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Mallory Marsac  
*Grand Valley State University*

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**Artificial Intelligence in Business**

Mallory P. Marsac

Seidman College of Business

HNR 499: Honors Senior Project

Paul Hillman

Artificial intelligence (AI) is taking the world by storm as technology advances and society finds new ways to innovate because of its presence. By learning about the technology as a big-picture concept, along with a few of the specific software applications created, one can better understand the potential strengths, weaknesses, opportunities, and threats created for the business world. This paper will cover different topics related to the subject of interest, including what artificial intelligence is, some basic history behind it, popular artificial intelligence software being used in modern society, different statistics, and potential benefits and drawbacks of the technology in a business setting. Images and examples are provided to create a better understanding of the content.

The idea of artificial intelligence-related concepts dates back to the 1940s during the Cold War. Although the technology and explicit idea of AI was not around at the time, the United States was trying to find a way to automatically translate Russian documents and reports (Chojecki, 2020, p. 14.) The initial vision for the technology was lost after early models underperformed and failed to meet expectations. As a result, funding was significantly reduced until the 1980s, when the idea was restored. LISP was popular at the time and was a programming language with its own computer to run the program. This was quickly overtaken by the use of personal computers, pushing back the main surge of AI until 2009. This was brought on by ImageNet, a visual database, and AlexNet, a convolutional neural network (Chojecki, 2020, p. 15.) Neural networks are systems comprised of algorithms that simulate the way the human mind works to help machines learn new things.

Many different artificial intelligence software applications are on the market today, with over 14,700 AI startups in the United States alone. The large quantity of software applications contributed to the technology's \$87 billion market size in 2022, with considerable growth

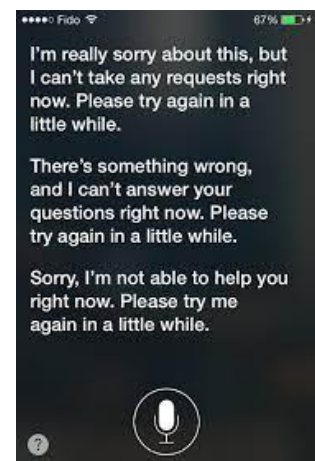
projected in the next few years. By 2027, the market for artificial intelligence is expected to increase to a value of \$407 billion. With a projected upside potential of around 4.68 times the current market value, knowing about some of the most popular applications of the technology may be useful for businesses and individuals alike.

Before diving into some popular applications and their uses in business, understanding the different types of artificial intelligence is helpful. There are currently nine different categories of artificial intelligence that are generally classified. These categories are narrow, general, machine learning, deep learning, reinforcement learning, supervised learning, unsupervised learning, semi-supervised learning, and natural language processing. Some of these categorizations fall under generative AI, which differs from machine learning. AI is a vast concept, so this is not exhaustive but covers a general basis of the technology.

Machine learning focuses on using data and algorithms to help machines and software learn in a way that mimics the style of humans. Machine learning covers a larger range of technologies than generative AI and includes generative models. Because of these things, it also focuses on the ability to learn from presented data and make predictions based on that.

Generative AI is a more specific technology that utilizes machine learning to help train itself but focuses primarily on satisfying needs through the creation of information requested by users. In addition to creating written information, generative AI platforms exist on the market and have the capability to generate images, audio, and videos. Narrow artificial intelligence is a system that is set to perform specific tasks and cannot assist with things outside of the programmed range.

An example of this is Siri, a virtual assistant generated by Apple. When prompted by users with

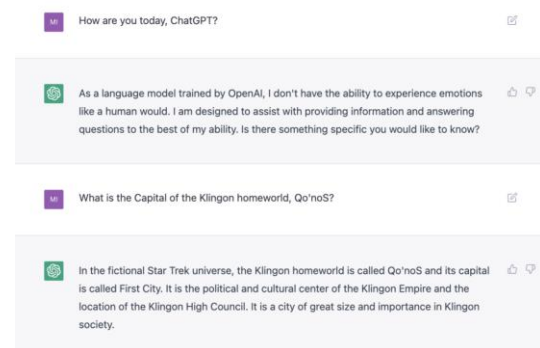


questions, the software will do its best to assist users but will give answers like the ones shown in the image on the right if a request has been made outside of its capabilities.

General or strong AI is a system that can complete tasks but tries to be broader than narrow AI, thinking of ways to complete tasks that are outside of its specifically programmed range. The concept is to have a technology that has the cognitive abilities of humans. Deep learning is similar because it allows AI to expand upon itself using neural networks to learn. Reinforcement learning is a type of machine learning where trial and error interactions take place for AI to learn how to make decisions. Supervised learning is where AI is programmed using specific sets of data. Unsupervised learning is similar, but outputs used in training are not labeled to display correlations directly. The technology must figure these things out on its own. Semi-supervised learning is an approach that combines ideas from supervised and unsupervised learning, and natural language processing focuses solely on understanding different human languages.

Now that some of the basics have been covered, some examples can help create a deeper understanding of the technology in use. With so many different AI startups on the market, researching all of them would be difficult. Selecting popular software and demonstrating some uses of the technology is an effective way to learn about what artificial intelligence capabilities encompass.

One of the most popular forms of artificial intelligence currently generating attention is ChatGPT. This application is a type of generative AI that analyzes prompts input by humans in an attempt to create an output that fits the person's requests. The technology



was released by OpenAI in November 2022 after it was founded by a combination of different entrepreneurs in 2015.

ChatGPT can be utilized in different ways to suit the needs of people in different professions. By typing in prompts, employees can ask ChatGPT to write emails, find the answers to general questions, and even explain complex concepts in simpler terms. With the ability to generate answers and information faster and more efficiently than search engines, employees face both positive and negative consequences through its use. One drawback is that the content of an email could be poorly written. Another is that some information generated by the software is incorrect, which could make users look bad if they falsely assume that the technology has the correct answers for everything it is asked to generate. Some potential positive consequences of the usage are higher levels of employee productivity and greater employee accuracy when completing tasks.

There are two different versions of the software available for use on the public market, including the free “3.5” version and the paid “4.0” version.

Another popular artificial intelligence software is Grammarly, which can be utilized wherever professional typing is necessary. Grammarly was launched in 2009 and is software that helps identify grammatical errors and casualties more efficiently and deeply than basic tools like spell check on Microsoft Word. Grammarly is an extension that can be added to Microsoft and Google applications to check the work of a

#### Free

USD \$0/month

Your current plan

For people just getting started with ChatGPT

- ✓ Unlimited messages, interactions, and history
- ✓ Access to our GPT-3.5 model
- ✓ Access on Web, iOS, and Android

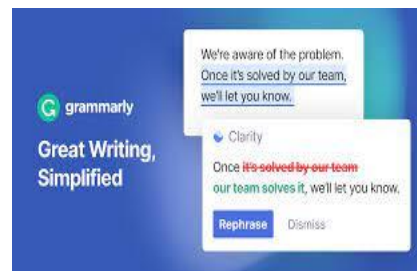
#### Plus

USD \$20/month

Upgrade to Plus

Everything in Free, and:

- ✓ Access to GPT-4, our most capable model
- ✓ Browse, create, and use GPTs
- ✓ Access to additional tools like DALL·E, Browsing, Advanced Data Analysis and more



writer while they are in the process of typing. As of November 2022, Grammarly has attracted more than 30,000 professional teams from various business industries to its Grammarly Business platform (Lytvyn, 2022.)

A third type of generative artificial intelligence gaining popularity is image generators that can create art from user input prompts. Apps and websites like Microsoft Bing Image Creator, Dream, and others allow users to type in a set number of characters to guide the technology toward creating a desired image. Within 30 seconds or less, results are produced. The images located on the right are an example of this technology in

use, particularly the one launched by Microsoft. Here is the prompt provided: “Create a stack of pancakes with cinnamon sticks on them and blueberry syrup with a calming background.”

The software always generates four images at a time, allowing users to find satisfying results more efficiently. If users do not find images they like in one round, they can reuse the same

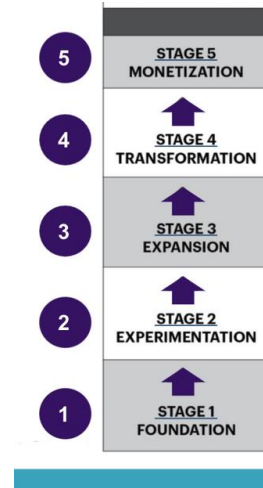


prompt until the desired results are achieved. Images generated in this way can be utilized to create menus, product ideas, and marketing/advertising campaigns.

Adding to this idea, the use of AI has been increasing steadily in the marketing world. Marketing takes the form of a multitude of different activities, including social media marketing, pricing strategy, brand creation/management, public relations, product development, and much more. According to the *AI Marketing Canvas*, marketers today recognize the need for AI implementation in their work but aren't entirely sure why they need it or why it is beneficial. This book walks people through how and why the technology should be used in a series of five

consecutive steps to success. The stages from beginning to end are the foundation, experimentation, expansion, transformation, and monetization.

The foundation is the digital infrastructure a company sets up with the data it collects from first parties and other sources. This data is what initially sparks training in machine learning models. An example of this concept is Starbucks. Starbucks has a database of over 32.6 million active rewards members. Personal data is collected from every individual, and data masses of that size are useless if there is not a good system in place to process and extract valuable takeaways. AI technology can help set the playing field for the grouping, management, and analysis of such large quantities of data (Lecinski & Venkatesen, 2021, p. 95.)



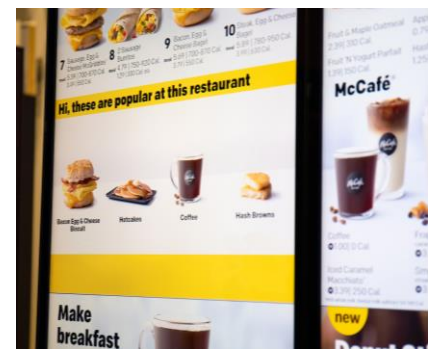
The second stage, experimentation, consists of finding data and using AI-powered tools from vendors and other third parties to gain knowledge for future marketing activities. This information can unlock insight into consumer preferences, relationships, and solutions that can be created for existing problems (Lecinski & Venkatesen, 2021, p. 117.) The third stage, expansion, develops the second stage in a deeper way. The goal is to create value for customers and expand the application of machine learning in marketing efforts. Marketing processes may become automated, and techniques from stage two can potentially be expanded across different products, campaigns, regions, and divisions (Lecinski & Venkatesen, 2021, p. 127.)

Stage four focuses on scaling efforts and finetuning execution. The goal associated with this stage is automating all aspects of a customer relationship to maximize value for the consumer. Stage five concentrates on utilizing AI models to their full capacities to generate new revenue streams and maximize revenue as much as possible. Although all five stages are present



for use, it is possible to bounce between different stages or not need to go through all of them in marketing implementation. This framework provides a general guideline of how successful strategies can be generated while using artificial intelligence as a resource (Lecinski & Venkatesen, 2021, p. 156.)

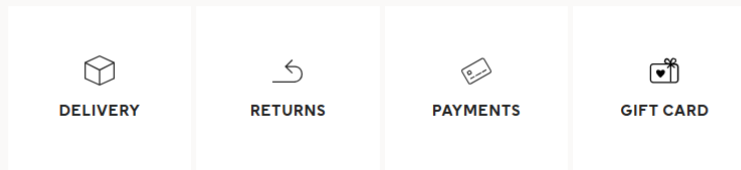
Using AI internally in business activities is useful, but that is not apparent to the general public because it is unseen. However, when reflecting on everyday encounters in society, people may realize AI has begun popping up all around them in real life without ever thinking twice about it. Outside of internal business functions, the technology has begun facing the public to benefit not only businesses but customers as well. One example is fast food restaurants. In recent years, fast food chains like McDonald's and Taco Bell have invested in installing kiosks at the front of the stores.



These kiosks allow customers to place their orders and pay for them at the same time. While the kiosks themselves are a technological advancement, they are not artificial intelligence.

Artificial intelligence is the software within the kiosk that suggests other items consumers may like based on their recent item selections. By recognizing consumer order patterns and storing more data each day, AI can become more predictive to better serve people while streamlining business processes and reducing the chances of input errors at the same time.

Another example of artificial intelligence being utilized in modern society is through customer support platforms. Although websites are still utilizing real people and call centers to provide support for consumers, some have started to add the use of chatbots in an attempt to reduce the need for customer support technicians by assisting users with frequently asked questions and other basic inquiries. Below is an example taken from H&M's website.



Chat with our chatbot 24/7 for answers to frequently asked questions or speak with a live agent if you need more support during our opening hours. [Contact us](#).

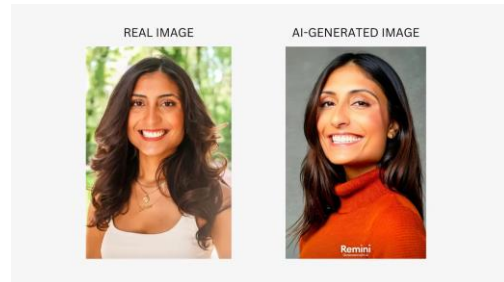
For questions regarding your personal data, and instructions on how to access or delete your stored information, please visit our [Privacy Notice](#).

This is relevant because “seven in 10 U.S. consumers say they’ve spent more money to do business with a company that delivers great service” (Chojecki, 2020, p. 53.) Chatbots are relatively inexpensive to set up, usually only requiring a few hundred dollars. The benefits of potential revenue increases and more sales of other related products can outweigh the cost of the implementation quickly when utilized correctly. Aside from monetary benefits, the chatbots can assist with data collection, providing information on customer preferences, common customer issues, and customer demographics (Chojecki, 2020, p. 54.)

As companies continue to innovate and use the technology, benefits and drawbacks will exist in every scenario. When companies use the technology, they have the potential to serve new and existing customers better, save money on resources, hire less staff, and operate more efficiently. However, maintenance upkeep may be expensive if issues are presented. When companies do not use the technology, they may miss out on the listed benefits but remain more personable as an entity, bringing value to clients in a different way.

Generative AI has become so recognizable in modern business that even websites like LinkedIn are promoting its usage. A recent technological trend is to create professional headshots from regular selfies using generative software. Instead of discouraging users from engaging in these kinds of behaviors, LinkedIn encourages its growth by providing recommendations on how to generate a clean, clear headshot for a profile picture. People have

started recognizing that a collection of natural, professional images may be difficult or inconvenient to capture, so LinkedIn posts step-by-step articles on how to benefit from this technology. Depicted on the right is an example of this technology in use. The general facial structure of the image is retained, but other features may become changed or distorted as a result of changes being made, such as the angle of the image.



All of the above examples have involved generative AI. While it is one of the most prevalent artificial intelligence technologies being utilized in business, other technologies have the potential to make significant changes to traditional processes. Artificial intelligence on a computer screen is a relatively quick and simple technology to implement, but other forms are starting to hit the surface of the market that are more costly and consume space.

One example of artificial intelligence requiring additional equipment outside of a computer is virtual reality. Virtual reality has been gaining traction as different companies have been releasing offerings to the public. Two main headsets are well known today, with the Oculus from Meta being one of the most popular and the Apple Vision Pro from Apple gaining traction from its release in February of 2024. There is optimism revolving around the use of these headsets in a business setting as more potential advantages are being discovered. The aspiration for the technology is to assist with workflows and business operations. The six main focuses are to enhance remote collaboration, provide employees with innovative training and education,

improve the development and design of products, enhance customer engagement, increase operational efficiency, and assist complex data visualization and analysis (McBain, 2024.)



Another example of a recent equipment breakthrough is AI flooring. Disney has been working on a “holotile” floor that allows users to move in any direction while remaining in one general spot on the mat. The product and concept were developed by Lanny Smoot, an engineer with the Walt Disney Imagineering team. It is currently the only technology of its kind, making headlines as the first omnidirectional treadmill-like floor



that can accommodate multiple people at one time. The floor is currently idealized as a great tool for gaming and theatrical purposes, but it could be used in business settings later down the line if Disney allows that or patents expire. The hexagonal tiles have treadmill-like properties that allow users to walk unlimited distances in augmented reality games and simulations.

Yet another great example of robotic/mechanical AI is AI robot servers. These robots are designed to take care of basic restaurant tasks such as carrying trays of food, seating customers, and even making drinks. According to Arziton, the market for robot waiters will increase to \$1.97 billion before 2028. These robots can increase efficiency by providing more help and decreasing the workload of current wait staff members. Additionally, the robots can help prevent strain and injuries by carrying heavy things for human waiters, benefiting both the business and the employee simultaneously (Fabian, 2024.) Depicted on the right is an image of BellaBot, a

machine waiter designed to carry food and dishes 24 hours a day. Other robots, including bartenders, are designed specifically to help in the food preparation sector of restaurant businesses. The other image on the right shows a robot preparing drinks. ADAM is a robot designed by Richtech Robotics that can serve as a bartender or barista. The robot can make 65-70 drinks per hour and has over 100 different drink recipes. Although the concept is still fresh, one business has already implemented the technology into its business model to differentiate itself from



competitors. Botbar is a robot-powered coffee shop located in Manhattan, and it is currently the only one of its kind. Launched in May of 2023, the coffee shop offers customers a unique coffee shop experience and 16 different menu items (Richtech Robotics, 2024.) While these robots may be a novelty to some, there are limitations to the technology. For example, the robots are not able to operate in tight spaces, and navigation may be an issue. Additionally, errors could still occur as AI technology is not perfect.

There is another type of AI server starting to make headlines, particularly around college campuses. Starship Technologies is a company that creates autonomous delivery robots to increase efficiency throughout the delivery process for people in over 60 different locations worldwide. The company was launched in 2014 and has completed more than 6,000,000 deliveries as of February 2024. Starship delivery robots have been utilized to deliver food to students through the Starship Food Delivery App. Students can place orders using the app, telling

the robot where to deliver the product. Once the robot arrives, the app can unlock it. From a business standpoint, this technology has the potential to increase the number of orders that can be fulfilled, increasing delivery precision along the way. However, it also has the potential to take opportunities away from drivers for delivery services like Grubhub, Postmates, and DoorDash, as the competitive nature of this product can replace the need for human interference.



In addition to servers, AI cleaners are becoming increasingly popular, from individual households to large-scale operations. On a small-scale level, Roombas are a way to keep spaces clean. These are autonomous vacuum cleaners that can be programmed to clean spaces at certain times of the day, navigating through rooms and avoiding obstacles. The first Roomba was released in 2002, sparking innovation. On a larger scale, the implementation of this kind of technology has been slower to take off but has been increasing in momentum. One example of this is Ella, an Asito cleaning robot located in the Schiphol Airport in the Netherlands. She is programmed to clean along the G-corridor and Lounge 3 of the airport. In addition to cleaning these areas, she also welcomes travelers and sings to them. This not only increases the efficiency of the cleaning staff at the airport but also provides customer service benefits. As time passes, more robots like this one could pop up in airports and other areas where cleaning and customer interactions are useful.



Yet another powerful artificial intelligence technology that is beginning to operate in society is the self-driving car, particularly the one launched by Tesla. Tesla launched its first autopilot software in 2015, aiming to ease drivers' concerns and increase confidence behind the wheel. “Autopilot is an advanced driver assistance system that enhances safety and convenience behind the wheel. When used properly, Autopilot reduces your overall workload as a driver. Each new Tesla vehicle is equipped with multiple external cameras and powerful vision processing to provide an additional layer of safety. All vehicles built for the North American market now use our camera-based Tesla Vision to deliver Autopilot features rather than radar. Autopilot, Enhanced Autopilot, and Full Self-Driving Capability are intended for use with a fully attentive driver who has their hands on the wheel and is prepared to take over at any moment. While these features are designed to become more capable over time, the currently enabled features do not make the vehicle autonomous” (Tesla, 2024.) These statements released by Tesla display the 2024 environment of the technology, almost 10 years after its original release in 2015. The software has progressed slowly, and there are still more advancements that must be made before the car can be self-reliant on the autopilot software.



Since people are expected to assist the technology, this indicates there are still problems that need to be addressed because they could potentially lead to dangerous situations if not corrected by drivers. An article released by CBS in December 2023 stated, “Autopilot can steer, accelerate and brake automatically in its lane, but is a driver-assist system and cannot drive itself despite its name. Independent tests have found that the monitoring system is easy to fool, so

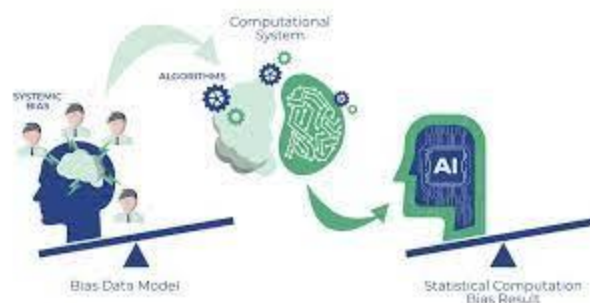
much so that drivers have been caught while driving drunk or even sitting in the back seat.” This demonstrates the abuse of the technology despite the warnings that it cannot yet be used without supervision. In addition to this problem, there have been over 956 car crashes where autopilot was detected as of December 2023 (Forbes, 2023.) Autopilot can falsely detect hazards or road markings, presenting dangers to those on the road. Hopes that self-driving vehicles could take over services like deliveries and taxi rides are not yet possible due to these setbacks.

Now that some of the different types of AI and the processes behind some implementations have been explained with examples, a general understanding of some of the capabilities of these platforms and systems can provide a clearer picture of how opportunities and threats could affect people and industries in the future. While there will always be positives and drawbacks to everything, explaining them after providing examples can assist in truly grasping concepts. Opportunities, threats, current issues, and societal concerns will be covered next.

One common concern is that artificial intelligence will replace humans in the workforce. According to the Society of Human Resource Management, generative artificial intelligence will have the capability to eliminate 60-70% of the time consumed by employees performing redundant tasks. While increasing efficiency benefits both employees and businesses, the statistic also has the potential to cause harm by reducing the number of employees needed to keep an industry functioning properly. People should remain people-oriented throughout the AI implementation process to minimize these downsides. The idea behind the usage is to enhance humans and assist them with their current capabilities, not replace them with machinery. The chief human resources officer and human resources teams of different companies will have to be in charge of ensuring these kinds of things work (SHRM, 2024.)



Some of the major risks currently associated with artificial intelligence include bias and discrimination, cybersecurity and privacy, ethics, and false data. Bias and discrimination occur when artificial intelligence is trained using data that includes preexisting bias or prejudice. The technology learns from patterns presented in the data it is given and cannot differentiate right from wrong. If given the power to make decisions without human confirmation or monitoring, discrimination in performance assessment, hiring, and other workplace decisions could continue to occur.



False data occurs when generative AI software creates answers that are incorrect and not based on data. On the right is an example of a “hallucination,” which occurs whenever an answer to a prompt is presented as a fact without any factual basis. There are different reasons why artificial intelligence produces hallucinations. Some include insufficient training data, incorrect assumptions, biases, and discrimination lingering in the data that was used to train the technology.

If I sold 10 products A, and it was five dollars per unit, and then I sold 15 products B and it was three dollars per unit, and then I sold 8 products C and it was seven dollars per unit, how much in total did I make?

The total amount made would be \$140. This is calculated by multiplying 10 products A by \$5 each, 15 products B by \$3 each, and 8 products C by \$7 each.  $10 \times 5 = 50$ ,  $15 \times 3 = 45$ ,  $8 \times 7 = 56$ .  $50 + 45 + 56 = \$141$ .

That's incorrect.

Cybersecurity and privacy issues arise when employees expose confidential company information due to a lack of guidance on using the technology. Technologies like ChatGPT are not internal to companies, so making databases and searches private for corporations using them is crucial before they can be implemented by organizations. If someone within a corporation would not feel comfortable providing a random person with sensitive data, they should not input it into AI software that could store the information and potentially expose it to parties that should

not have access to it. Ethics issues may arise if the use of AI is not openly discussed, and this is important to consider because employers may lose employees or credibility as a result of not being direct and honest about the ways the knowledge and capabilities are utilized (SHRM, 2024.) It is recommended that audits are performed on AI regularly to ensure that ethical practices are in place without the presence of biases.

Aside from the potential downsides of AI, the incorporation of this technology has the potential to positively impact lives in ways that are deeper than what people may think of generally. As shown in a few of the examples listed earlier, these opportunities include the ability to promote inclusivity, increase employee efficiency, increase employee productivity, improve decision-making, enable innovation and growth, and improve safety within the workplace.

To help society thrive, it is crucial to focus on inclusivity and allow as many employable people to work as possible, including those who may struggle with a disability. It is estimated that as of 2024, approximately 386 million people of employable age have a disability, whether it is small or large in severity. Artificial intelligence could help these kinds of people not only find jobs they are good at but also continuously support them in their careers and journeys to growth and prosperity (SHRM, 2024.)

In addition to supporting the well-being of employees, AI can also support employees when it comes to making important decisions. Decision-makers are becoming increasingly privy to the idea of using AI to guide decisions, as one does not need to be a data scientist to benefit from the technology. One of the biggest issues faced by decision-makers in modern society is forecasting future market conditions and sales numbers. Artificial intelligence can help make forecasts in an efficient manner by taking thousands of data points and running algorithms and

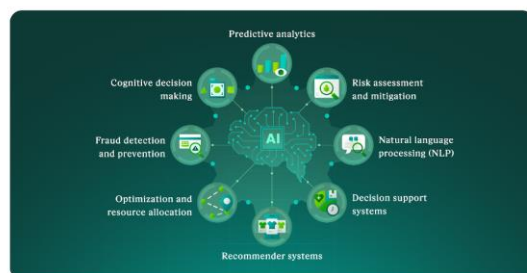
equations such as regression to identify patterns that could guide future values and decisions made from there (Chojecki, 2020, p. 57.) Another area where businesses can benefit and streamline decision-making is in the hiring process. “If well trained, AI can indicate which candidates have the highest chance of fitting into your culture and bringing necessary skills on board. Tools like PredictiveHire can help you quickly evaluate a large number of applications and narrow down the list to those best suited for the job” (Chojecki, 2020, p. 59.)

There are other categories where the resource is also being utilized. The main areas currently include predictive analytics, risk assessment and mitigation, natural language processing, decision support systems, recommender systems, optimization and resource allocation, fraud detection and prevention, and cognitive decision-making. Predictive analytics

are used to help predict future events based on data from past occurrences. AI can look through large sets of information and detect patterns that have the possibility of repeating themselves down the line. Risk assessment and mitigation can be approached

similarly, with companies having the ability to compile large amounts of data for review. Fraud detection and prevention also work similarly, with the technology flagging anomalies or weird patterns that occur.

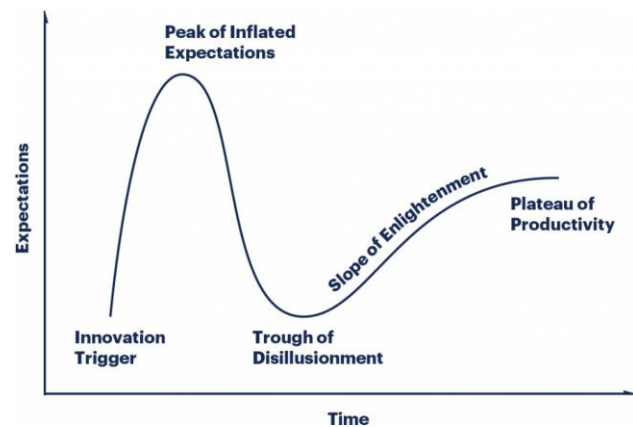
Natural language processing decisions are a bit more complex; AI can assist with analyzing, organizing, and summarizing information. Additionally, it can help make insights into the emotional tones present in data. This helps decision-support systems. Recommender systems are software systems designed to analyze patterns to create personalized experiences. Analyzing tailored recommendations can help guide decision-making based on past behaviors. Both



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optimization and resource allocation decisions can be better created through AI algorithms that can analyze efficiencies. Combined, these capabilities help people in cognitive decision-making, increasing the chances of making accurate, useful decisions when utilized correctly.

With increasing optimism and pessimism for the future, an important thing to be aware of is the concept of the technology hype cycle. The technology hype cycle is a visual representation of the growth and diffusion of different technologies. There are five phases associated with the cycle created by Gartner, a company in the IT sector that provides consulting services and other research to companies looking to achieve certain goals. These phases include the technology trigger, the peak of inflated expectations, the trough of disillusionment, the slope of enlightenment, and the plateau of productivity.



The technology trigger is the initial phase, in which a new technology is presented to the public and starts making headlines and gathering public attention. This phase causes hype to spark as people estimate technological potential and generally overestimate what can be achieved in a relatively short period. The peak of inflated expectations is the phase where the enthusiasm surrounding a new technology or idea reaches its highest point. After this, the trough of disillusionment sets in, significantly tanking optimism and overall hope for the potential behind the technological advancement. As time goes on and successes do not happen quickly, the reality of innovation sets in. The realization that innovation takes time and failures are inevitable eventually hits the masses, bringing the expectations for the new technology to their lowest points in the cycle. The slope of

enlightenment is the next phase, where more reasonable expectations are set as knowledge surrounding the technology is gained. Progress happens during this phase, but the pace is not nearly as fast as the initial phases made it seem. Finally, the plateau of productivity hits, where the technology becomes stable, and the widespread adoption of the technology has taken place. The concept has become normalized, and there is not much expectation for further growth or decline.

This cycle is an important concept because it highlights the flaws of current expectations for uprising artificial intelligence technologies and helps predict more realistic outcomes for current situations. One real example of this cycle recently is the promise of flying cars. The concept of flying cars has been around for over 100 years, with depictions occurring in magazines and movies throughout history. For years, magazine releases made false promises to viewers, overhyping the current capabilities and outlook of the technology. On the right is an image of a science magazine from the year 2000. The magazine showcased how the M400 Skycar would change the lives of those who commute. However, the technology has still not come to fruition as of 2024, as many complex design requirements clash with one another. For example, a flying car would have to be aerodynamic enough to be suitable to fly but also large enough to stay safely on the road.



These two requirements conflict with one another, making the product hard to create, but the general public does not generally consider these kinds of issues when dreaming of possibilities. Artificial intelligence has potential in the future, but the ground it will be able to cover will not nearly match the expectations and timelines the media and society are pushing.

After looking at some of the different kinds of artificial intelligence technologies appearing in modern times, along with some of their potential concerns, drawbacks, and benefits, it can be concluded that it is a very complex topic with no direct path or answer. Although the future is expected to be accompanied by many different types of artificial intelligence, there are still flaws present in current models that will slow the diffusion of innovation. Along with current uses and optimistic visions, realistic expectations are present and guided by the Gartner hype cycle. Although the future is uncertain, past situations and trends can indicate a general map for how this will play out as time passes. Artificial intelligence has the capability to transform the business world, and its success will depend on the way society embraces or rejects it going forward.

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<https://sitn.hms.harvard.edu/flash/2017/history-artificial-intelligence/>

This article gives information about computer science and things that need to be considered when learning about artificial intelligence. It provides the reader with information about how artificial intelligence began and gives insight into the history behind it and the challenges that have been faced along the way. One of the biggest challenges faced in the beginning of artificial intelligence was not having the means necessary to create it. Computers did not have the power or capacity to achieve the things developers wanted them to. Big data plays a large role in today's society, and the constant collection of information in many different aspects of life allows artificial intelligence to learn a lot at a rapid pace. Algorithms do not need to be improved drastically for artificial intelligence to become stronger in the future.

Barnhizer, D., & Barnhizer, D. D. (2019). "The artificial intelligence contagion: Can democracy withstand the imminent transformation of work, wealth and the social order?" *Clarity Press*.

This book looks into the global impacts and disruptions that artificial intelligence can present. A main concern of implementing artificial intelligence is the limitation of resources it can create. Job destruction without the creation of other jobs to take their places is a major factor that plays into the dangerous nature of artificial intelligence.

This source looks at artificial intelligence from a negative perspective rather than a positive one. This allows readers to gain insight into the other side of the coin so a deeper understanding of the technology as a collective can be achieved. Artificial intelligence impacts trickle down through

the workforce, the economy, and democracy. Homelessness could increase as a result of the technology, and fights could also break out due to the desire for scarce and valuable resources.

Chojeki, P. (2020). "Artificial Intelligence Business: How You Can Profit from AI." *Packt Publishing*.

This book gives an overview of what artificial intelligence is and progresses into discussing different ways artificial intelligence can be used in business. It also talks about how this technology impacts both society and the economy. The book goes into how artificial intelligence can boost businesses, and specific examples are given.

The book teaches about artificial intelligence that helps simplify the daily lives of people, including chatbots and word generators. The risks of this technology are also covered so people can understand how there are drawbacks to using advanced technology to leverage the education, health, and business sectors. Artificial intelligence is powered by machine learning, which is the idea that computers can learn how to perform different tasks without being given specific instructions as they have needed in the past. Instead, the computer will pick up on different inferences and patterns to solve problems given by a user.

Gok, T. (2023, June 7). "Revolutionizing Productivity: 15 Powerful AI Tools You Need To Try."

*AdCreative.ai* [https://www.adcreative.ai/post/15-powerful-ai-tools-you-need-to-try?https%3A%2F%2Fwww.adcreative.ai%2F&campaignid=20475517560&adgroupid=&keyword=&device=c&gad\\_source=1&gclid=CjwKCAjw7oeqBhBwEiwALyHLM3fXqpzuEJrXq1Jdq7qIUILfY6xqww53niLgD1-fwrYJGoRoD\\_eJKBoChwoQAvD\\_BwE](https://www.adcreative.ai/post/15-powerful-ai-tools-you-need-to-try?https%3A%2F%2Fwww.adcreative.ai%2F&campaignid=20475517560&adgroupid=&keyword=&device=c&gad_source=1&gclid=CjwKCAjw7oeqBhBwEiwALyHLM3fXqpzuEJrXq1Jdq7qIUILfY6xqww53niLgD1-fwrYJGoRoD_eJKBoChwoQAvD_BwE)

This article lists many different types of artificial intelligence tools that are in existence to help with different functions. The list breaks down different types of artificial intelligence that can be



used for marketing, advertising, videos, design, social media, copywriting, and content creation. The author provides a breakdown of what each artificial intelligence platform can provide to a person looking to use the technology.

By showcasing the advantages that each service offers, users can get a deeper understanding of how powerful the tools can be when utilized effectively. By looking into the specifics of what different technologies can do, a reader can relate this to how it can benefit businesses. Some of the artificial intelligence tools listed are ChatGPT, Canva, Flick, AdCreative, and Feathery.

Marr, B. (2023, October 5). "The 15 biggest risks of Artificial Intelligence." *Forbes*.

<https://www.forbes.com/sites/bernardmarr/2023/06/02/the-15-biggest-risks-of-artificial-intelligence/?sh=fcce8d127066>

This article briefly talks about 15 different risks that artificial intelligence poses. Since the adoption of the technology is increasing rapidly, it is important to look into the different concerns that pop up as a result of its usage. Although the different risks are not expanded upon, they provoke thought about things that should be looked into on a deeper level. Some of these concerns include ethical dilemmas, security risks, job displacement, economic inequality, loss of human connection, and privacy concerns.

Although not extremely informative outside of listing concerns with brief explanations attached, these points spark ideas for additional research that can be done as a result of being exposed to different perspectives and concerns of the up-and-coming technology of artificial intelligence.

SHRM (January 2024). "Artificial Intelligence in the Workplace." *Society of Human Resource Management* <https://www.shrm.org/topics-tools/topics/artificial-intelligence-in-the->

workplace#sortCriteria=relevancy%2C%40ytlikecount%20descending&f-  
topicfiltertag=Artificial%20Intelligence

This playbook and website provide details on artificial intelligence in the workplace and what to expect from the technology going forward. The sources explain potential ethical issues that may arise as a result of using artificial intelligence, and they give examples of implementations within large companies. Trends are highlighted, along with opportunities and risks associated.

Venkatesan, R., & Lecinski, J. (2021). “The AI marketing canvas: A five-stage road map to Implementing Artificial Intelligence in marketing.” *Stanford Business Books*.

The beginning of this book touches on what artificial intelligence is and how it differs from standard approaches to computer science that have been taken in the past. Aside from looking at how to implement artificial intelligence into marketing, the authors provide specific examples of how the technology has been used successfully by well-known companies. This gives a real-world feel that drives home the success that can be achieved by taking advantage of this.

Some of the companies that the authors look further into are Coca-Cola, Ancestry.com, Lyft, and Google. The authors provide their strategy for implementing artificial intelligence into marketing. This is what they call the “AI Marketing Canvas.” This plan consists of five different stages and is explained at each level by the authors.

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