that they are chatting with an AI bot (even if the AI bot is otherwise capable)
Customer service robots (e.g., Rock'em and Sock'em; Pepper)	Robots with task-automating AI respond to relatively simple customer service requests (e.g., making cocktails).
Emotional support AI (e.g., Replika)	AI aims to provide emotional support to customer by asking meaningful questions, offering social support and adjusting to users' linguistic syntax.
In-car AI (e.g., Affectiva)	In-car AI that analyse driver data (e.g., facial expression) to evaluate drivers' emotional and cognitive states.

Table 1.2 (continued)

Industry or Usage Context (specific firm or AI application)	Description
Customer screening AI (e.g., Kanetix)	AI used to identify customers who should be provided incentives to buy insurance (and avoid those who (1) are already likely to buy and (2) those unlikely to buy).
Business process AI (e.g., IBM Interact)	AI used for multiple (simple) applications, such as customized offers (e.g., Bank of Montreal).
Retail store AI (e.g., Café X, Lowebot, 84.51, Bossa Nova)	Robots that can serve as coffee baristas, respond to simple customer service requests in Lowe's stores, and identifying misshelved items in grocery stores.
Security AI (e.g., knightscope' K5)	Security robots patrol in office or malls, equipped with superior sensing capabilities (e.g., thermal cameras).
Spiritual support AI (e.g., BlessU-2; Xian'er)	Customizable robot priest/monk offering blessings in different languages to the user.
Companion robot AI (e.g., Harmony from Realbotix)	Customizable robot companion, which promises reduce loneliness to the user.

Source: SpringerLink Research.

Secondly, AI will influence deals formed between different businesses. Most sales reps depend upon making a phone call (or comparable medium) as a basic staple of the business procedure. The future will see salesmen helped by an AI specialist that screens tele-discussions continuously. For instance, utilizing propelled voice investigation capacities, an AI operator may have the option to gather from a client's tone that an unmentioned issue stays an issue and give real-time feedback to control the (human) sales rep's next methodology. In this sense, AI could increase a salespersons' abilities, yet it also may trigger unintended contrary outcomes, particularly if clients feel awkward about an AI observing discussions. Additionally, later, firms may basically rely upon AI bots, which – now and again – work just as human sales reps, to reach deal possibilities. Yet, the peril of human bias remains; if clients find that they are communicating with a bot, they may get awkward, feel uncanny, or intimidated, activating negative outcomes.

Thirdly, the plan of action right now utilized by online retailers for the most part expects clients to put orders, after which the online retailer dispatches the items (the shopping-then-transportation model). With AI, online retailers might have the option to anticipate what clients will need; expecting that these items match their client's demands, retailers may progress to a delivery then-shopping plan of action. That is, retailers will utilize AI to recognize clients' inclinations and deliver things to clients without a proper request, with clients having the alternative to return what they do not need. This move would change retailers' marketing techniques, plans of action,