Research Paper

Importance of Human Judgment in AI (Artificial Intelligence) Technology

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Abstract
This research paper will demonstrate how human judgment is essential in artificial intelligence technologies. Effectively maintaining the decision-making process depends on human judgment. Artificial Intelligence can enhance the value of decision-making. This paper discusses the role of artificial intelligence (AI) technology in various industries, which has become a cornerstone of the modern era and, in some cases, makes human tasks easier. In addition, these AI technologies make use of machine learning capabilities, which enable them to learn to make decisions based on data and the concept of making human tasks easier because they operate more like human intelligence. In addition to the positive aspects, this paper also discusses the potential problems that can arise from the use of AI in strategic business plan decision-making. It identifies the downsides of AI judgment and outlines how they can be mitigated through proper management and the incorporation of human judgment. The section concludes with an explanation of how the combination of AI and human judgment plays a crucial role in businesses. Also, some potential drawbacks of the combination in the context of the modern business environment.

Keywords: *Human Judgement; Artificial Intelligence; Machine Learning; Modern Technology*

I.   Introduction

The importance of human judgment has played a significant role in AI systems in recent times. Artificial Intelligence can predict decisions based on the given data. However, humans can use their senses and experiences to analyze data and situations. Therefore, Humans create AI technologies, which may have the developer's biases. AI cannot think outside the box; it can only forecast data that has been pre-programmed, hence enhancing the importance of human judgment. Even so, AI technology is being used to stimulate human behavior in widely-used machines in the present era. To accomplish this, AI implements machine learning, which allows it to learn from past data and make judgments accordingly. AI technology can readily solve complex problems, which is why it used in various fields or sectors. But due to some drawbacks or issues, it can only sometimes give the actual results. Sometimes it falls under some errors or biases, which can have a negative impact on the judgment. That is why the need for human judgment has remained the same rather than increased in significant portions.

Moreover, AI technologies can facilitate humans in better understanding situations and utilizing their knowledge and experience to make decisions for any challenges. That is why combining of AI and human decision-making creates a more precise estimation and strategic decision-making process that ultimately produces the best outcomes for organizations in any field. *According to Tracy Staniland's study,* the nature of logical reasoning plays a significant role in algorithmic systems' inability to meet rational reasoning

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requirements (but humans can). Besides the positive consequences of the combination of both AI-human judgments, some constraints and hindrances play a negative role in the modern era. Like the conflict between AI-human cooperation, AI technologies are replacing human places and making humans more unemployed, which is not entirely true. However, not operating the AI technologies in certain areas can bring more human tasks and waste time. Also, humans need more knowledge to use these machines effectively. Lastly, as we are in a modern era, we have no other way to implement these technologies to get a competitive advantage and better outcomes. But we need to use it properly to reduce flaws and inherent errors or information-based biases and make the work tasks more efficient. In order to do that, we need to use our human judgment, and we can't only rely on AI- technologies.

Role of Artificial Intelligence (AI) in Numerous Industries

Artificial Intelligence (AI) is one of the cornerstones of modern business, with smaller and startup companies consistently adopting these performance-enhancing technologies. According to a study by price Waterhouse cooper, artificial intelligence (AI) will become a fundamental technology in the near future, and businesses will be required to implement and substantially advance it. AI has been utilized and implemented in a vast wide range of industries, where it plays a crucial role. Now we will examine some industries in which AI is widely applied.

Education

A key role is also played by artificial intelligence in education. We can automate some basic activities, such as grading, with the help of this AI-powered software. As with all extensive lecture courses, grading can be tedious if conducted through automated systems, which will utilize and minimize considerable time.

While AI may not be able to replace humans in grading tasks thoroughly, it does cause some errors and mistakes. It sometimes fails to extract information from data, but it can facilitate learning and provide learning support. Examples include Khan Academy, Coursera, and AI-driven or adaptive learning processes that also provide feedback. Google bases its search results on the location of its users, whereas Amazon bases its recommendations on past purchases.(Staff, 2022)

Finance and Insurance

The financial sector has always required error-free, precise computer systems; nevertheless, we must forecast the share price based on recent transactions. Consequently, AI analyzes the patterns within this vast amount of data. It can effectively and efficiently interpret these data, which automates the procedure and saves significant amounts of time. In addition, if we consider any insurance company adopting AI technology to improve risk analysis, make more accurate predictions in uncertain situations, and reduce the risk of encountering incorrect information. (jordan.friedman, 2022)

Manufacturing Industries

In numerous vital aspects of the manufacturing industry, AI-based robots or systems in which robot-based machines operate can predict the malfunction of traditional machinery. It can be used for risky jobs and to motivate employees to perform meaningful work. For instance, the BMW Group uses automated image recognition for quality control and testing.

Healthcare

Artificial Intelligence (AI) is a game-changer in the healthcare industry, as these technologies aid in detecting diseases and managing patients' electronic health records. Moreover, certain virtual nurses, essentially robots, assist the surgeons throughout the operation. These types of medical assistance proceed to be essential to the medical field.

Transportation

Artificial Intelligence (AI) in transportation is another cornerstone of facilities where AI-driven systems in automobiles and vehicles operate, and these systems contribute significantly to the automobile industry. Identification of faulty spare parts, installation of autonomous cars, etc. Integrating these intelligent technologies and monitoring the systems with traffic cameras can drastically reduce traffic accidents, improve road safety, and reduce wait times. (jordan.friedman, 2022)

Judiciary

Another area where AI technology can use to improve decision-making is in judicial court decisions, where it can use to create more accurate judgments by studying previous case outcomes and available statements and data. To make the judgment process quicker and less expensive.

There are a substantial number of sectors in the present world which requires intensive use of AI-technologies, and this number is expected to increase greatly in near future.

**Problems Regarding Artificial Intelligence (AI)'s Judgment**

The technology of Artificial Intelligence (AI) makes our lives easier. It can execute tedious tasks so smoothly and efficiently, which helps in the day-to-day lives along with the modern business perspective and environment. However, it has some downsides or flaws that can cause inappropriate or biased judgments, as AI can make any decision relying on the statistical facts or data already provided to it. It can only make decisions based on this data and cannot think out of the box and conduct any judgment based on it. (Bossmann, 2016)

According to a study conducted by Julia Bossman, an alumna of the Global Shapers Community and published in the Global Economic Forum's online journal, the top nine ethical concerns referring to artificial intelligence are as follows: AI technologies' decision-making lacks an ethical perspective. Humans can make or implement any decision based on past mistakes, but artificial intelligence cannot. In certain circumstances, we can apply our emotions, such as empathy. It is one of the most important factors when implementing any judgment, such as determining the appropriate or accurate choice to make. Is it remarkably challenging to accomplish in certain situations? Sometimes, we need to use our emotions when making judgments or decisions. However, AI technologies are emotionless; they can only process information based on statistical data and are incapable of making empathetic decisions.
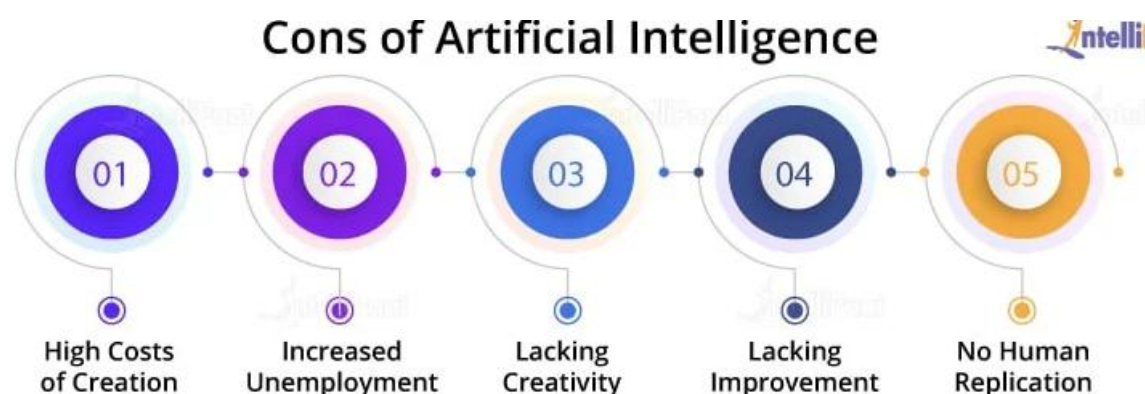
- Another issue that may arise is a need for more data that results in accurate results. A vital issue with AI technology is that it can only predict or forecast using data.
- It cannot make moral judgments like a human being since it lacks an ethical framework.
- It also plays a negative role in making humans lazier in the workplace when they are more technologically dependent. They rely solely on AI judgment, which may only sometimes be appropriate due to flaws or biases.
- However, AI technologies lack in terms of making creativity. It can only anticipate past purchase history or behaviors. When we apply the concept of "thinking outside the box," it can not do anything.
- It results in some human unemployment in some areas, such as the fact that we can now efficiently execute data entry tasks with advanced technologies, eventually resulting in some unemployment.
- Using these kinds of technologies in business is hugely expensive, and one of the key flaws of AI judgment is its inability to look outside the box.
- Data privacy is often associated with artificial intelligence (AI) technologies, as these technologies incorporate a broad range of information and could also obtain data that may contain sensitive information. (Bossmann, 2016)

% OF EXISTING JOBS AT POTENTIAL RISK OF AUTOMATION
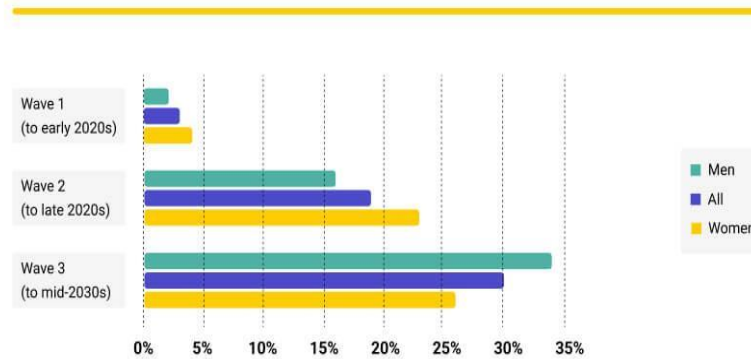
Source: Online report

To solve the bias problem, we should initially narrow down and clarify the problem that the business organization is currently facing and what we need to address to make it more transparent and focused. Therefore, some significant issues with these AI technologies ultimately have inevitable unfavorable consequences in the contemporary world, particularly regarding the favorable aspects.

Need for the Human Judgment in AI Technology

Why do we need human judgment? When making decisions based on previous learning outcomes for specific situations and outputs, a human determination is absolutely essential. Humans can learn by analyzing past mistakes and making ethical and logical judgments. In addition, we have the ability to judge, make decisions, and engage in activities based on the opinions of others in diverse circumstances, as well as make decisions based on ethical and moral considerations. All of these factors influence human judgment in specific situations or the implementation of strategies that will substantially impact the organization.
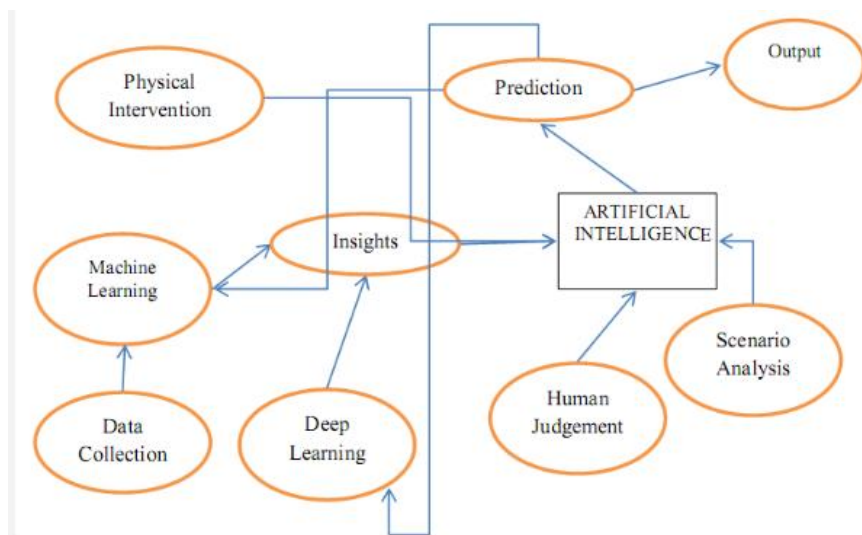

Figure: Usages of Human intelligence in AI-technology

AI-powered technologies can learn through trial and error and perform tasks that require human intelligence. Humans can perform specific tasks like data modeling, programming, and databases. These tasks are typically expected to be conducted by data analysts, but now these are often performed by AI-driven software. However, there could be issues with delegating these tasks solely to machines. For instance, AI-automated spelling and grammar corrections often provide incorrect suggestions. (Patrick, 2022) Human intervention is required for it to choose the appropriate options. Sometimes the content is misinterpreted,

degrading the functionality due to inadequate data input. That is why human interaction is required for any approach regardless of the context of a particular situation. AI is created by humans, who have their flaws and biases that can influence the outcomes; consequently, we can only sometimes fully rely on these AI and machine learning algorithms. Sometimes these problems occur unintentionally when the developer is unaware that certain biases exist. Consequently, these biases of developers can lead to inaccurate results. Besides, we should always use our common sense to avoid being influenced by developer projects. (Rainie, 2022)
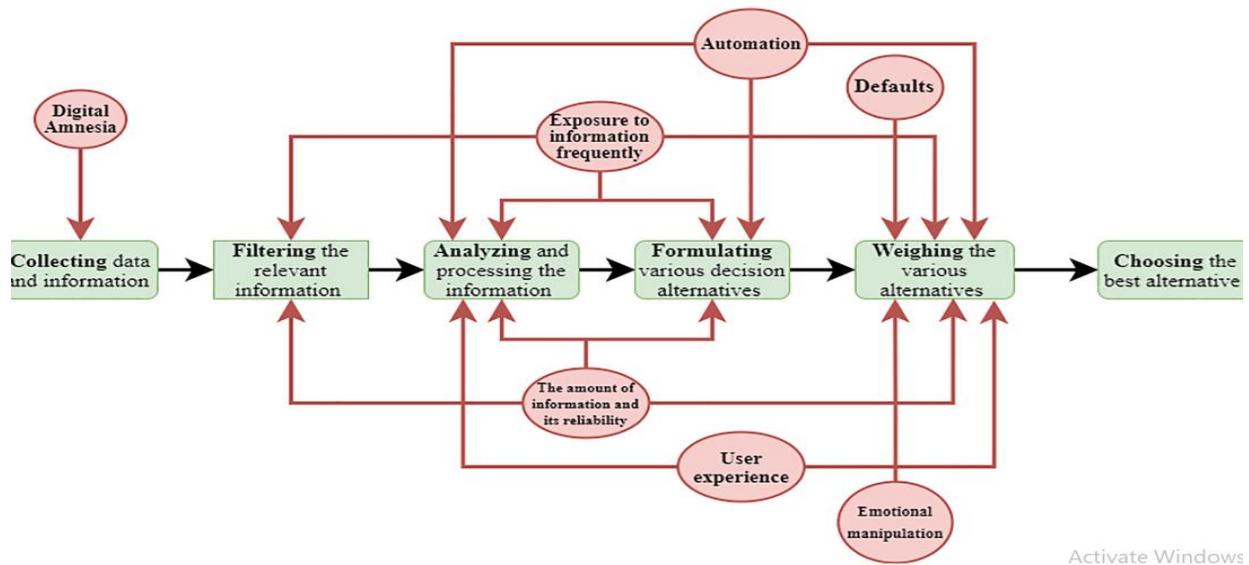

Figure: The impact of AI- technology on the Human decision-making process.

Human intelligence is the intellectual capacity that enables them to reason, learn from past mistakes or experiences, and comprehend complex problems. Using logic and reasoning, recognize patterns, retain information through data, communicate with other individuals and subordinates about their needs and perspectives, and make decisions based on such information. Humans can obtain information from different persons by communicating with them. We require human knowledge and judgment for this purpose. In some situations, artificial intelligence (AI) technology may perform better than human intellect. However, this is only sometimes the case because AI technology has downsides. That is why we still need a more significant proportion of human intelligence. Occasionally, ethical and empathic viewpoints are used to modify the AI's judgment based on the circumstances. (Binns, 2019)

Therefore, it is evident that human intelligence is superior to all other AI technologies, given that we humans can utilize our brains for computing power, memory, the capacity to reason, and effectual functioning. In contrast, AI technology depends on data and pre-programmed instructions. In addition, we must address ethical, societal, regulatory, and educational challenges along with technological issues based on certain circumstances. AI systems cannot perform these tasks, which is why we require human judgment. (Binns, 2019)

Combination of AI Judgment & Human Judgment

The combined predictions of AI and human judgment can perform better in strategic business decisions. Through Artificial Intelligence, we can extract information through data that may not be structured and make predictions accordingly. It is also crucial in eliminating the need for human cooperation on mundane tasks. However, there is always a certain kind of news appearing to us that AI technology-based judgment is replacing human necessities. In fact, AI creates more opportunities for humans to play more of a judgment role which requires more creative thinking, making more strategic decisions and meaningful and reward-based tasks. The combination of these both judgments and implementation can create better outcomes. (Staniland, 2019)

Additionally, businesses seek to gain more competitive advantage and secure their positions in the market. For these reasons, today's companies are using a massive range of data to make appropriate decisions and predictions using that information. They are now minimizing small data ranges as competition is high. Using less data can't bring accurate results that eventually put the business behind its competitors.
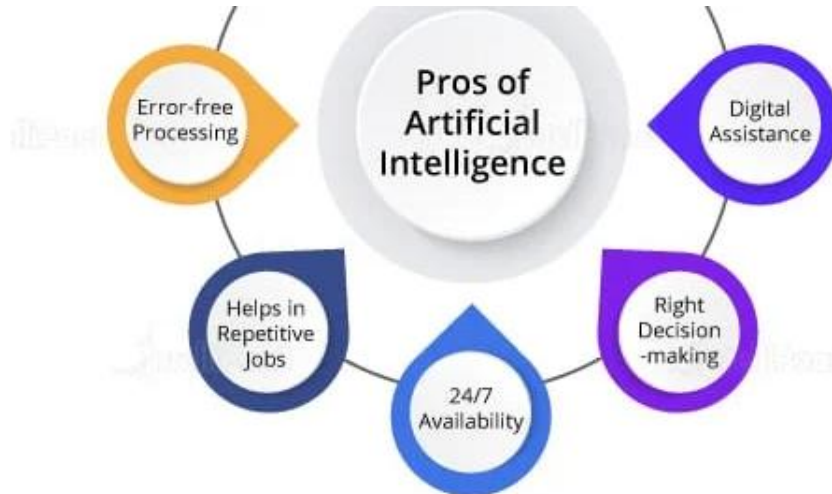
Furthermore, decisions that are taken based on implementing or using human knowledge surely bring better outcomes, as humans can make decisions by analyzing the AI judgments which are made from the statistical data; analyzing the AI judgments. Humans can use their intellect to justify what should be done, what strategies need to take, and how businesses can overcome situations. Humans can analyze these situations using their creative thoughts, rational thinking, and ethical or emotional factors. (Trunk et al., 2020) If the more mundane tasks are done through AI technologies, humans can focus on other tasks, eventually creating more benefits. As AI-based judgments are required to be faster and cheaper, it allows the businesses to make more decisions which ultimately helps the firms to bring maximum output and prosper apart from their competition. Numerous firms in the current period use both human and AI judgment, which provides significant value to organizations. (Staniland, 2019)
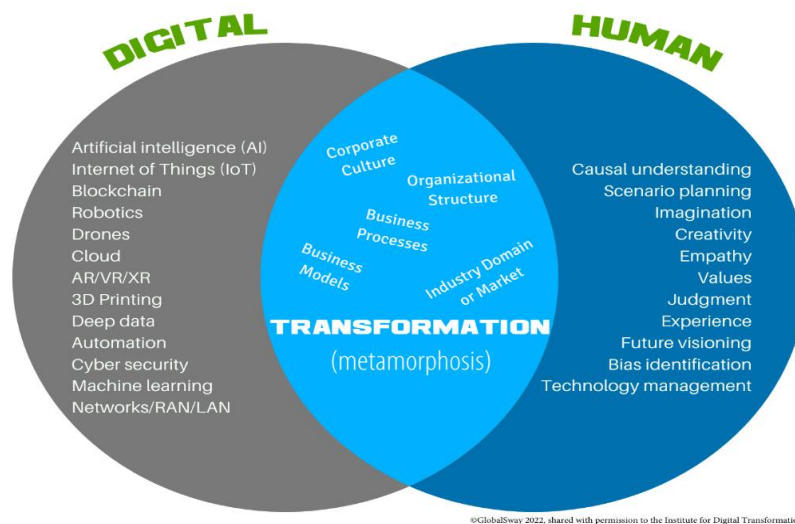

Figure: Combining the AI-Human judgment and its framework

If we closely look into prior to this digital era, there were no such things for predictions. We only used human judgment for the business decisions, which had some drawbacks like taking longer time to make decisions, we needed more employees to do such tasks like data entry, etc. But now, we can easily do these by using AI technology, which helps us save time. That is why combining judgment can give us a maximum outcome and better results. (Trunk et al., 2020)

On the other hand, organizations typically have a wide range of staff members responsible for supervising or managing large amounts of data and interpreting information through these. One must correctly interpret these factors in order to derive possible alternatives. Furthermore, Artificial intelligence is also anticipated to provide additional assistance with such technologically based tasks. The capabilities of this technology extend beyond those of conventional machines.
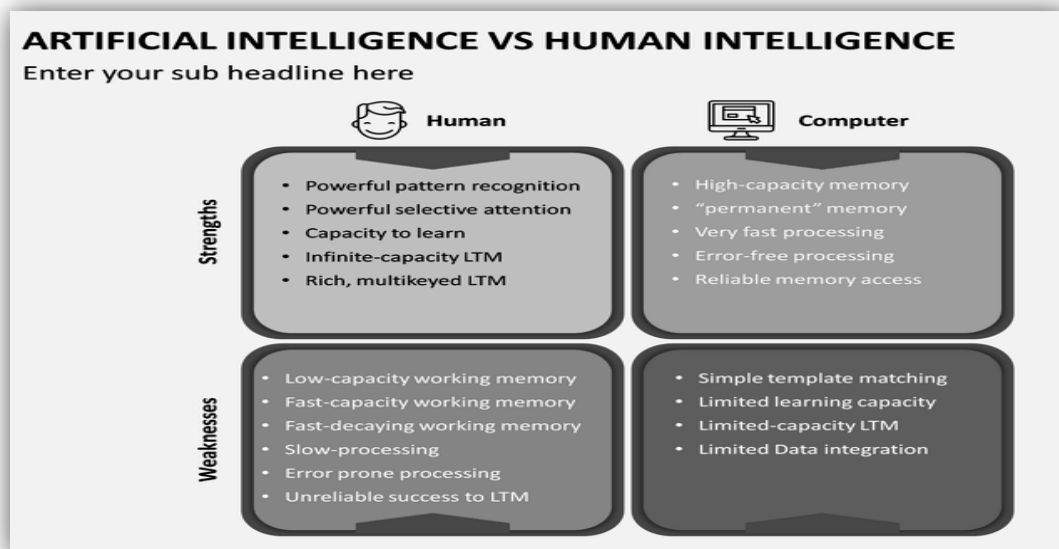
Constraints and Hindrances of AI-human Combination

Despite the fact that the combination of AI and human judgment can result in more effective decisions in the workplace, there are substantial constraints and hindrances to its use. For instance, AI can sometimes amplify problems for its inherent complexities or errors, preventing it from performing better rather than generating errors in the decision-making process that increase human responsibilities. These AI technology-based machines differ from traditional machines, requiring the necessary education to use them. Lack of sufficient expertise in using these AI technologies also can bring more additional tasks rather than making the job easier or reducing the task load and making it more complex.

However, research and opinion on how far artificial intelligence (AI) can be used to replace the human brain, especially in decision making, has been limited and has varied in scope, technology, and target and specific objectives related to the business perspectives. (Bouyssou and Pirlot 2008; Mungua et al. 2010; Nilsson 2010; Glock and Hochrein 2011; Nguyen et al. 2018; Wright and Schultz 2018).

Additionally, technology-based machines are used as a tool to complete complex tasks, such as using technology in machines to assist humans in the manufacturing process. It defines the organizations' less actual social collaborations. The most significant disadvantage of Artificial technology is that it cannot learn to think out of the box, and it is only capable of learning from pre-fed data as well as past experience. It needs to be more creative in terms of making its approaches to complex projects. Sometimes, it can perform its function for a dynamic process characterized by uncertainty.

According to a research paper written by Reuben Binns, he distinguishes between human judgment and the automated decision-making process and identifies its flaws. Intelligence is acquired through learning, which can occur in humans or machines that undergo a training phase during which they can make mistakes and learn from them. In the judgment processes of both AI and humans, there are phases of training, and once these phases are complete, the AI and humans can perform better on the given or required tasks. Consequently, both AI and humans can make mistakes during the training phase. After accumulating these phases, they can perform well in acquiring accurate judgments based on situations.

ARTIFICIAL INTELLIGENCE VS HUMAN INTELLIGENCE
Enter your sub headline here

Human

Computer

Strengths
- Powerful pattern recognition
- Powerful selective attention
- Capacity to learn
- Infinite-capacity LTM
- Rich, multikeyed LTM

- High-capacity memory
- "permanent" memory
- Very fast processing
- Error-free processing
- Reliable memory access

Weaknesses
- Low-capacity working memory
- Fast-capacity working memory
- Fast-decaying working memory
- Slow-processing
- Error prone processing
- Unreliable success to LTM

- Simple template matching
- Limited learning capacity
- Limited-capacity LTM
- Limited Data integration

Although artificial intelligence is capable of performing faster prediction and has a processing capacity that exceeds human capacity, it cannot always be relied upon or trusted to be unbiased. It is vulnerable to biases when performing tasks, such as any error occurs, so it may miss certain information during interpretation and make biased decisions. However, it is essential to remember that AI systems are created by humans, who can be biased in judgment. Nevertheless, the appropriate use of these systems can result in positive social outcomes and serve as a catalyst for positive change. (Vadapalli, 2022)

There can be another drawback of these combinations, which can be the complexity of the decision-making process that impacts the quality of the performances of the human input on AI technologies. The issues of the interruption of any midpoint of any critical task can make the tasks more challenging and complex, which eventually takes much time. In terms of being a trustworthy system, it is also crucial to how humans can interact with these systems meaningfully. Such interaction needs to be implemented effectively so that it does not increase the danger, risk, or fault. Efficient interaction between humans and machines can involve the implementation of accurate decision-making results, and ineffective communication leads to faulty results, eventually leading to fewer outcomes. These AI-based systems are incorporated into advanced visualizations

that enable humans to make assumptions and make decisions quickly. (Babushkina&Votsis, 2022) But if these AI systems result in faulty results due to some error in the systems. It may make some biased results that will create a problem in human judgment as they are getting wrong perceptions from AI that can also lead them to make mistakes in their decision-making. That is why even though this combination of AI-human can drive better outcomes, it can also make mistakes and less effective outcomes and sometimes take longer due to some error in the system process.

II.   Conclusion

In conclusion, this research paper presents a comprehensive view of human judgment in artificial intelligence (AI) and describes its importance. The contribution of AI technologies is the most essential to this modern era. However, AI has the potential to replace people in specific jobs and improve the workplace's performance and functionality. While performing its functionality and predictions, it only can use pre-given data, and sometimes due to some inherent faults, it cannot implement its expected outcome. Human-centered judgment promotes ethical considerations, humanistic, logical reasoning, and collaboration among innovating technical breakthroughs in the workplace. AI is being created to make a beneficial impact on humanity. Finally, it is highlighted that the concept of a combination of the AI-human judgment framework in order to maximize the outcome and the performance of the contemporary business. Even if AI-human has some constraints, combining AI and humans can have a positive effect by incorporating more human judgment and decision-making alongside AI judgment. Therefore, these are the reasons why we should promote human intelligence in strategic planning and judgment based on analyzing situations and AI-technology predictions.

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