Assessment 4: Literature Review - The use of AGI in strategic Decision Making in Organisations

MA58440: Data Science and Strategic Decision Making for Business

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I. Introduction

Artificial General Intelligence (AGI) is viewed as a transformative type of Artificial Intelligence (AI) in the context of strategic decision-making, with the capacity to assist businesses in planning and carrying out their objectives and plans, giving them a competitive edge over their rivals. AGI has the ability to act intellectually like a human-being, with the ability to solve problems, self-improve and undertake new tasks not originally designed to perform (Goertzel & Pennachin, 2007). Anthropic, Deepmind, IBM, and Evolv are just a few of the organizations that have started exploring the use of AGI for corporate expansion and possibly strategic decision-making (Glover, 2022).

AGI's strength resides in its ability to process massive amounts of data in real-time and derive valuable conclusions. Its ability to identify complex patterns and trends in data empowers decision-making and holds the promise of improving the way organizations formulate and execute their long-term capabilities, resulting in timely, well-informed decisions, driving competitive advantages, and improving overall performance. Despite its capabilities, AGI lacks common-sense in comparison to humans, as well as the inability to grasp new nuanced contexts on occasion, which may lead to suboptimal choices and thus pose challenges to executives dealing with the problem of working with incomplete or biased information. AGI offers opportunities in automating insights, trend prediction, and human resource optimization.

However, ethical concerns arise, demanding vigilance against data misuse and breaches. As AGI systems become increasingly capable, they may devise novel and unexpected solution to problems that may result in harmful or catastrophic outcomes (Sharma, 2023). AI experts and Data Scientists play a crucial role in ensuring AGI's responsible and ethical operation.

In essence, this overview of AGI's role in strategic decision-making encapsulates its strengths, weaknesses, opportunities, and challenges. Moreover, it delves into the motivations driving AGI's integration, the framing of policy decisions, ethical and legal considerations, and the potential biases that can influence decision outcomes. By exploring these dimensions, a comprehensive understanding of AGI's multifaceted impact on strategic decision-making emerges, illuminating its potential to reshape the corporate landscape.

II. From AI to AGI

Since its inception, AI has advanced significantly, and this development has been fuelled by a combination of human curiosity and a never-ending quest for knowledge and creation (Sharma, 2023). The introduction of deep learning techniques and the use of enormous datasets to train AI systems heralded a new era in AI development with the dawn of the twenty-first century. While AI is designed to be excellent at some tasks, it lacks human understanding and intuition and is unable to comprehend and adjust to novel situations.

As a result, the creation of AGI, an upgrade to AI, began, with the goal of creating a system capable of learning and adapting to new settings in the same way that humans do. AGI possesses the potential to outperform various roles currently handled by AI due to its capacity for accelerated and superior independent research, along with direct implementation (Lundberg, n.d.). Table 1 summarises my understanding of the distinctions between AI and AGI. AGI also significantly benefits strategic decision-makers by enhancing operational efficiency, improving consumer perceptions, and augmenting return on investment (Voleti, 2023). The following section dives into the reasons underlying AGI adoption in organizational strategic decision-making.

Table 1
Difference between AI and AGI

	AI	**AGI**
Scope	Designed to operate within specific parameters and perform specific tasks.	Designed to perform a variety of tasks and adapt to new scenarios.
Intelligence Level	Limited	Potential to have unlimited intelligence level
Learning approach	Based on pre-programmed rules and uses data to learn new rules.	Based on human intelligence and develops via a combination of experience, reasoning and cognitive processes.
Flexibility	Less Flexible	More Flexible than AI due to its ability to adapt to new scenarios.
Availability	Currently available and used in the real-world.	Still in the process of being a reality.

Note. Adapted from Atuhaire (2023)

III. Motivation for AGI in strategic decision making in an organization

I believe the potential for developing a true AGI might be a game-changer for any firm, which heightens the motivation for using it in strategic decision-making. An ongoing challenge facing organizations is resource and employee management. AGI systems advanced ability to adapt and problem-solve would massively help in monitoring key performance indicators (KPI) and other metrics that would boost the organization's performance. Powered by limitless computing ability, AGI's capability to self-learn will help strategic-decision makers in identifying patterns and anomalies which may possibly evade the human eyes. AGI-based systems will directly aid in anticipating future needs, handle emerging organizational challenges and provide visibility into various enterprise blind spots (Schmelzer, 2021).

The incentives for employing AGI in strategic decision making can be tied to the AGI's Strengths and Opportunities, which are listed below:

- *Solving complex problems*: The ability of AGI to comprehend and assess massive amounts of data may help in the resolution of challenging issues by spotting patterns and analysing trends in data more quickly and effectively than the human mind (Tyson, 2023).

- *Scenario Planning*: AGI's potential greatly empowers strategic decision-makers, aiding in crafting strategies from scratch. It excels in goal setting, thorough analyses, asset evaluation, scenario generation, and optimal execution. This equips decision-makers to enhance planning and mitigate business-disrupting risks. Evolv Technology's Evolv Cortex AI, an advanced AGI, exemplifies effective scenario planning (Evolv Technology, n.d.). The "continuously learning" real-time Evolv Threat AI Classifier separates threats from harmless entities, allowing security-focused decision-makers to quickly develop and put strategies into action that effectively eliminate risks.

- *Cognitive Automation*: Cognitive automation is a type of artificial intelligence that uses machine learning and natural language processing to automate cognitive tasks, such as decision-making and problem-solving (Frąckiewicz, 2023). Utilizing cognitive automation enhances the efficiency and effectiveness of AGI systems in their operations. Strategic decision-makers benefit from the application of cognitive automation by getting deeper insights from data patterns, optimizing AGI performance, promoting quick learning, reducing risks through anomaly detection, ensuring efficient resource allocation, assisting adaptable strategies, and enhancing informed decision-making in dynamic business environments.

- *Real-time Adaption*: AGI's potential to monitor and process real-time data presents an opportunity for organizations to swiftly adapt to changing market conditions, capitalize on emerging opportunities, generate innovative ideas to gain a competitive edge. An illustrative instance of AGI performing real-time analysis is within the banking sector, poised to revolutionize the industry. AGI enables quick, informed judgments about investments, loans, customers, and associated risks, resulting in increased operational efficiency, fewer human errors, and greater financial returns for banks and their customers ("Banking on AI: How artificial general intelligence is transforming the financial industry — Sweep," 2023).

IV. AGI's biases and its ethical and legitimate uses

The potential benefits of AGI inspire enormous excitement among communities. However, it is also important to consider the ethical and social implications of AGI. Sharma (2023) stated that " One of the most pressing ethical concerns regarding AGI is ensuring that it aligns with human values. This is a complex task as human values are diverse, context-dependent, and subject to change over time". To attain this goal, researchers must prioritize the development of value-aligned AGI systems that can learn and adapt to human values as they evolve. Techniques such as reinforcement learning, inverse reinforcement learning, and value learning enables AGI to differentiate between human preferences from observed behaviour (Sharma, 2023). Furthermore, I believe we must strive to design AGI systems that are transparent and interpretable so that we can understand their decision-making process and intervene as needed.

One of the most critical ethical considerations associated with AGI is the potential displacement of human labour. As AGI's capabilities increase, there's a genuine risk that it could replace human workers across various industries, aggravating existing workplace inequities (Moreira, 2023). Strategic decision-makers need to anticipate the long-term impacts of AGI on the workforce and devise strategic solutions to address the challenges that may arise.

Additionally, the benefits that arise from AGI must be evenly distributed among all the members of the society. The threat of AGI escalating the current social and economic disparities by distributing its benefits in the hands of a selected entities could result in massive social unrest and instability. Strategic decision makers and data scientists must collaborate to create a more inclusive and equitable AGI ecosystem. This can be accomplished by combining governmental actions, such as wealth redistribution and fair taxation, with corporate activities that emphasize social impact and shared prosperity (Sharma, 2023).

Addressing the potential biases in AGI and their influence on decision-making is of paramount importance. Bias in AGI refers to the unjust and skewed outcomes that AI systems can produce due to the biases present in the data they are trained on. Given that AGI relies on vast amounts of data to train and improve itself, it's plausible that data sources used for AGI could be unrepresentative of the population and built upon biased assumptions (Frąckiewicz, 2023). This bias may escalate over time as the AGI system continues to self-learn and evolve, potentially leading to unethical outcomes.

Effectively tackling this threat involves identifying biases in training data and refining algorithms to generate fair outcomes. Collaboration among Data Scientists, AI experts, and domain specialists is crucial in overseeing the collection and usage of data to detect potential abuses. Teamwork is also critical in monitoring, gathering, and utilizing data to spot potential abuses. The team's attention should be focused on creating techniques for detecting, measuring, and mitigating bias. Domain experts can identify blind spots (biases) and enhance data processes and algorithms to develop bias-free AGI systems through ongoing monitoring and review.

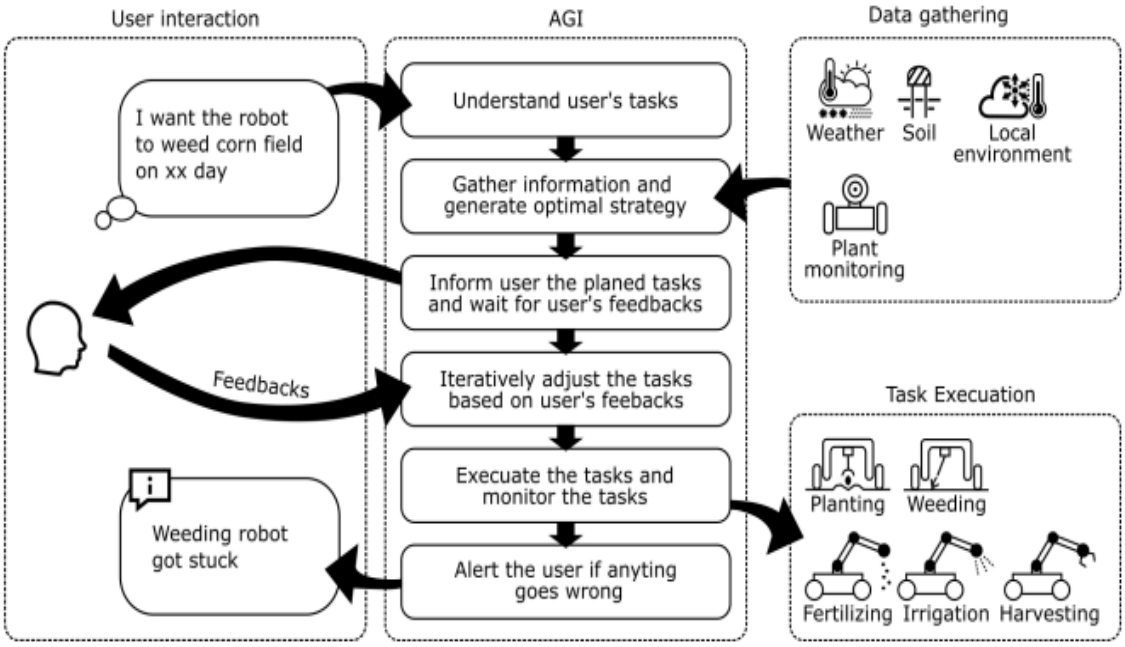
In addition, preserving public confidence in AGI systems necessitates taking steps to ensure ethical data collection practices coupled with explicit user consent (Rayhan, 2023). This, in my opinion, will help to build trust between those who create AGI and the larger society that uses them.

V. Business Scenario: AGI for Agriculture, Policy Decisions, and the Role of a Data Scientist.

The use of AGI has been implemented in many organizations, notably the agricultural industry. Figure 1 depicts potential future scenarios of enhanced human-robot interaction using AGI to accomplish farming tasks more efficiently. AGI for agriculture can be used for a variety of use cases like Precision Farming and Phenomics, Livestock Precision and Reliable Infrastructure Management to name a few (Lu et al., 2023).

Figure 1:

AGI for Agriculture



Note. Sourced from Lu et al. (2023, p. e18).

The farmer can interact with the AGI by issuing a command or a series of commands. Based on the AGI's advanced understanding and computing capabilities, AGI can generate optimal strategies while keeping the user informed regarding the planned tasks. AGI can conduct various activities, execute, and monitor them, and also inform the user in case of an emergency while also iteratively adjusting the tasks being performed based on the user's feedback. AGI will also be quite helpful for performing crucial farming operations while simultaneously learning about the weather and soil conditions.

Having sound policies in place is also crucial when it comes to agriculture. Over time, effective policymaking for agricultural transformation must become more evidence-based (Boettiger et al., 2017). AGI immediately contributes to the provision of evidence-based insights by vastly improving existing laws and regulations affecting labour, infrastructure, land ownership, access to water, and insurance. AGI can significantly assist strategic decision makers in developing policies by leveraging data and a combination of prescriptive, diagnostic, and predictive analytics to examine the expenses of farming, equipment, and infrastructure, as well as the impact of climate on crop yield. AGI can also aid in resetting goals and redirecting programs when strategic outcomes are not meeting targets. Therefore, by factoring in economic and environmental dimensions, AGI can assist in generating balanced policies that address the society as a whole.

The role of a data scientist is crucial with the progressive development of AGI. Rather than adhering solely to conventional machine learning and predictive modelling, data scientists now engage in algorithm design and ethical exploration due to the emergence of AGI (Kumar, 2023). Data scientists working in the agricultural sector can use AGI to construct algorithms that forecast crop yield, cattle disease outbreaks, and climate impacts, assisting in resource allocation and risk mitigation. By teaming-up with AGI, farmers, agronomists, and policymakers, data scientists enhance analytical outcomes, decision-making processes, and automation, thus contributing to the creation of a sustainable agricultural ecosystem. Moreover, a data scientist tackles the ethical use of AGI by examining data availability and quality (Sukkarieh, 2016). They are also accountable for addressing data biases, maintaining transparency, and adhering to privacy regulations.

VI. Conclusion

The initial goal of AI was to generate problem-specific solutions and assist humans across a wide range of domains. In recent years, the emphasis has shifted to developing a modified form of AI known as Artificial General Intelligence. AGI is capable of thinking like humans and of self-learning and improving over time. AGI ticks all the boxes in terms of providing an exciting future for mankind, from sensory perception to complex problem solving, natural language understanding, and enhancing human capabilities and creativity. AGI has enormous potential for assisting strategic decision-makers. It provides a competitive advantage and profit escalation for organisations by generating numerous strategic scenarios, conducting real-time scenario analyses, and facilitating agile action implementation. Nonetheless, amid this optimism, a vigilant approach to ethics and societal implications is critical.

Addressing potential biases influencing decisions and considering issues like labour displacement and unequal benefit distribution become critical. The data-driven nature of AGI adds another layer of complication. Unchecked biases within its data corpus can result in unfavourable results. Teamwork between domain experts, data scientists, and government agencies is critical. To ensure AGI's societal utility, robust strategies, vigilant data monitoring, preventing misuse, and establishing fair policies are required. In the realm of agriculture, AGI holds transformative potential. Collaborating with agricultural decision-makers, AGI can revolutionize farming practices, livestock management, and farm infrastructure. AGI gives decision-makers the ability to effectively optimize strategies by assisting in cost analysis of crop cultivation and equipment maintenance as well as forecasting the effects of climate change on crop yields.

AGI’s evolution is significant, promising vast benefits and opportunities to strategic decision-makers. However, ethical integration and responsible deployment are crucial for overall advancement to minimise risks and optimize outcomes.

Total words: 2193

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