Preface

In the world of marketing, the rise of artificial intelligence (AI) has sparked both excitement and apprehension. Many feared that AI would replace human marketers entirely, rendering traditional marketing strategies obsolete. The concern was understandable, given the rapid advancements in AI technology. However, what has unfolded is a more complex narrative—one where AI acts as a powerful tool to enhance human creativity and strategic thinking.

Of course, working alongside artificial intelligence is easier said than done. Artificial intelligence follows a different set of rules than human intelligence, and it has different strengths and weaknesses as well. Learning to leverage these strengths while compensating for the weaknesses is a crucial skill for anyone looking to work alongside AI technology.

For marketers and businesses, the key to success in this AI-driven era is not to resist technological change but to embrace it. It is with that in mind that this textbook was written. Throughout *Artificial Intelligence Marketing*, students will explore a wide range of tactics and strategies that marketers use to create strong and efficient marketing content alongside AI-powered tools. They will examine the benefits and risks that AI technology poses to various aspects of the marketing process and learn the best practices for working with AI-powered big data tools. By the end of this textbook, students will have developed a strong understanding of artificial intelligence technologies, which will in turn help them build a successful career in marketing.

#1 AI FUNDAMENTALS

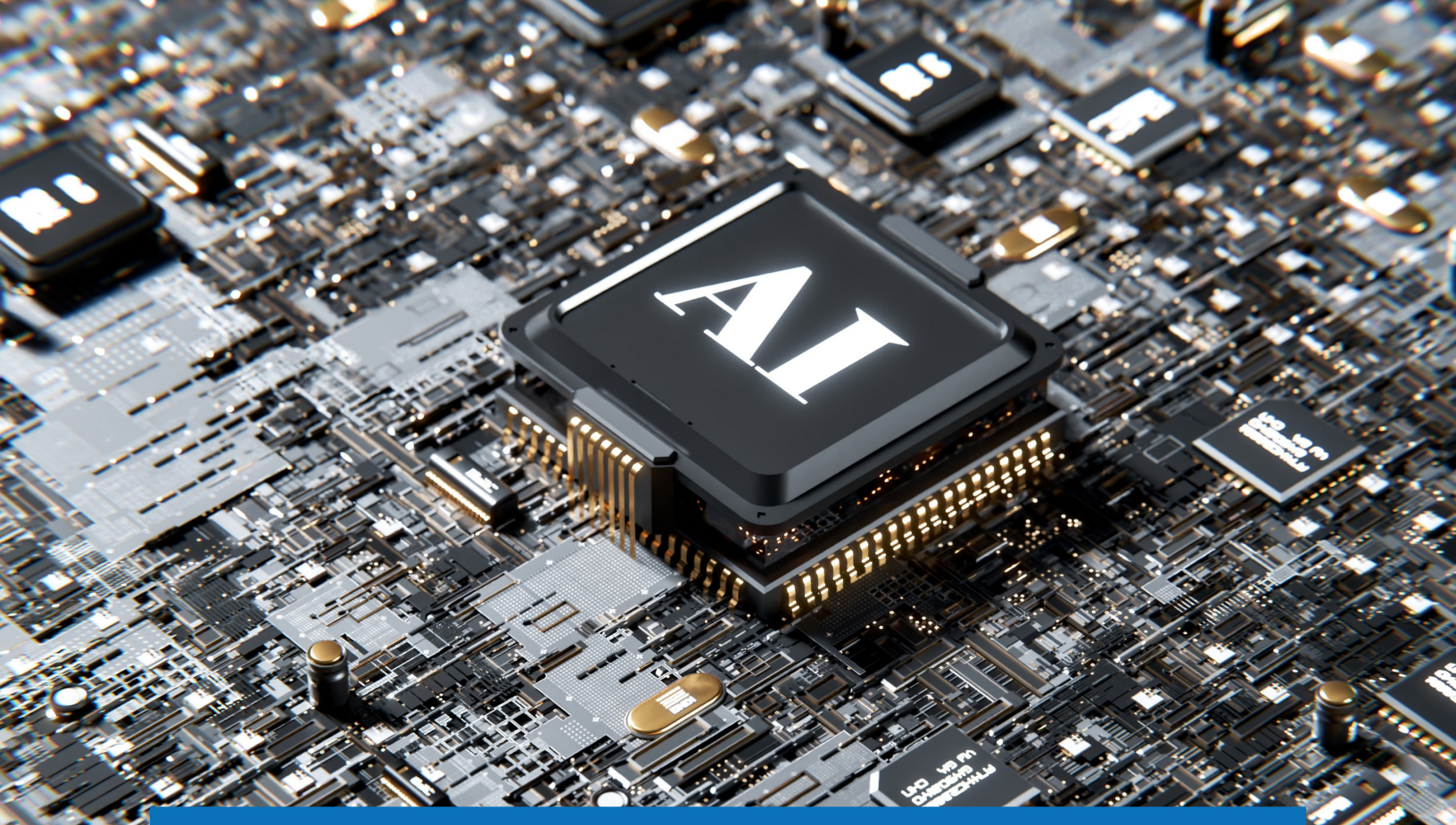| What is Artificial Intelligence?	History of AI	AI Applications	Risks and Benefits	Artificial and Human Intelligence
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MUJO
LEAD · EDUCATE · INSPIRE

The term **artificial intelligence** (**AI**) can mean a lot of different things in modern society. In one sense, artificial intelligence can be used to refer to a range of technologies that have not yet been fully realized. When some people think of artificial intelligence, they think of fully autonomous transportation systems, or robotic companions that can have conversations and express emotions similar to humans. In this sense, discussions of artificial intelligence sometimes feel closer to science fiction than a realistic exploration of modern technology's current capabilities.

But artificial intelligence is already a big part of many people's daily life. Search engines like Google use AI to find results to queries. Music streaming platforms like Spotify use AI to provide personalized song recommendations to users based on their listening history. Many smartphones such as Apple's iPhone use AI-powered facial recognition technology as a security measure and can be controlled by AI-powered voice commands. In many ways, artificial intelligence has become commonplace, making people's lives easier in ways they may not even immediately notice.

Advances in artificial intelligence have also massively changed the digital marketing landscape. As this textbook will explore, artificial intelligence plays an increasingly important role in a wide range of marketing practices, from the buying and selling of ad space to the creation and optimization of marketing content. For marketers, understanding artificial intelligence technologies is a crucial foundation for a successful career in the field. With that in mind, this chapter will explore the fundamentals of artificial intelligence, with a focus on its underlying goals, history, and how this technology can be applied to the field of digital marketing.

Discussion Questions

1. What kinds of AI-powered technologies do you encounter in your daily life?
2. In what ways do you think AI technologies are already benefiting society? How else might they benefit society in the future?
3. What risks or drawbacks do you think are associated with AI technologies?

WHAT IS ARTIFICIAL INTELLIGENCE?

Artificial intelligence technologies can be used to complete a wildly diverse range of tasks, from building personalized playlists to creating entire ad campaigns. More broadly, these technologies are always evolving. Artificial intelligence is the driving force behind emerging technologies like driverless cars and robotics, as well as advances in fields as diverse as healthcare and finance.

But what is artificial intelligence? Due to the wide range of technologies that the term can be used to describe, it may seem difficult to find a single definition of artificial intelligence that accurately captures the wide range of ways it can be used. Moreover, the term artificial intelligence is also used to refer to a field of study that involves a much wider range of disciplines. With that in mind, when trying to define the term artificial intelligence, it is useful to distinguish between the field of artificial intelligence research, and the application of artificial intelligence technologies.

As a field of study, artificial intelligence is a branch of computer science that is concerned with the development of intelligent machines. AI also draws on important research from a diverse range of fields including linguistics, statistics, and formal logic. These fields will be discussed with more depth later in this chapter.
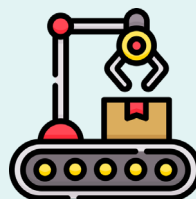
In application, the term artificial intelligence refers to the development of computer systems that have the capacity to perform complex tasks. A key characteristic of AI systems is their ability to dynamically adapt to changing conditions and new information. This is generally what separates AI technologies from other kinds of computer systems. For instance, while a calculator has the capacity to perform complex calculations, it will complete these calculations based on a set of predefined rules. An AI system, conversely, can learn and adapt its methods to be more efficient over time.

Importantly, there is a lot of interplay between these two definitions of the term artificial intelligence:

Artificial intelligence is...
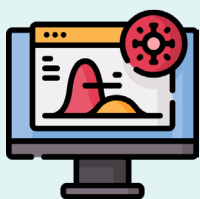
a field of study in computer science concerned with the development of intelligent machines.	a set of computer systems that have the capacity to perform complex tasks and dynamically adapt to changing conditions and new information.

The Goal of Artificial Intelligence Research

In the pursuit of creating intelligent machines, researchers and developers have created various goals for artificial intelligence. These goals serve as guiding principles that shape the direction of AI research and development.

In their book *Artificial Intelligence: A Modern Approach*, Stuart Russell and Peter Norvig outline four distinct frameworks for thinking about the ultimate goal of AI development[1]. Russell and Norvig argue that the development of artificial intelligence tends to fall into one of four categories. Artificial intelligence can focus on either thought processes or behavior, and can measure its success either against human performance, or against an ideal.

Human-Like Thought	Rational Thought
Human-Like Behavior	Rational Behavior

Human-Like Thought

The aspiration for AI to achieve human-like thought processes represents a cornerstone in the field. This goal is rooted in replicating the cognitive functions of the human brain, encompassing abilities such as perception, learning, reasoning, and problem-solving. Researchers aim to endow machines with the capacity for nuanced understanding, creative thinking, and the ability to process information in a manner akin to humans. Achieving human-like thought in AI requires advancements in areas such as:

- **natural language processing**, or the set of technologies that give computers the ability to understand written or spoken human language.
- **computer vision**, or the set of technologies that give computer systems the ability to understand the content of digital images and video.
- **knowledge representation**, or the tools that computer systems use to organize and model different types of information for themselves.

This pursuit not only seeks to replicate human intelligence but also holds the promise of enabling machines to interact with humans in a more intuitive and empathetic manner.

Rational Thought

The goal of achieving rational thought in artificial intelligence pivots towards creating a level of intelligence characterized by optimal decision-making and logical reasoning. Unlike human-like thought, which may include emotions and biases, rational thought describes the ability to make choices based on pure logical deductions and probabilistic reasoning. Researchers pursuing this goal aim to create AI systems that are capable of maximizing utility, solving complex problems, and navigating intricate decision landscapes. The pursuit of rational thought in machines has led to advancements in areas such as **game theory** (or, the study of strategic interactions between two or more actors) and **optimization algorithms** (or, the methods that computers can use to find the most efficient solution to a given problem).

Human-Like Behavior

Other AI developers aim to create an AI system that exhibits human-like behavior. This means they seek to emulate the actions, responses, and interactions of humans in a given context. This goal extends beyond cognitive processes to encompass physical actions and social dynamics. Achieving human-like behavior in AI involves advancements in robotics, natural language generation, and **affective computing**, or the branch of computer science concerned with how computers can recognize, interpret, and simulate human affects, such as laughter or frowning. It envisions machines that can engage with the world in ways that are not only functionally effective but also socially acceptable and relatable to humans.

Rational Behavior

Finally, the goal of rational behavior in artificial intelligence is focused on creating systems that make decisions and take actions that are optimal within a given context, regardless of whether they align with human-like behavior or thought. This goal emphasizes efficiency, effectiveness, and adaptability. Rational behavior is especially pertinent in domains where logical consistency and optimal resource allocation are paramount, such as in autonomous systems, recommendation engines, and resource allocation algorithms.

Types of AI

Typically, artificial intelligence can be divided into three basic types. These three types are reflective of a given AI system's abilities and serve as a kind of theoretical roadmap for the field of AI's overall development.

Artificial Narrow Intelligence	**Artificial General Intelligence**	**Artificial Super Intelligence**
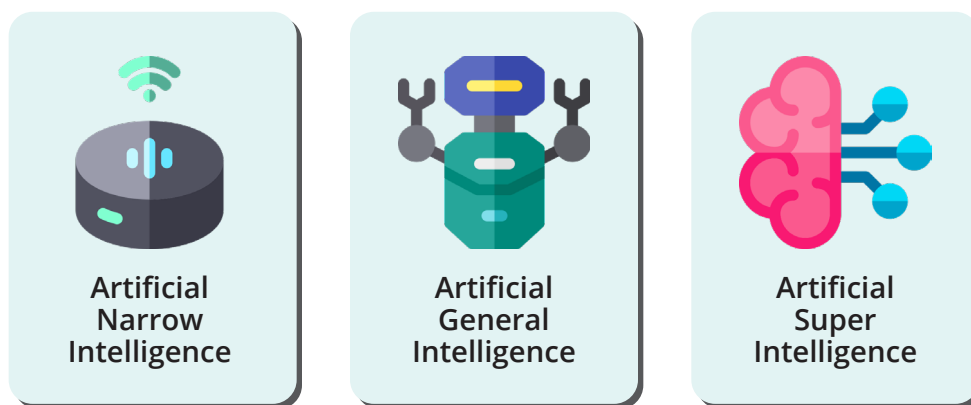
Artificial Narrow Intelligence (**ANI**) refers to AI systems trained to perform specific tasks. In this sense, all of the artificial intelligence systems that we encounter on a daily basis are instances of ANI. For example, Amazon's Alexa is a form of artificial intelligence that can dynamically respond to input from users to complete a specific set of tasks. While Alexa's ability to react to a wide range of inputs is often impressive, it is fundamentally not able to learn to complete tasks outside of its programmed range of abilities.

Artificial General Intelligence (**AGI**) refers to AI systems with a level of intelligence equal to that of a human. AGIs are currently a theoretical concept, but AI experts are actively working toward creating this type of AI. The key characteristics of an AGI would be the ability to learn independently, to plan for the future, and ultimately to become self-conscious, or meaningfully aware of its own intelligence and capacities. AGI would play a major role in fields like robotics.

Finally, **Artificial Super Intelligence** (**ASI**) refers to AI systems that would exceed the intelligence of humans. As with AGIs, ASIs are largely theoretical, but many AI experts see the creation of an Artificial Super Intelligence as the end goal of artificial intelligence as a field. In their view, an ASI could be used to solve many of the world's most pressing issues. Others raise concerns that the creation of an ASI would pose a threat to human existence, as it would displace humanity as the most intelligent force on the planet.

🕐 **ACTIVITY:** ANI AUDIT

Find an example of an ANI system based on the definition discussed in this section. Write a brief report on your chosen ANI that answers the following questions.

1. What kind of tasks can your chosen ANI be used to complete?
2. What kinds of tasks can it complete more efficiently than a human?
3. What kinds of inputs does your chosen ANI recognize?
4. What are some of the limitations of your chosen ANI?

HISTORY OF AI

While artificial intelligence technologies have seen a surge in popularity in recent years, the field itself has a history that spans back much farther in time. In fact, people have been interested in the idea of creating intelligent machines for much of human history, but the field of artificial intelligence as such emerged in the early 20th century, when figures like Alan Turing, Warren McCulloch, and Walter Pitts began to formalize the ideas that would test the limits of computation.

As one might expect, this history is hugely complex, with a wide range of actors working in a diverse range of academic disciplines and industries. For the purposes of this textbook, we will break this history down into five key periods, and examine the key concepts, technologies, and thinkers within those periods. This brief history will provide useful context for understanding how we arrived at the present moment of AI's development, and even suggest where artificial intelligence may continue to develop in the future.

Birth of AI (1950s) → **Maturation (1960s-1970s)** → **The First AI Boom (1980s)** → **Everyday AI (Late 1990s - 2010s)** → **The Generative AI Boom (2020s)**
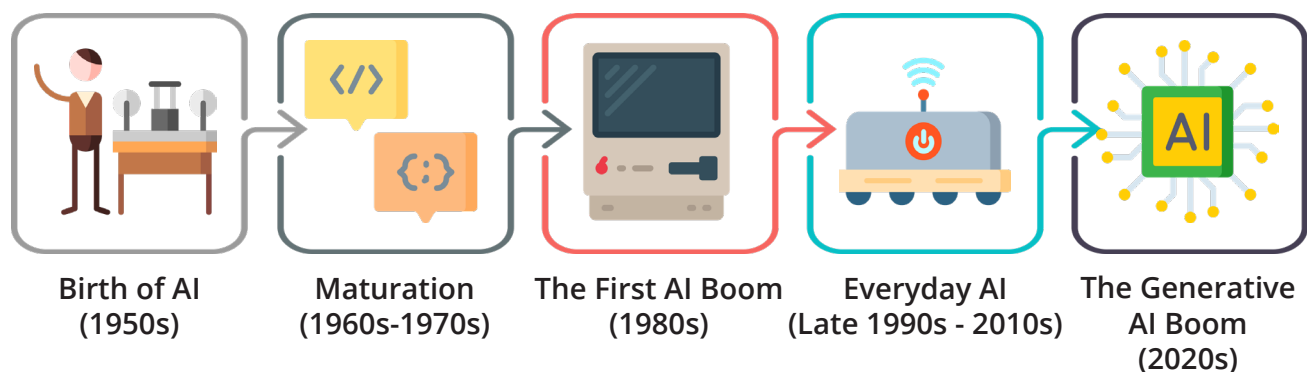
Birth of AI (1950s)

One of the key thinkers of the earliest period of AI's development was Alan Turing, a mathematician and early computer scientist best known for proposing the Turing Test. The Turing Test is a method for evaluating the intelligence of a computer system. To pass the test, a computer system needs to respond to a series of questions in such a way that the interrogator could not tell whether the responses were generated by a human or a computer. The questions may be on a range of topics, from providing personal details (e.g., "what is your earliest childhood memory?") to parsing ambiguous word play (e.g., "can you explain why time flies like an arrow but fruit flies like a banana?"). While the Turning Test is no longer the universally accepted standard for what a thinking machine might look like, Turing's work established the foundation upon which much of the modern AI landscape would be built upon.

Around the same time, Warren McCulloch and Walter Pitts proposed a computational model that used artificial **neurons**—the nerve cells that transmit information in the human brain. McCulloch and Pitts theorized that huge numbers of artificial neurons could be used to complete the kind of complex, multi-stage computations that were being developed during this period, though their work remained largely theoretical due to the technological limitations of the time.

The 1950s also saw the emergence of **Symbolic AI**, which focused on representing knowledge in a structured, symbolic form. This approach aimed to replicate human reasoning through symbolic manipulation. Early AI programs, like the Logic Theorist developed by Allen Newell and Herbert Simon, showcased the potential of Symbolic AI by proving mathematical theorems. While the symbolic approach to AI was limited in the sense that it was unable to learn or adapt, these efforts marked the initial steps towards creating intelligent systems capable of symbolic reasoning.

Maturation (1960s-1970s)

In the 1960s, John McCarthy developed the programming language LISP (short for "List Processing"), which signalled a major milestone in AI development. LISP's unique ability to handle symbolic expressions could be used to execute complex algorithms, setting the stage for AI applications. Additionally, the era saw the birth of the first **expert systems**, an early form of AI designed to replicate human expertise in specific domains, such as inventory or shipping management. These expert systems would eventually become one of the first commercial successes of the AI industry, as they could be used to help businesses more efficiently organize their computerized tasks.

Simiarly, Joseph Weizenbaum's creation of **ELIZA** in the 1960s marked a significant advancement in conversational AI. ELIZA, a mock psychotherapist, utilized simple pattern matching techniques to engage in conversations, demonstrating the potential for machines to simulate human-like interactions. This ground-breaking achievement laid the foundation for the development of chatbots and natural language processing, which continue to be integral aspects of modern AI.

This maturation phase culminated with the establishment of the **American Association of Artificial Intelligence** (**AAAI**) in 1979. Founded by leading AI researchers (including John McCarthy), AAAI played a pivotal role in fostering collaboration, disseminating knowledge, and advancing the field of AI. The founding of the AAAI marked a new level of institutionalization for AI research and paved the way for future interdisciplinary endeavors.

The First AI Boom (1980s)

The 1980s saw a surge in AI applications, particularly in the commercial sector. The decade saw the introduction of commercially available expert systems designed to assist in tasks such as computer ordering, managerial advisory, and shipping logistics. These systems showcased AI's potential to enhance decision-making processes in various industries, driving interest and investment in the field.

One notable milestone in the 1980s was roboticist Ernst Dickmanns' development of the first driverless car, demonstrating the feasibility of autonomous vehicle technology. Dickmanns' pioneering work paved the way for future advancements in robotics and autonomous systems, showcasing AI's potential impact on transportation and mobility.

However, by the end of the 1980s, the initial enthusiasm for AI began to wane, leading to the onset of the first **AI winter**. This period was characterized by decreased public and commercial interest in AI technology, resulting in reduced funding and resources for AI research. The AI community faced significant challenges, prompting a re-evaluation of research directions and goals.

Everyday AI (Late 1990s – 2010s)

The late 1990s marked a watershed moment in AI history with IBM's chess-playing AI, Deep Blue, defeating the reigning world chess champion Garry Kasparov in a highly publicized match. This victory showcased the power of AI in complex decision-making and strategic thinking, solidifying its place in the public consciousness. Deep Blue's success exemplified the convergence of algorithmic sophistication and computational power, a harbinger of AI's potential in solving intricate real-world problems.

While Deep Blue's success was one of the most public victories for artificial intelligence technologies, the late 1990s and 2000s also saw the emergence of a number of smaller and more consumer-focused applications of AI: iRobot launched its automated vacuum cleaner, the Roomba, in 2002; and Apple's automated voice assistant Siri was launched in 2010. Thanks to these kinds of consumer-friendly AI applications, more and more people were beginning to recognize the potential of AI technology.

Another pivotal factor driving the expansion of AI was the emergence of **big data**, or the massive volumes of information generated by people's internet usage. The late 2000s and 2010s saw an unprecedented explosion of data generated by social media, search engines, and other digital platforms. This wealth of information became the lifeblood of AI systems, enabling them to learn and adapt from vast datasets. Machine learning algorithms, particularly deep learning, thrived on the availability of large-scale data, leading to remarkable breakthroughs in tasks such as speech recognition, image classification, and language translation. Big data will be discussed at length later in this textbook.

The Generative AI Boom (2020s)

The 2020s ushered in a new era of AI with the rise of **generative AI**. Generative AI tools such as OpenAI's ChatGPT and DALL-E demonstrated AI's ability to spontaneously generate coherent text and images based on plain language prompts from non-specialist users. These models harnessed deep learning techniques and large-scale datasets to push the boundaries of what AI could achieve, both in terms of creativity and natural language understanding. ChatGPT in particular represented a significant leap in conversational AI, enabling dynamic interactions with human-like language proficiency.

The generative AI boom also brought forth critical legal and ethical considerations. As AI models gained the ability to generate highly convincing content, questions surrounding copyright infringement and misinformation took center stage. Policymakers, technologists, and ethicists continue to grapple with the challenges of regulating and responsibly deploying generative AI technologies. The ethical and legal dimensions of generative AI will be further explored later in this textbook.
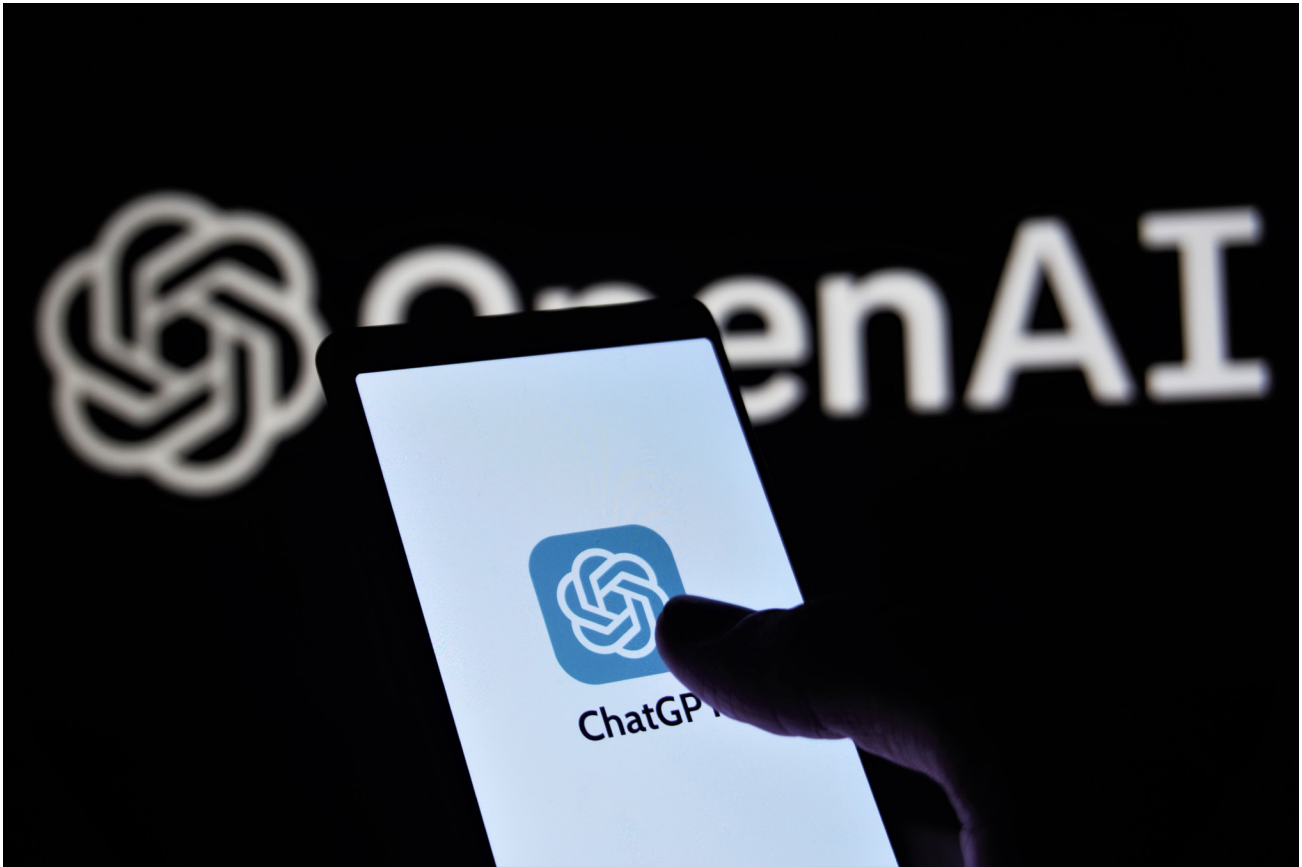
🕐 **ACTIVITY:** AI IN THE NEWS

As this brief history suggests, AI is an active field where new technologies and ideas are constantly emerging. While this section has discussed the growth of AI technology since the mid-20th century, AI's development is far from over. In this activity, use a search engine to find recent news about AI. Based on your research, write a brief reflection that responds to the following questions:

1. Do you think interest in artificial intelligence is going to rise or fall in the next year? Are we due for another AI winter or will AI's popularity increase?

2. What technological innovations seem most important to AI's current development?

3. What kinds of issues are most pressing in the current discussion of AI?
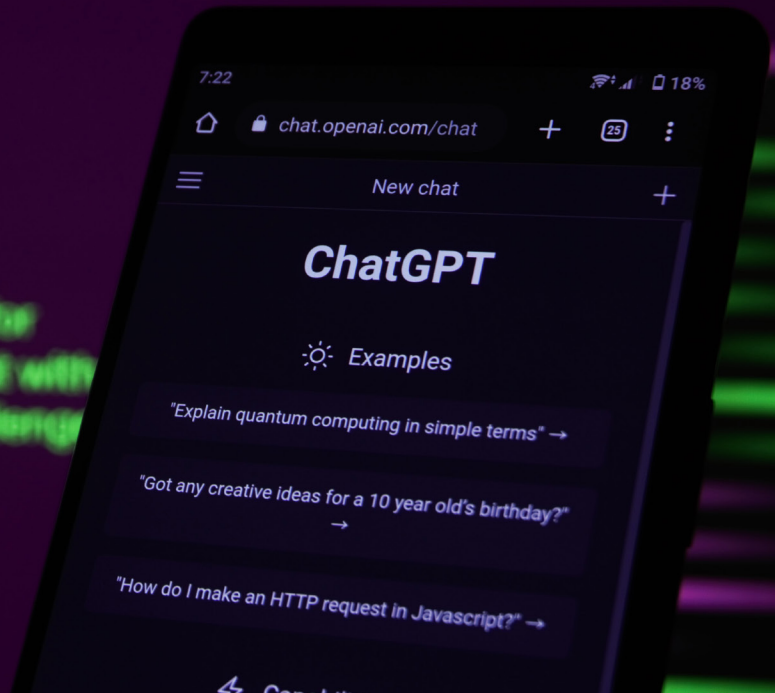
AI APPLICATIONS

As this chapter has already discussed, artificial intelligence is both an ongoing field of study and a rapidly changing area of technological development. AI researchers and experts are constantly innovating within the field of AI, with new technologies and practices emerging on a regular basis.

As a result of all of this innovative work, artificial intelligence technologies have had a huge impact on a wide range of industries, from healthcare to agriculture and finance. Artificial intelligence technologies can be used to improve the accuracy of medical screenings, increase crop yields through predictive analytics, and increase the speed of stock trading. In this way, more and more people who are not themselves experts in artificial intelligence are working with AI technology on a daily basis.

Another field that has been impacted by advances in artificial intelligence technology is marketing. For people working in the field of marketing, AI-powered tools are becoming an increasingly important aspect of their workflows, and many marketers find themselves regularly working alongside AI technologies. While AI's impact on marketing will be explored in greater depth over the course of this textbook, this section will outline some of the key ways in which artificial intelligence technologies can be applied to the field of marketing.

Artificial intelligence is...

User Experience
- Recommendation systems
- Personalized feeds
- Voice assistants

Accessibility
- Translation
- Automated captioning
- Summary generation

Data Analytics
- Enhanced targeting
- Prescriptive Analytics
- Social listening

Media Generation
- Copywriting
- Graphic design
- Sound and music

User Experience
Recommendation Systems

Recommendation systems are AI-driven algorithms that analyze user behavior and preferences to suggest products, content, or services tailored to individual tastes. For instance, ecommerce platforms like Amazon will often use AI-powered recommendation systems to suggest additional items that past customers may be interested in. Marketers can leverage recommendation systems to enhance user engagement and increase **conversion rates**, or the percentage of ad viewers that turn into actual customers. By providing personalized recommendations, marketers can deliver content or products that align with the user's interests, leading to higher customer satisfaction and potentially higher revenue.

Gift ideas inspired by your shopping history See more   Page 1 of 4

Toddler Busy Board with 8 led Lights,Toddler Sensory Board for 1 Year Old, Baby Montessori Toys for 1+ Year Old,...
★★★★½ 82
$34.99
Get it by **Sunday, Oct 22**
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$24.92

Exploding Kittens Throw Throw Burrito-A Dodgeball Card Game-Family-Friendly Party Games-Card Games fo...
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MEGA BLOKS Fisher-Price Toddler Block Toys, Big Building Bag with 80 Pieces and Storage, Blue, Gift Ideas for Kids Age...
★★★★★ 115,117
#1 Best Seller in Toy Building Sets
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While marketers can benefit from recommendation systems that drive customers toward their content or products, marketers still need to produce high quality content for these systems to recommend. On platforms like YouTube, for instance, a video is more likely to be recommended by their recommendation system if it is already popular with certain audiences. With that in mind, one of the best ways for marketers to benefit from an AI-powered recommendation system is to create high quality content that connects with potential customers.

Personalized Feeds

Many social media platforms make use of personalized feeds that use AI-powered algorithms to curate content for users based on their past behavior, preferences, and interactions. In the past, users' social media platforms were largely populated by content from other users that they had directly followed on the platform. Increasingly, social media platforms like TikTok, Instagram, and X (formerly Twitter) are using algorithms to find additional content to fill out their users' feeds.

As with recommendation engines, personalized feeds enable marketers to deliver content that is highly relevant to individual users, increasing the likelihood of engagement. By understanding user preferences, marketers can tailor their messaging and offerings to resonate with their target audience, ultimately driving higher conversion rates.

Voice Assistants

Voice assistants are AI-powered technologies that use natural language processing to understand and respond to spoken commands or queries. Popular voice assistants like Apple's Siri or Google Assistant have led to an increase in voice searches. This has been an important development for marketers, who are often working to optimize their content for various search engines through a set of practices known as **search engine optimization** or **SEO**. This is because optimizing content for voice search requires a different approach than traditional text-based search engine optimization. The relationship between AI and SEO will be discussed at length later in this textbook.
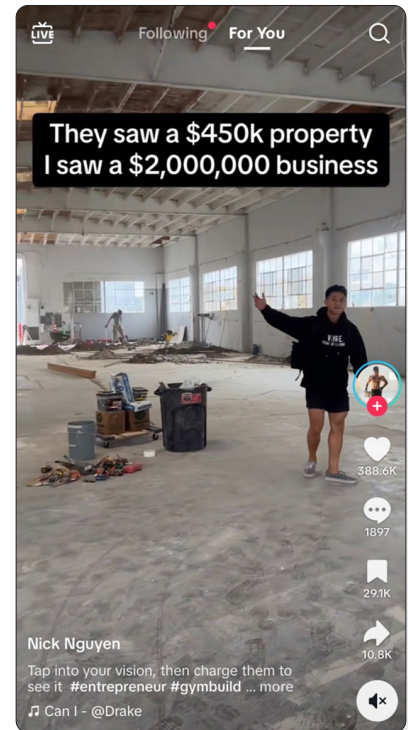
Accessibility
Translation

AI-powered translation tools use natural language processing to convert text from one language into another. Translation tools enable marketers to reach a global audience by overcoming language barriers. This allows for the expansion of customer bases and the ability to target diverse demographics, ultimately increasing market reach.

Still, marketers should be cautious of potential inaccuracies or cultural nuances that may be lost in translation. While AI has made significant strides in this area, it is still important to review and, if necessary, refine translations to ensure the intended message is accurately conveyed.

Automated Captioning

Automated captioning is a set of tools that use AI to generate text-based descriptions of audio or visual content. Automated captioning enhances accessibility for individuals with hearing impairments and improves the overall user experience. For instance, AI tools can be used to generate descriptive **alt text** for images, which greatly improves their accessibility for visually impaired users. Alt text is a textual description of the content of a given image, which can be more easily parsed by users who navigate the web using screen reading tools or are otherwise unable to view images. This feature also improves content discoverability, as search engines can index alt text and other captions, potentially increasing organic traffic.

Marketers should be aware of potential inaccuracies in automated captioning, especially with content that contains technical terminology, dialects, or accents. While AI caption generation can help marketers generate captions and alt text more efficiently, it is not an outright replacement for human editors.

Summary Generation

Summary generation is the practice of using generative AI algorithms to condense lengthy content into shorter, more digestible formats. Summary generation tools allow marketers to deliver concise and easily consumable content, which can be particularly effective in capturing the attention of time-pressed audiences. This can lead to increased engagement and retention. For instance, if a marketing firm writes a long blog post outlining the benefits of their new product line, they may use a generative AI tool such as ChatGPT to turn that longform content into a thread that can be easily shared on X. This is a great strategy for making content more accessible to users with different attention spans or reading capacity.
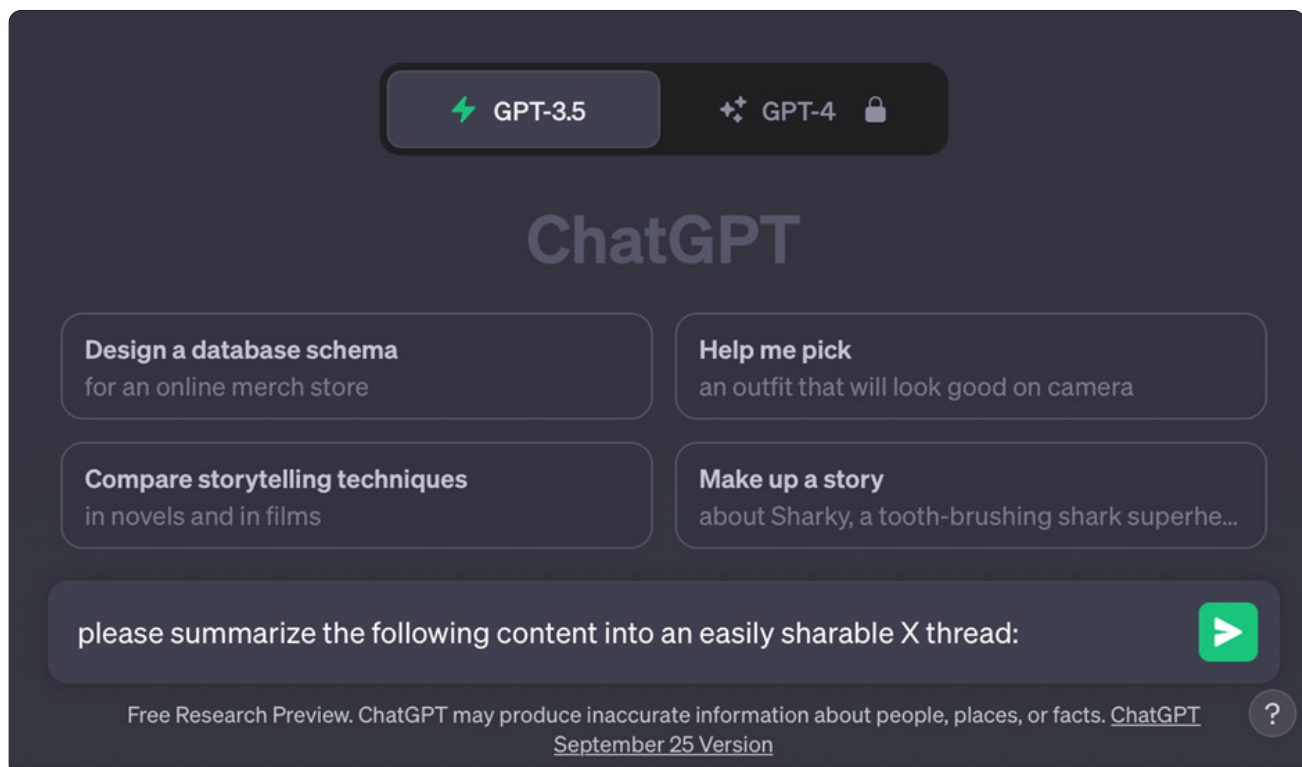
As with other practices that make use of generative AI, summary generation can result in the loss of important context or nuance. Marketers should exercise caution when using automated summaries and be sure to make use of careful editing. Best practices for working with generative AI will be discussed at length later in this textbook.

Data Analytics

Enhanced Targeting

Enhanced targeting employs AI to analyze user data and behavior, enabling marketers to deliver highly relevant content or advertisements to specific audience segments. Enhanced targeting increases the efficiency of marketing efforts by ensuring that content is delivered to the most receptive audiences. This can lead to higher conversion rates and a better return on investment for advertising spend.

Whenever trusting a third-party tool with customer data, marketers should be cautious of potential privacy concerns and the need for transparent data usage policies. Best practices for user targeting will be discussed later in this textbook.

Prescriptive Analytics

Prescriptive analytics is a form of analytics that uses AI and big data to provide marketers recommendations and insights on the best course of action to achieve specific marketing objectives. Prescriptive analytics can empower marketers with actionable insights, allowing them to make informed decisions and optimize their strategies for better results. This can lead to more effective campaigns and improved overall marketing performance.

With that in mind, though, marketers should be aware that prescriptive analytics recommendations are based on historical data and patterns, which may not always account for unforeseen events or shifts in consumer behavior. While prescriptive analytics are a valuable tool for informed decision making, it is still ultimately up to marketers to use their best judgement.

Social Listening

Social listening involves using AI to monitor and analyze social media platforms for mentions, trends, and sentiments related to a brand or industry. Social listening provides invaluable insights into customer sentiment, preferences, and emerging trends. This information can inform marketing strategies, product development, and customer engagement efforts.

Still, marketers should be cautious of potential biases in social listening algorithms and ensure that they are used in conjunction with other research methods for a comprehensive understanding of consumer sentiment. Additionally, while AI-powered tools for analysing the underlying sentiment of a piece of writing are improving, they are still liable to misread humor, irony, and sarcasm. Social listening will be discussed at length later in this textbook.

Media Generation
Copywriting

AI-powered copywriting tools use natural language processing to generate written content, such as product descriptions, ad copy, or blog posts. This allows for faster content creation and testing of various messaging strategies for different campaigns. For instance, a marketer may prompt an AI copywriting tool such as Jasper to draft ten different descriptions for a given product based on a set of keywords, and then select the one that is most effective.
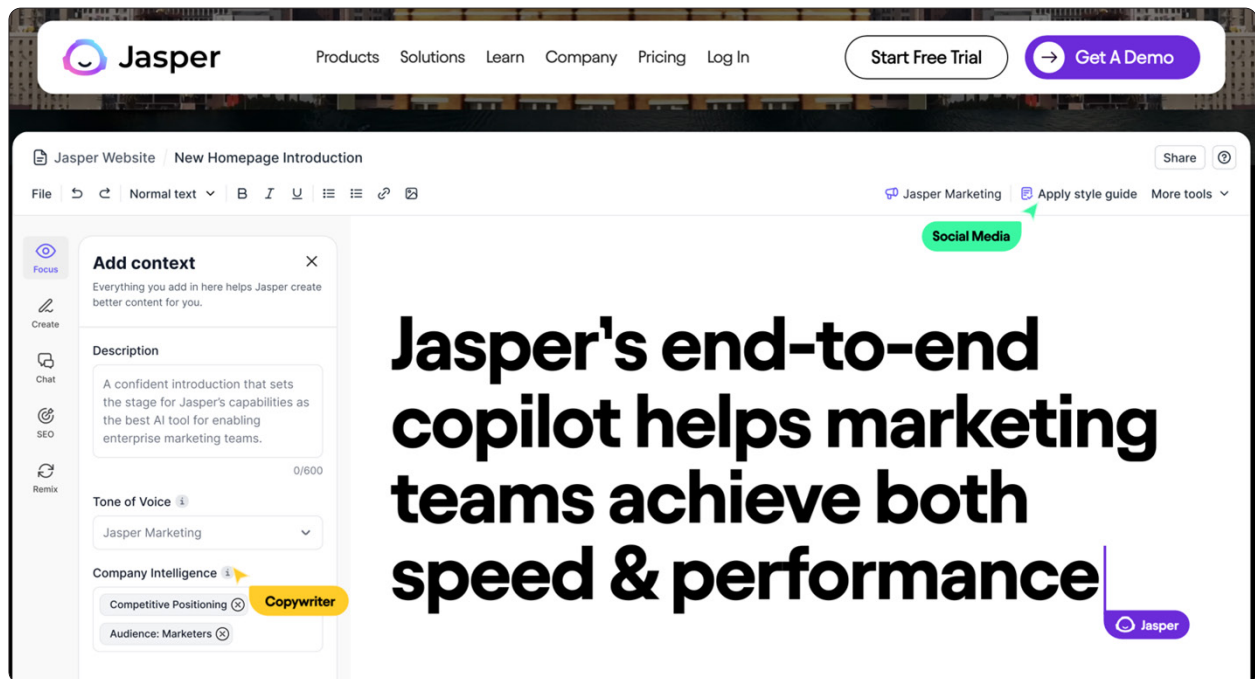
With that in mind, though, marketers should exercise caution when using AI-generated copy, as it may lack the creativity, nuance, and style of human copywriters. While AI-powered writing tools can provide a functional first draft of a given piece of content, marketers will generally need to review and rework aspects of a given piece of writing before it is ready for publication.

Graphic Design

AI-powered graphic design tools can be used to generate visuals, such as images, logos, or infographics. As with AI-powered copywriting tools, these graphic design tools can expedite the creative process and provide marketers with visually appealing content. This can be particularly useful for generating a large volume of visuals for various marketing channels.

Also like AI-generated writing, AI-generated images may lack some of the creativity or nuance of work created by human artists. In particular, AI-generated images of people can sometimes look uncanny and even somewhat unsettling. While this technology is rapidly improving, marketers should be sure to carefully review any AI-generated images before publishing them online.

Sound and Music

AI-powered sound and music generation tools use algorithms to compose or enhance video content with automatically generated background music, or even voiceovers. AI-powered sound and music generation can provide marketers with customizable and royalty-free audio content. This allows for cost-effective and efficient creation of audio assets, enhancing the overall multimedia experience for consumers.

Importantly, while AI-generated writing and graphic design have already been widely adopted across a number of channels, AI-generated sound and music has not yet reached the same level of sophistication. While AI-generated music and sound can be convenient, it may not capture the emotional depth and creativity that can be achieved by human composers.
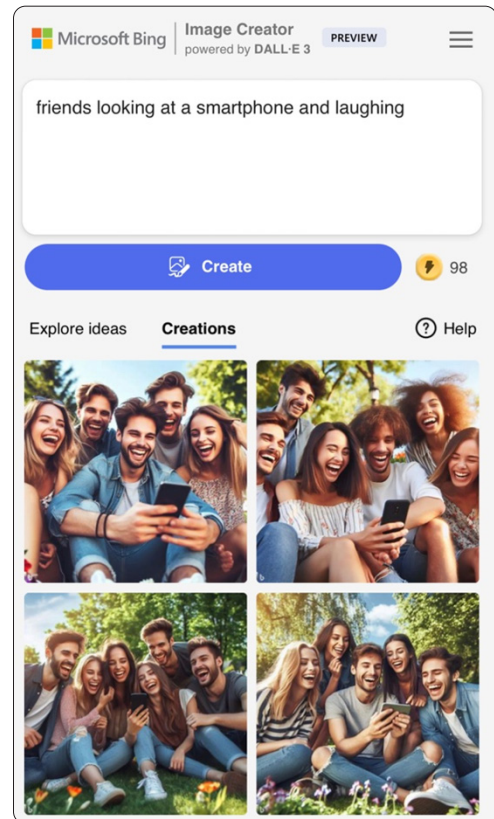
🕐 ACTIVITY: AI ACCESSIBILITY TOOLS

Making sure their content is accessible to customers with different needs and levels of ability is a key task for marketers. As discussed in this section, one useful application of AI technology is its ability to assist marketers in making their content more accessible through automated caption and alt text generation.

In this activity, you will have an opportunity to experiment with an AI alt text generator. To complete this activity:

1. Find three images. At least one of them should be a screenshot of a website that includes text.

2. Find an AI-powered alt text generation tool such as the tool created by Ahrefs featured below.

3. Using the tool, generate captions for all three of your images.

4. Evaluate the captions generated and write a brief reflection on their accuracy: Are they accurate descriptions of the content of the images? What aspects of the images was the AI tool able to identify? Which did it struggle to interpret?

5. Finally, make any necessary revisions to your generated captions to capture any details that the AI tool may have missed.

RISKS AND BENEFITS

As outlined earlier in this chapter, we are presently experiencing a boom in popularly for generative AI. OpenAI's ChatGPT and other generative AI tools have become hugely popular for both personal use and for professionals across a number of industries. Most notably, AI technologies are growing in popularity for marketers; even a cursory Google search for "AI marketing tools" returns a huge number of start-ups, all promising to fundamentally change marketers' workflows with automated content generation, dynamic customer service chat bots, and even more powerful analytics data.

While AI technology does hold a tremendous amount of value for marketers, many of these tools should be approached with caution and a healthy skepticism. While many generative tools suggest that they can fully automate content development or instantly generate entire marketing campaigns, most still require careful oversight and modification to produce effective results. Importantly, this is not to suggest that marketers should avoid these tools; used properly, artificial intelligence can massively improve the efficiency of many tasks that marketers engage in on a regular basis. But to achieve these benefits, marketers also need to be aware of the potential risks. With that in mind, this section will discuss the key risks and benefits that AI-powered tools have to offer marketers.

Risks

Benefits

Repetition	Plagiarism
Hallucination	Data Privacy

Automation	Efficiency
Scale	Optimization
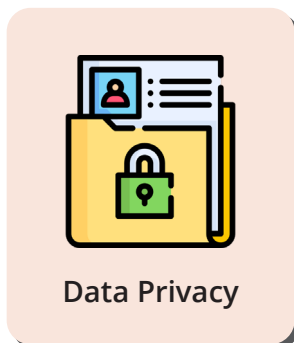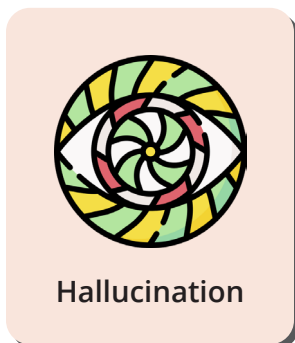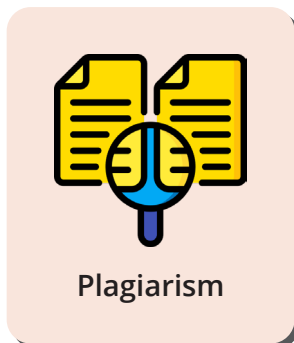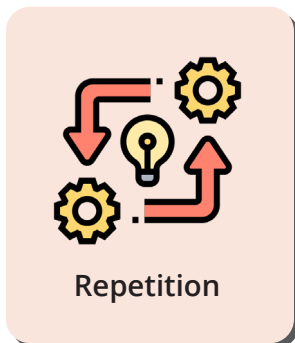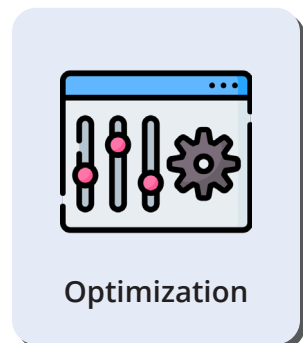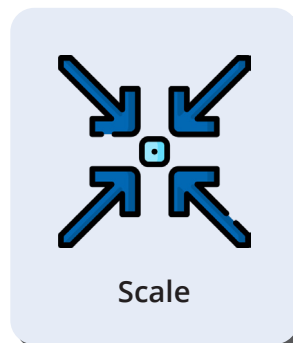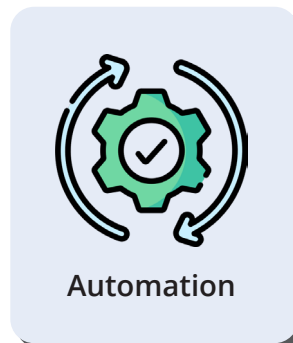
Risks

Repetition

One major risk posed by using AI marketing tools is their tendency to produce overly repetitive content. Generative AI tools create new text based on patterns that they have learned from the texts they were trained on. So, while the writing these tools generate is often grammatically correct, it tends to favor certain phrases or topics when constructing its output. If a marketer uses a generative tool to produce multiple articles on the same topic, it may find that the tool will generate content that recycles familiar phrases and does not raise any particularly novel or valuable insights.
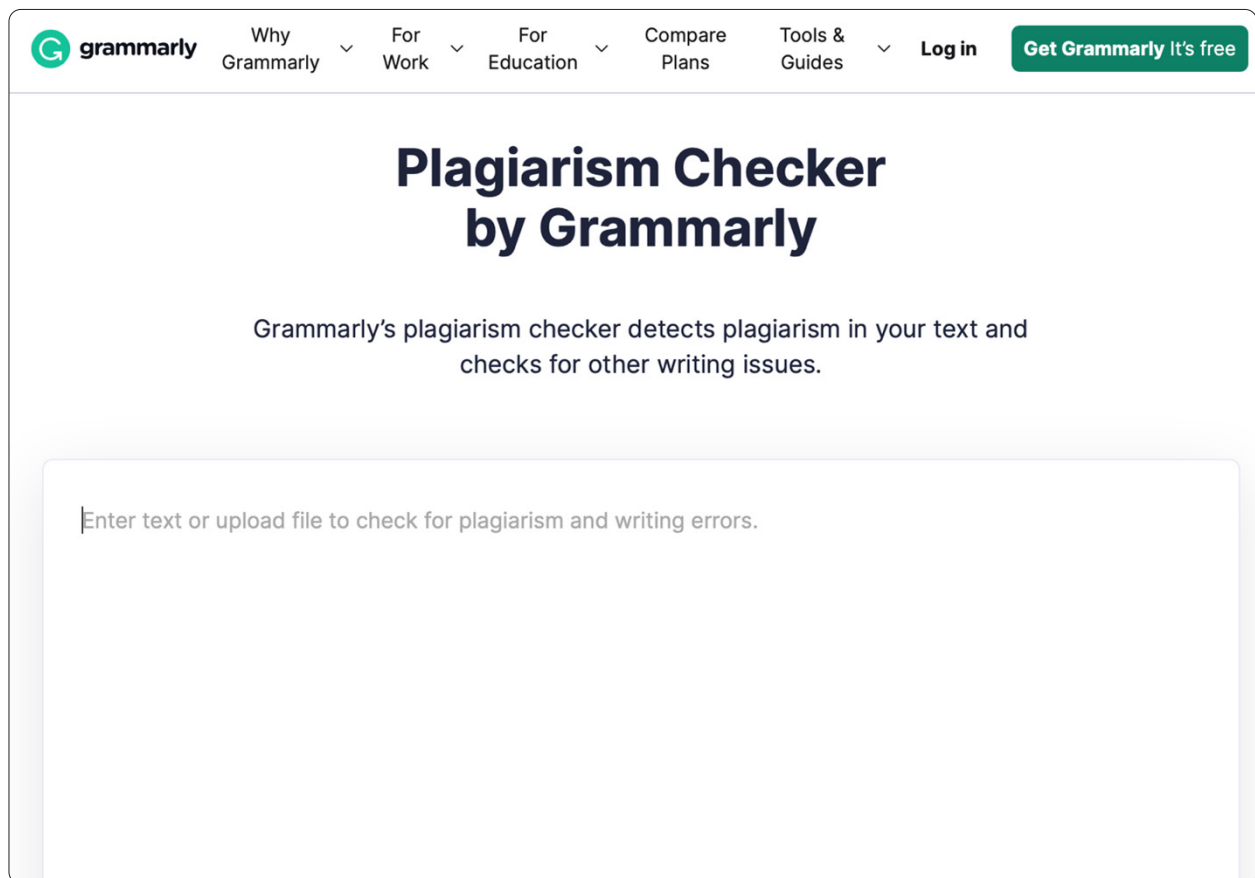
   While generative AI tools such as ChatGPT and Jasper are a great resource for marketers looking to quickly produce a first draft of a blog post or generate copy for a new landing page, marketers should be sure to review the output and modify repetitive phrases. It is also useful to give generative AI tools explicit directions on what ideas to discuss when drafting new content. If a marketer is using AI to draft a blog post about five uses for a business's latest product, they should briefly outline the five uses they want covered in their prompt, rather than relying on the AI tool to generate its own uses. Generally, this will produce a more effective text that has more novel insight to offer readers.

Plagiarism

Another risk associated with using AI in marketing is the potential for plagiarism. Just as generative AI's training data can result in repetitious content, it can also result in generated content that closely resembles the text it was trained on. This can inadvertently lead to generative AI plagiarizing content from another source. If a business knowingly or unknowingly publishes this plagiarized content,

they may face reputational damage or even potential legal action. Plagiarized content is also more likely to get flagged by search engines like Google, which can hurt a business's SEO.

With that in mind, marketers should be sure to implement some form of plagiarism detection into their workflow for AI generated content. As AI generated content becomes more and more prominent online, more businesses are developing sophisticated methods for plagiarism detection. By using plagiarism detection, marketers can protect themselves from accusations of plagiarism and ensure they are providing their readers with unique and valuable content. Many writing tools such as Grammarly offer plagiarism checkers to help marketers verify that their content is sufficiently distinct from other online content, but the best solution for checking plagiarism is modifying generated content to best fit the unique voice of a given business.

Hallucination

Hallucination refers to the phenomenon where AI-powered tools generate content that is factually incorrect or entirely fabricated. While somewhat rare, AI tools have been known to entirely fabricate events, publications, or articles. This can be a significant risk in marketing, as false information can lead to credibility issues and harm a brand's reputation. For instance, if a marketer were to prompt a generative AI tool to help outline a blog post recommending the five best books for canoeing enthusiasts, it is possible that the tool may misinterpret the prompt and generate plausible-sounding titles and descriptions for books that do not actually exist.

   To address this risk, marketers should aim to be as specific as possible with their prompts, and also carefully fact-check and verify any content generated by AI tools.

Data Privacy

As discussed throughout this chapter, one of the major drivers of artificial intelligence's usefulness to marketers is its ability to collect, process, and interpret huge volumes of data. Much of this data relatively harmless: tools like Google Analytics use AI to interpret things like which page on a given website customers are most likely to click on when they visit it. But some of this data is more personal: businesses may collect personal demographic data, such as a customer's age, race, gender, and sexual orientation, as well as biometric data such as customers' fingerprints. While this data can help these businesses make more effective recommendations and create a more personalized customer experience, this kind of data is also sensitive, and needs to be carefully protected.

To mitigate this risk, companies should implement robust data security measures, conduct regular audits, and provide adequate training to employees involved in AI-driven marketing initiatives. Marketers should also aim to be as transparent as possible with their customers about what data they collect and give customers the opportunity to manage what data they share with a given business. Best practices for data management will be discussed later in this textbook.

Risks

| Repetition	Plagiarism	Hallucination	Data Privacy
Is this content providing unique value?	Is this content original?	Is this content accurate?	Are we being transparent and secure with our data?

Benefits

Automation

One of the most compelling advantages of integrating AI into marketing strategies is the level of automation that it can bring to a wide number of tasks. AI-powered tools can efficiently handle repetitive and time-consuming tasks, allowing marketers to focus on higher-level strategy and creative endeavors that cannot be fully automated. For instance, a business may use an AI-powered chatbot for customer service. AI-powered chatbots have the capacity to swiftly respond to frequently asked questions, provide updates on orders, and even provide personalized product recommendations, freeing up customer support agents to address more complex inquiries.

Efficiency

AI-powered tools can also be used to streamline many marketing tasks or campaign processes, leading to increased operational efficiency. As already discussed in this chapter, this is true of writing tasks, but AI algorithms can also be used in **pay-per-click** (**PPC**) campaigns—a form of advertisement in which marketers buy ad space on search engine results pages or other high value webpages— to automatically adjust bidding strategies, ad placements, and targeting parameters based on performance data. This dynamic optimization ensures that ad spend is allocated efficiently to reach the right audience at the right time.
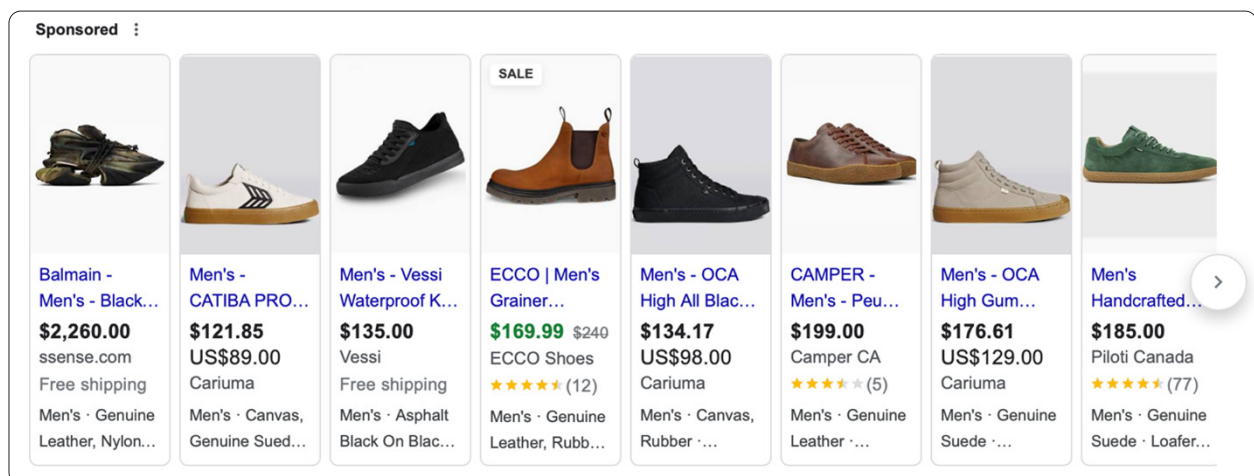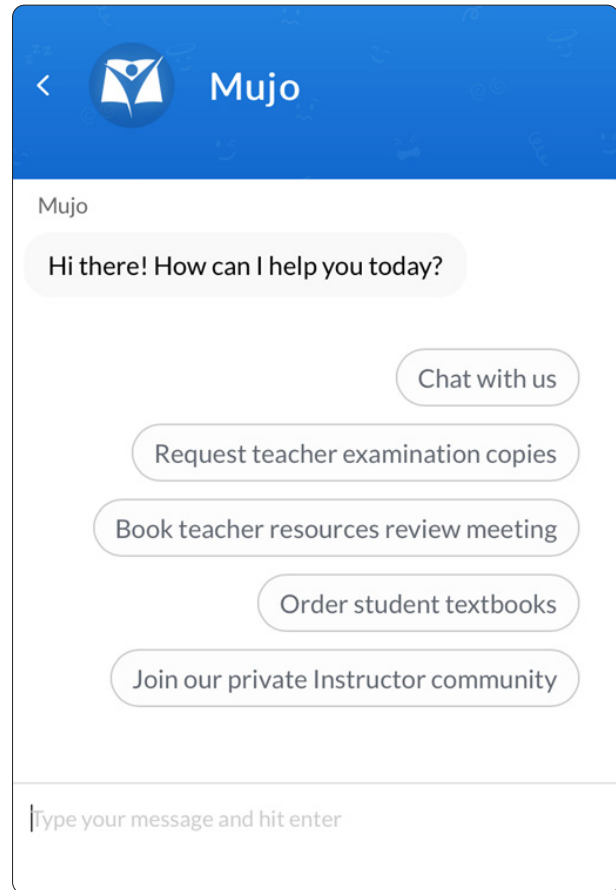
Scale

AI excels in processing and deriving insights from large volumes of data, providing a significant advantage in marketing. Data is one of the most important resources that marketers can make use of for connecting with their customers. But as businesses grow, the sheer volume of customer data they accumulate can become difficult to manage and meaningfully interpret. For that reason, many businesses turn to AI-powered analytics tools. For instance, many retailers use AI-powered analytics to make sense of the huge amounts of customer data collected from various channels. An AI-powered analytics tool can identify patterns in purchasing behavior, enabling the retailer to tailor product offerings and promotions to specific customer segments. This leads to higher customer satisfaction and increased sales.

Optimization

Another key benefit of AI-powered tools is that they can help marketers optimize their work both through analytics data and dynamic content review. AI-powered analytics tools can give marketers crucial insights into various aspects of their business's marketing content, as well as their website or social media channels. But generative AI tools can also play a helpful role in helping marketers optimize their content. For instance, if a marketer wanted to test several different versions of a product description to see which one generated more sales, they could use a generative AI tool to rapidly draft several variations, each emphasizing different aspects of the product. AI can also be used creatively, to help marketers think through various tasks and provide ideas for how they might be optimized.

Benefits

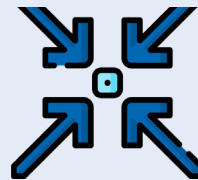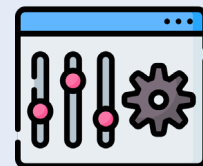| Automation	Efficiency	Scale	Optimization
Could this task be handled by an AI-powered tool?	Can this task be done faster without sacrificing quality?	What scalar limitations does this task face?	What aspects of this task could be better optimized?

🕐 **ACTIVITY:** ASSESSING RISKS AND BENEFITS

One of the best ways to assess the risks and benefits of working with AI is through practice and experimentation. For this activity, imagine you have been tasked with writing a brief 200-word blurb promoting a new album by an artist of your choice:

1. First, draft the blurb yourself, without the use of an AI writing tool.

2. After completing your first draft, prompt a generative AI tool such as ChatGPT to create its own draft. Give it clear instructions that include a word limit and any key words or phrases you would like to see implemented into its draft.

3. Next, review the AI generated draft and compare it to your own and write a brief reflection on the relative strengths and weaknesses of the AI generated content. Did it follow the directions in your prompt? How effective is it as a piece of writing?

4. Finally, revisit your AI generated draft. This might involve adjusting your prompt and regenerating the blurb or making edits to the existing blurb to better capture your original intention.

ARTIFICIAL AND HUMAN INTELLIGENCE

While it can be difficult to find a single definition for artificial intelligence, it safe to say that AI systems are 'intelligent' in a way that is distinct from human intelligence. Even though some AI systems are designed to replicate human thought, there are still significant differences in the ways that humans and computers think.

Importantly, though, this is not necessarily a bad thing. The fact that humans and computers process information differently can actually be beneficial in a number of contexts. As already discussed throughout this chapter, while many generative AI tools can produce large volumes of text relatively quickly, this text usually requires careful review and revision from a human editor, who can add a level of creativity and nuance to a piece of writing that AI systems are simply not yet able to replicate. Similarly, while AI-powered analytics tools can process huge volumes of information to produce prescriptive analytics data, human interpreters are still needed to find creative applications for the data that would not occur to even the most sophisticated computer system.

In order to make the most of the AI-powered tools at their disposal, marketers need to understand the differences between how humans and machines think. With that in mind, this section will explore some of the key characteristics of both human and artificial intelligence, and consider how marketers can leverage these characteristics to get the most out of their collaborations with artificial intelligence tools.

Human intelligence is...

empathetic

Human intelligence is deeply rooted in **empathy**, or the ability to understand and share the feelings of others. This emotional intelligence allows humans to connect on a personal level, interpret subtle non-verbal cues, and respond with appropriate emotions. Empathy plays a crucial role in tasks like customer service, content development, sales, and interpersonal communication in general. AI, on the other hand, lacks true emotional understanding. While it can recognize patterns in text or speech that indicate emotions, it does not possess genuine feelings or the capacity to relate to human experiences.

creative

Creativity is another hallmark of human intelligence. Broadly, it involves the ability to generate novel ideas, concepts, and solutions that are not solely reliant on predefined algorithms or data patterns. Humans draw on personal experiences, emotions, and imagination to create art, music, literature, and innovative solutions to complex problems. While AI is capable of generating content based on existing patterns, it cannot form entirely new concepts outside of the data on which it was trained.

intuitive

Human **intuition** is a subtle yet powerful aspect of intelligence. It involves the ability to make rapid, instinctual decisions based on a blend of past experiences, emotions, and subconscious processes. Intuition often comes into play in situations where there is incomplete information, or there is not enough time for exhaustive analysis. Intuition plays a vital aspect of fields like emergency response, crisis management, and creative problem-solving. AI, while exceptional at processing large amounts of data, does not possess true intuition, and its decisions are based solely on programmed algorithms and patterns in data.

Artificial intelligence is...

analytical

AI excels in analytical thinking, which involves the systematic breakdown of complex problems into smaller, manageable components. By using algorithms, artificial intelligence systems can process huge volumes of data and identify patterns, correlations, and trends that might elude human observers. This trait is invaluable in tasks such as data analysis, financial modeling, and predictive analytics.

consistent

One of AI's strongest attributes is its consistency. It performs tasks with precision and reliability, regardless of external factors like fatigue, emotions, or distractions. This makes it well-suited for tasks that require accuracy, such as manufacturing processes, quality control, and repetitive computations. In a marketing context, AI's consistency makes it a useful technology for handling routine tasks like analytics reporting, monitoring social media accounts across channels, and replying to customer inquiries.

scalable

AI systems can be easily scaled to handle massive amounts of data or tasks simultaneously. Whether that means processing thousands of brand mentions across social media platforms or analyzing millions of data points from a business's e-commerce platform, AI's scalability ensures that it can efficiently handle tasks of varying complexity and volume. This scalability is particularly advantageous in fields like marketing where handling large volumes of data is crucial.

🕐 **ACTIVITY:** IDEATING WITH AI

Collaborating with AI on a project is one of the most effective ways to learn its strengths and weaknesses. In this activity, you will be given an opportunity to practice collaborating with an AI tool, and to reflect on how your own creativity can complement its strengths and compensate for its weaknesses.

1. First, choose a local business. Without the use of an AI-powered tool, come up with at least five ideas for the kinds of content that this business could post on social media to attract more followers.

2. Once you have created your list, find a generative AI tool such as ChatGPT and ask it to come up with 10 more ideas for the business. In your prompt, be sure to describe the business as best you can so the generative AI has enough context to give useful suggestions.

3. Compare the AI-generated suggestions to your own list. Write a brief reflection responding to the following questions: How effective do you think these ideas would be? Do these ideas seem well suited to your chosen business? How creative are these ideas?

4. Choose three of the AI-generated ideas and rewrite them so they are more creative, or connect better with the business.

CHAPTER REVIEW

1. The set of technologies that give computers the ability to understand written or spoken language are known as natural language _____.

2. Apple's Siri and Amazon's Alexa are examples of Artificial _____ Intelligence.

3. The first AI boom began in the 19 ___ s.

4. The form of analytics that uses AI and big data to provide marketers with recommendations is known as _____ analytics.

5. The phenomenon in which AI-powered tools generate content that is factually incorrect or entirely fabricated is known as _____.

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FOOTNOTES: CHAPTER 1

1.   Norvig, Peter and Stuart J. Russell *Artificial Intelligence:* A Modern Approach. Pearson, 1995.