# Business Insights of Artificial Intelligence and the Future of Humans

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## ABSTRACT

Recent technological advancements and the increasing pace of adopting artificial intelligence (AI) technologies constitute a need to identify and analyze the issues regarding their implementation in the education sector. This is because the education sector is associated with highly dynamic business environments controlled and maintained by information systems. In addition, the education sector is a sector that is associated with information systems. On the other hand, it was discovered through an analysis of the current research that a moderate amount of investigation has been conducted in this field. We have highlighted the benefits and obstacles of adopting artificial intelligence in the education sector to fill this hole. Before this, a brief discussion was presented on the fundamental ideas of AI and its development over time. In addition, we have evaluated the usefulness of contemporary AI technologies for students and teachers, which are currently on the software market. These technologies are currently available. We have built a strategy implementation model, outlined by a standard five-step method and the corresponding configuration guide. This is the very last thing that we have done. To check and ensure the accuracy of their design, we independently devised three implementation plans for three distinct institutions of higher education. The results acquired will contribute to a more profound knowledge of the particulars of AI systems, services, and tools, which will, in turn, pave the way for implementing these things more efficiently.

**Keywords:** Artificial Intelligence, AI Machine Learning, Natural Language Processing, Uses of Field, Quantum Computing

## INTRODUCTION

AI may alter supply chain management, medicine, and cars. According to studies, AI can revolutionize business models, redefine the future of employment, and improve human talents. The International Data Corporation (IDC) projects that global AI spending will reach about $98 billion in 2015, more than twice the $37.5 billion invested in 2017. There needs to be unanimity on what characterizes AI or distinguishes it from other digital technologies. Several factors have contributed to this recent AI interest boom. Recent decades have witnessed significant advances in AI technologies like current and conventional neural networks, many of which are now open-source. AI involves complex processing, reducing costs in computer hardware and dedicated AI chip designs, making it more feasible and appealing to organizations (Ballamudi, 2016). The growth of cloud-based AI services has made technology more accessible to cautious organizations. While research is still early, preliminary studies may reveal that it has raised interest in AI as people adjust to the reduced human element at all levels of society and the more significant usage of automation (Thaduri et al., 2016). This research seeks to comprehend AI’s IS-related traits. A systematic literature review provides a baseline for future research. This systematic review aims to.

## COMMON USES OF AI

The following are some of the most common applications of artificial intelligence: machine learning, cybersecurity, customer relationship management, internet searches, and personal assistants.

Relationship management: Systems for managing client relationships, or CRM, are also disrupted by artificial intelligence. Software applications such as Salesforce and Zoho require significant input from human users to maintain their current accuracy. However, when AI is applied to these platforms, a typical CRM system morphs into an auto-correcting, self-updating system that monitors our relationship management for us. This frees us to...
focus on other aspects of our business (Balara et al., 2017). The use of AI in the banking industry is a fantastic illustration of how this technology may improve client connections. Dr. Hossein Rahnama, founder and CEO of the AI concierge startup Flybits and a visiting professor at the Massachusetts Institute of Technology, collaborated with TD Bank to implement AI technology into routine banking procedures (Mandapuram, 2016). "Using this technology, if we have a mortgage with the bank and it is up for renewal in ninety days or less... if we are walking by a branch, we get a personalized message inviting us to go to the branch and renew purchase," Rahnama explained. "If we have a mortgage with the bank and it is up for renewal in ninety days or less," If we look at a house for sale for longer than ten minutes, the website will give us information about available mortgages.

Data research: An extensive amount of data is analyzed by artificial intelligence to recognize patterns in people's search activities and offer those individuals more pertinent information. The user experience will become increasingly personalized as more people use their electronic gadgets and artificial intelligence technology becomes even more advanced (Thaduri, 2017). This will make it much simpler for us to target an exact audience, which will significantly impact the success of our small enterprises. "We are no longer expecting the user to be on a search box Googling what they need constantly," Rahnama continued. "We have moved on from that." "How the appropriate information is delivered to the appropriate user at the appropriate time is undergoing a paradigm shift."

Digital Assistants: There are many other applications for artificial intelligence outside, providing our clients with a more individualized experience. Additionally, it could revolutionize our firm's inner workings. The employment of AI bots as personal assistants enables them to aid with the management of emails, the maintenance of calendars, and even the provision of recommendations for the simplification of operations. These AI assistants can also be programmed to respond to inquiries posed by clients via phone calls or online chats (Dunja & Marko, 2013). These are all relatively insignificant activities, yet because they free up more of our time, they can significantly contribute to the success of our efforts to expand our company's operations.

Cyber Security: According to Husain, artificial intelligence is even more helpful than other allies when searching for vulnerabilities in the security of computer networks. Believe it or not, artificial intelligence systems can identify cyberattacks and other cyber threats by watching trends in the entered data (Lal, 2016). Once a danger has been identified, it will comb through our data to locate where it originated, thereby preventing further attacks. Adding those additional eyes, especially those that are as watchful and vigilant as AI, will significantly assist in sustaining our infrastructure. "We really cannot have enough cybersecurity experts to look at these problems because of the scale and increasing complexity," Husain added. "Artificial intelligence is playing an increasingly important role not only in this area but everywhere else."

Machine learning: Machine learning is a technique that is frequently employed in computer systems that collect vast amounts of data. For instance, data is gathered by intelligent energy management systems from sensors that are attached to a variety of assets. The troves of data are then contextualized by machine-learning algorithms and presented to the decision-makers inside our firm so that they may better understand energy use and maintenance requirements.

**Advantages & Disadvantages of Artificial Intelligence**

Artificial intelligence can learn and think. Anything that replicates a human's task can be considered artificial intelligence. Artificial intelligence has pros and cons (John et al., 2018). AI improves task automation, data analysis for decision-making, medical diagnostics, and autonomous vehicle development. AI disadvantages include employment loss, ethical worries about prejudice and privacy, cyber security problems, and a lack of creativity and empathy.

**Advantages**

Less Human Error: AI reduces errors and improves accuracy and precision, a significant benefit. AI makes every judgment based on past data and algorithms.

Risk-free: People can avoid many risks by delegating tasks to AI robots. Metal-bodied machines can survive harsh environments, defuse bombs, travel space, and explore the deepest oceans. They can also work accurately responsibly, and last longer.

Available 24/7: Many studies demonstrate that humans are productive for 3–4 hours a day. Humans require breaks and time off to balance work and life. However, AI can work nonstop. They think faster than humans and multitask accurately. AI algorithms make tedious, repetitive tasks easy.

Digital Aid: Some of the most innovative organizations interact with users using digital assistants, eliminating the need for humans. Many websites serve user-requested content via digital assistants. Talk to them about our search. Some chatbots make...
it hard to distinguish if we are talking to a human or a machine.

Innovations: AI drives many advancements to help humans solve the most challenging problems in almost every sector. Recently, AI-based technologies have helped doctors diagnose breast cancer early.

Objective Decisions: Whether we like it or not, emotions drive us. Although emotionless, AI is realistic and rational. The fact that AI is unbiased makes it better at decision-making.

Do repetitive tasks: Our daily activities include inspecting documents for errors and mailing thank-you notes. Artificial intelligence might automate these menial duties and eliminate "boring" ones, making individuals more creative.

Daily Uses: Mobile devices and the internet dominate our daily lives. We use Google Maps, Alexa, Siri, Cortana on Windows, OK Google, selfies, calls, emails, etc. AI-based methods can predict today’s and tomorrow’s weather.

AI Risks: This is a significant AI benefit. We can overcome many risky human limits by constructing an AI robot to conduct dangerous activities for us. It can be used to go to Mars, defuse a bomb, explore the deepest oceans, or mine coal and oil.

Quicker Decisions: Another AI benefit is faster decision-making. AI helps firms make faster, more informed decisions by automating tasks and offering real-time insights. This is especially useful in high-stakes situations where judgments must be made fast and properly to avoid costly mistakes or save lives.

Identify Patterns: Pattern recognition is another AI strength. AI can analyze massive volumes of data and find patterns and trends to assist businesses and organizations in understanding customer behavior, market trends, and other aspects. Better business decisions and outcomes can be made with this information.

Medical Uses: AI has advanced diagnosis, treatment, medication discovery, and clinical trials in medicine. Doctors and researchers can use AI to evaluate patient data, identify health hazards, and create individualized treatment strategies. This can improve patient health and speed up medical treatment and technology development.

Disadvantages

Expensive: A machine that mimics human intelligence is impressive. It is costly and time-consuming. AI must use the latest hardware and software to stay current and meet regulations, making it expensive.

Uncreative: AI cannot learn to think creatively, a significant drawback. AI can learn from pre-fed data and past experiences but needs to be more creative. Forbes earnings report-writing bot Quill is an example. Data and facts submitted to the bot are in these reports. Despite being impressive that a machine can create an article, it lacks the human touch of other Forbes pieces.

Unemployment: A robot is replacing jobs and creating unemployment (in some circumstances). Chatbots and robots replacing humans may always cause unemployment, according to some. In technologically advanced countries like Japan, robots often replace humans in industry. This is only sometimes the case since it creates more jobs for humans and returns them to boost efficiency.

Make Us Lazy: Most laborious and repetitive tasks are automated by AI. Working without memorizing or solving challenges, we use our brains less. This AI addiction could harm future generations.

Unethical: An AI may need help to assimilate human ethics and morals. Rapid AI growth has generated concerns that it will grow uncontrollably and wipe out humanity. This is the AI singularity.

Emotionless: Since childhood, we have been told computers and other things have no feelings. Teams must be managed to achieve goals. There is little doubt that robots are more efficient than humans, but computers cannot replace human ties, which make up teams.

No Gain: Humans cannot construct artificial intelligence because it uses pre-loaded facts and experience. AI is good at repeating tasks, but we must manually change the codes to better it. AI can store unlimited data but cannot be used like human intelligence. Machines can only perform their designed tasks; if asked to do anything else, they fail or provide meaningless results, which might have serious consequences. Thus, we must make something unique.

**Advanced AI and ML for Computer Engineering**

AI and ML have recently transformed computer engineering, and their significance is only growing. AI and ML are used in computer vision, natural language processing, robotics, and data analytics (Raouf et al., 2018). Deep learning is one of the most significant achievements in AI and ML, which lets computers learn and improve by studying massive datasets. Deep learning models use numerous layers of artificial neurons to process and learn from data to find complex patterns and relationships (Al-Gargoor et al., 2013). Image and speech recognition, natural language processing, and autonomous vehicles use deep learning.
Reinforcement Learning (RL) is another significant advancement in AI and ML that lets agents learn how to behave in an environment by interacting with it and obtaining rewards or punishments. RL is utilized in games, robotics, and autonomous vehicles. Alpha Go, a Google DeepMind computer program that defeated the Go world champion, is a famous RL application (Lal & Ballamudi, 2017). Computer vision is another AI/ML subject that has advanced in computer engineering. Computer vision teaches computers to understand images and movies. Convolutional Neural Networks (CNNs), deep learning models that excel at picture categorization, object detection, and segmentation, are a computer vision breakthrough (Gutlapalli, 2017a).

NLP is another computer engineering field where AI and ML have advanced. NLP teaches computers to understand and interpret human language for machine translation, sentiment analysis, and question-answering. Transformer models like BERT and GPT-3 have excelled in many NLP tasks, making them a significant advancement. Another computer engineering field that has benefited from AI and ML is robotics. Robotics develops machines that work without human involvement. Robots need AI and ML to sense and understand their environment, make decisions, and communicate with humans (Gutlapalli, 2017b). Robots learn to grab and walk using reinforcement learning.

AI and ML are also used in data analytics and decision-making. Machine learning algorithms examine massive datasets and predict, helping firms make data-driven decisions (Mandapuram, 2017a). AI and ML have achieved automation and efficiency in healthcare, banking, and other fields. AI and ML have transformed computer engineering by letting computers learn from data. Deep learning, reinforcement learning, CNNs, transformer models, and robots have advanced in AI and ML. As AI and ML advance, they will be used in more computer engineering fields, offering new development and innovation opportunities (Desamsetti, 2016a). AI and ML technologies must be created ethically and responsibly to avoid harmful effects.

**NLP in Medical**

NLP improves healthcare quality and lowers expenses (Mikhail et al., 2017). Thus, this review paper discusses natural language processing in medicine, its methods, and its pros and cons. Emerging technologies and their effects on the economy, society, and corporations must be examined. Thus, advanced tools are needed for information retrieval, document classification, business intelligence, technology forecasting, etc. Natural language processing is a subfield of AI that develops and uses language-processing computer models. Research in this domain focuses on perception, which involves extracting information from language (such as understanding natural language information retrieval), and production, which consists of using language to transfer data (Desamsetti & Mandapuram, 2017). It commonly separates speech-related activities into recognition and presentation.

Natural language processing uses several methods, but their three main types are statistical, structural/pattern-based, and inference-based. These solutions are not necessarily independent (Raouf et al., 2018).

The most comprehensive models use all three strategies. Specific processing procedures and the number of rules for automated learning from linguistic data distinguish these systems. NLP labels sentences with nouns, verbs, and adjectives by grammatical order. The nature of a language allows some words to be nouns and verbs. Lectures (poses) use tagger programs, rules, and dictionaries. Dictionaries categorize words. Usually, programs tag words accurately or guess best (Ballamudi & Desamsetti, 2017; Gutlapalli, 2017c). In uncertain sentences, POS tags are labeled using possible approaches.

NLP was knowledge-driven and focused on text processing and patient classification. Medical notes showed a "lower boundary" that the NLP algorithm identified. The NLP system also checked the declaration rank of each idea based on confidence (positive, negative, and possible), temporality (old or current), and experience. If the NLP algorithm derived a ruling: noninvasive training is reliable with plain major occlusive illness of two-sided lower edges, the system classifies primary occlusive disease and lower limits sideways with the consistent declaration position (primary occlusive condition) is specified positively, present, and related to the persistent (Mandapuram, 2017b). The patient classification constituent ranked each individual using rubrics.

NLP research and applications study how computers can comprehend and modify natural language text or speech to perform valuable tasks. NLP researchers learn human language to build tools and strategies for computer systems that interpret and manipulate natural languages to execute tasks (Desamsetti, 2016b). Electronic health records include a wealth of information that, properly handled, can support clinical decision-making, organizational auditing, qualitative evaluation, and research. End-user tools typically use command-line interfaces with complicated parameters to retrieve structural data.

**Electronics in ML and AI**

The discipline of electronics has been essential to the progress that has been made in the areas of artificial intelligence and machine learning technologies. Electronic systems have developed into the fundamental component of all intelligent systems as the digital era has progressed. Electronics is the study and application of designing and developing electronic circuits, devices, and systems (Alanazi et al., 2017). This is the primary focus of the field. Electronics offers the necessary hardware components for developing intelligent systems in the context of Artificial Intelligence (AI) and Machine Learning (ML).
components include sensors, processors, memory, and communication interfaces.

Electronic sensors transform a chemical or physical signal into an electrical signal that an electronic circuit can process. In artificial intelligence and machine learning, sensors collect data from the surrounding environment, such as images, audio, or physiological signs, which ML algorithms can subsequently process. Processors are electronic devices that carry out logical and mathematical operations on the data that they are given. Processors are utilized in AI and ML to carry out machine learning algorithms, which examine data and arrive at conclusions based on patterns and trends. Memory is an indispensable component of electronic devices because it stores data and the processing instructions necessary to use it. Machine learning algorithms utilize memory to store data sets, parameter values, and model representations. In an electronic system, communication interfaces are the electronic devices that allow for the transfer of data between the various subcomponents of the system. It is utilized to transfer data across sensors, processors, and memory. In addition to providing hardware components, electronics supplies software for implementing artificial intelligence and machine learning algorithms. Programming languages, libraries, and frameworks are all examples of software components necessary for developing ML algorithms.

The field of computer science known as artificial intelligence (AI) is focused on creating algorithms and other intelligent systems capable of imitating human intelligence. Artificial intelligence systems are designed to carry out activities, such as speech recognition, picture processing, natural language processing, and decision-making, which would typically require the involvement of a human. Artificial intelligence (AI) is broken down into several subfields, one of which is machine learning. Machine learning focuses on developing algorithms to learn from data and improve performance over time (Dekkati et al., 2016). These algorithms can recognize patterns in data, anticipate outcomes, and make judgments based on the knowledge gathered from those predictions. In addition, the creation of specialized hardware for artificial intelligence and machine learning has been made possible by advances in electronics. For instance, Graphics Processing Units (GPUs), also known as graphics processing cards, are utilized to hasten the training of deep neural networks. Numerous applications, such as recognizing images and voices, processing natural languages, and autonomous driving, all use these networks.

In addition, the development of advanced robotics, a crucial aspect of both artificial intelligence and machine learning, has been made possible by advances in electronics. Robots find usage in various industries and fields, including healthcare, agriculture, and manufacturing. These robots come fitted with high-tech sensors and microprocessors, which allow them to carry out challenging jobs independently without human intervention.

**AI and Quantum Computing**

According to the investigator, quantum computing should immediately impact older AI models and algorithms, such as non-supervised and reinforcement learning. This is something that will happen as soon as possible. "A particular example is that of dimensionality reduction methods. Artificial intelligence (AI) systems rely on massive volumes of information that algorithms consume, organize, and evaluate. Using quantum computers will make it easier to categorize the data according to particular attributes more precisely. In the long run, artificial intelligence algorithms based on quantum computing might make it possible to discover undetectable patterns in traditional computers (Sarma & Hay, 2017).

The ability to convert the problems we face in the actual world into quantum language is essential to our success... Artificial intelligence, specifically machine learning, would benefit from developments in quantum computing technology, and this may be the case even before a complete quantum computing solution is available on the market.

The concept of quantum computing evolves from one that is theoretical to one that is practical. The fact that it had a significant influence also contributed to its success. Honeywell and Microsoft's Azure Quantum have entered into a cooperation that will give numerous ways for businesses and organizations worldwide to become familiar with quantum computing. The quantum computer developed by Google comprises tiny circuits made of superconducting metal. These circuits entangle 53 qubits while in a problematic superposition state...

Quantum computers need help scaling up the number of equals they can operate, unlike classical computers, which can quickly stack many operating bits in their processors. The purpose of quantum computers is not to replace classical computers but rather to provide an entirely different, unique, distinct instrument that can be used to solve other problems (Gutlapalli, 2016b). Quantum computers are excellent at solving decision-making problems, such as determining the simplest way to schedule aircraft at an airport or the most straightforward delivery routes for the FedEx truck. These are only two examples of the problems that quantum computers can solve. Quitting our job today can cost us upwards of ten thousand dollars before we include the cost of research and development. At that price, a practical universal quantum laptop – just the hardware for it – will set us back a minimum of $10 billion. This is for a piece of equipment whose actual market price is significantly higher than what is justifiable. The field of computing known as quantum computing focuses on the development of engineering supported by the fundamentals of scientific theory to...
explain the behavior of energy and material on the atomic and subatomic levels. The older, more traditional computers still in use today can only store information in bits that can either have the value of one or zero. IBM unveiled its first industrial quantum laptop to the public in 2017. To fast forward to January 2015, the business made the statement at CES 2015 that we are currently within the decade (2015) of quantum computing. CES 2015 was held in Las Vegas.

**The Path Ahead for AI**

How might humans make use of artificial intelligence in the years to come? It is difficult to predict how the technology will advance, but the consensus among industry professionals is that "commonsense" jobs will become increasingly simpler for computers to perform. This indicates that robots will become significantly more helpful in day-to-day life.

"AI is starting to make possible what was once considered impossible, like driverless cars," said Russell Glenister, CEO and founder of Curation Zone (Iztok, 2017). "AI is starting to make what was once considered impossible possible." "Access to training data and fast GPUs, both crucial enablers, are the only reasons driverless cars are even a possibility. A large amount of precise data is required to train autonomous vehicles, and speed is paramount while training. When we started this project five years ago, the processors were too sluggish to handle it, but the development of GPUs made it all possible.

Glenister continued by saying that the speed of graphic processing units, or GPUs, will only increase, resulting in general improvements to artificial intelligence software applications.

"Fast processes and lots of clean data are the keys to the success of AI," he stated. "[T]he future of AI is here."

The co-founder and chief technology officer of Nara Logics, Dr. Nathan Wilson, recently stated that he believes AI is on the threshold of transforming everyday activities such as dining. Wilson hypothesized that AI could one day be utilized by establishments like restaurants to determine the patrons’ musical preferences so that they could better cater to their needs (Dekkati & Thaduri, 2017). The appearance of the wallpaper can be changed by artificial intelligence so that it better suits the aesthetic tastes of the audience by taking into account what the technology thinks their aesthetic preferences are (Gutlapalli, 2016a).

Rahnama projected that artificial intelligence will free digital technology from the two-dimensional, screen-confined shape that people have become accustomed to. If that does not sound futuristic enough, consider that Rahnama made this prediction. Instead, he believes that the primary user interface will be the physical environment an individual is surrounded by.

“We have always relied on a two-dimensional display to play a game, interact with a webpage, or read an e-book,” Rahnama said. “But now, there is a third option.” “What will happen today with artificial intelligence and a mix of [the Internet of Things] is that the display will not be the significant interface - the environment will be. This is something that is going to happen. People will develop experiences around them in connected buildings or boardrooms, so watch for that. These will be fully immersive, 3D experiences that we can put our hands on.

**AI and Human Future**

The specialists hypothesized that networked artificial intelligence will increase human efficacy while posing a threat to human autonomy, agency, and skills. They discussed the vast array of possibilities, including the idea that computers could match or even surpass the intelligence and capacities of humans in performing tasks such as intricate decision-making, reasoning and learning, advanced analytics and pattern recognition, visual acuity, speech recognition, and language translation. They predicted that implementing "smart" technologies in communities, in automobiles, in buildings and utilities, on farms, and in business operations would save time, money, and lives and allow individuals to experience a more tailored future (Lal, 2015).

Digital existence is expanding human capabilities but simultaneously upending human activities that have been around for generations. More than half of the world's population is now exposed to code-driven systems through ambient information and connection, which presents previously unimaginable opportunities and hazards that have never been seen before. Will people have a better standard of living in the future as the implementation of growing artificial intelligence (AI) driven by algorithms becomes more widespread? In a survey of industry executives carried out throughout the summer of 2016, about 979 technology pioneers, inventors, developers, corporate and policy leaders, researchers, and activists responded to this topic.

Many people concentrated their enthusiastic views on health care and the numerous applications of AI in diagnosing and treating patients or assisting senior folks in leading fuller and healthier lives. They were also enthused about AI's role in contributing to comprehensive public health programs built on vast amounts of data that may be acquired regarding everything from individual genomes to nutrition. In addition, a few of these specialists anticipated that AI would facilitate long-awaited shifts in formal and informal education systems.

However, the vast majority of experts, regardless of whether they have an optimistic or pessimistic outlook on the future, have expressed concern regarding the effect that these new technologies would have in the long run on the fundamental aspects of what it means to be human. In this survey that was not scientific, we asked all respondents to
comment on why they thought AI would leave people in a better position. Many people discussed their most serious concerns, and many of them also offered potential answers. Many individuals are concerned about how improvements in artificial intelligence may impact what it means to be human, productive, and free will. Although experts predict that most people will be better off due to the rise of artificial intelligence over the next ten years, others are skeptical.

**CONCLUSION**

The computing industry can significantly benefit from neural network technologies. Their flexibility and power stem from their capacity to learn by example. There is no need to create an algorithm or comprehend the core mechanisms of a task to do it. Due to their parallel architecture, they are ideal for real-time applications due to their quick reaction and computing rates. Artificial intelligence aims to build computers with intelligence comparable to or surpassing humans. Researchers are focusing on the "AI problem" over the past decade to bridge the gap between human and artificial intelligence. This review paper discusses using artificial intelligence and neural networks to develop intelligent behavior. Artificial intelligence will aim to create more advanced technologies and computers. It is anticipated that future machines will possess rudimentary common sense, similar to humans, but limited to specific sectors. Future intelligent machines are expected to mimic human mind functions like learning by experience, rehearsal, cognition, and perception. Examples demonstrate the use of AI and ANNs in various applications, including brain-computer interfaces, expert systems, swarm intelligence, and soft computing.

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