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## Is servant leadership necessary in a modern society where AI (artificial intelligence) is utilized?

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### Abstract

Modern society is entering the era of the 4th Industrial Revolution due to the rapid development of artificial intelligence (AI) technology. Along with these changes, the introduction and use of AI technology is emerging as an essential element within organizations. Therefore, an organizational culture and leadership that can adapt to these changes are needed. With the advancement of AI technology, servant leadership can be appropriately used as a leadership method that can achieve the growth of organizational members while minimizing the side effects of introducing AI technology within an organization.

This study explored the challenges, opportunities, and necessity of servant leadership in the era of artificial intelligence.

**Keywords:** servant leadership, AI(artificial intelligence).

### 1. Introduction

The current society has entered the era of the 4th industrial revolution due to the rapid development of artificial intelligence (AI) technology. Along with these changes, the introduction and use of AI technology is emerging as an essential element within organizations. However, unlike in the past, the experience of adopting such technology drastically changes the workforce and culture of the organization, which sometimes causes side effects within the organization.

Therefore, an organizational culture and leadership that can adapt to these changes are needed. Among them, servant leadership is a leadership method that focuses on the value and growth of the members of the organization and strives to achieve the goals and achievements of the organization. Such servant leadership can be appropriately used as a leadership method that can achieve growth of members in an organization while minimizing the side effects of the introduction of AI technology in the organization along with the development of AI technology.

This study seeks to explore the challenges and opportunities for servant leadership in the age of artificial intelligence, along with the need for it. Through this, the purpose is to identify the realistic challenges of leadership within organizations in the age of artificial intelligence and to seek active countermeasures.

### 2. Theoretical Foundation of Research

#### 1) Understanding of Servant Leadership

##### (1) Definition of Servant Leadership

Servant leadership is a leadership philosophy that prioritizes serving others and emphasizes the leader's role as a servant to their followers. According to Spears (2002), servant leadership is a moral and practical philosophy that promotes the personal and professional growth of individuals and helps build a better society. The servant leader places the needs of their followers above their own self-interest and acts as a facilitator to help them achieve their goals.

Greenleaf (1977) defined servant leadership as follows: "The servant-leader is servant first... It begins with the natural feeling that one wants to serve, to serve first. Then conscious

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choice brings one to aspire to lead" (p. 27). The servant leader seeks to understand the needs and aspirations of their followers and works to empower and enable them to reach their full potential. This leadership style is based on ethical and moral principles, including humility, empathy, trust, and respect for others.

In summary, servant leadership is a leadership approach that focuses on serving others, promoting personal and professional growth, and building a better society. It is characterized by the leader's willingness to put the needs of their followers first, and it is grounded in ethical and moral principles.

### (2) Historical Background of Servant Leadership

Servant leadership has a long historical background, as emphasized by Greenleaf (1977), who cited Robert Greenleaf's essay titled 'The Servant as Leader' published in the early 20th century. In this essay, Greenleaf expressed the importance of encouraging voluntary leadership by talented members within a group rather than being led by a randomly elected or appointed leader (Greenleaf, 1977, p. 13). This idea is rooted in the concept of 'good service' presented by the Greek philosopher Epictetus, and it has been evolving in the human resources industry in the United States, where Greenleaf presented 'a growing and evolving leader' as an ideology (Sendjaya, 2015).

The concept of servant leadership can be traced back to ancient civilizations and has been prevalent in various forms throughout history. It emphasizes the idea of serving others and helping them achieve their goals rather than seeking power and authority for oneself. The history of servant leadership is rich and diverse, and it is worth exploring to understand its evolution and impact on leadership theories today.

### (3) Principles of Servant Leadership

The principles of servant leadership have been suggested by various theorists. Let's take a look at some of the principles of famous theorists.

**Greenleaf's Principles of Servant Leadership:** Greenleaf presented the principles of servant leadership in his 'The Servant as Leader' as follows.

"Thus, the servant leader is one who first serves people, so that they are developed and that they have the resources and conditions they need to achieve their goals." (Greenleaf, 1977, p. 27)

**Spears' Principles of Servant Leadership:** Based on Greenleaf's theory, Spears suggested the following 10 principles.

- The leader is the Servant.

According to Spears' Principles of Servant Leadership, the leader should see themselves as a servant first and foremost. This means that the leader's primary goal should be to serve their followers rather than seeking power and control. The servant leader is focused on the needs of their followers and works to empower them to reach their full potential. This principle is based on the idea that true leadership involves putting the needs of others before your own. As Greenleaf, the founder of the concept of servant leadership, put it, "The servant-leader is servant first... It begins with the natural feeling that one wants to serve, to serve first."

- Leaders show good deeds.

A servant leader must lead by example and set a positive tone for the organization. This means that leaders must show good deeds and model the behaviors they want their

followers to emulate. This principle emphasizes that actions speak louder than words and leaders must be consistent in their behavior and actions. By showing good deeds, leaders earn the trust and respect of their followers, which is crucial for building strong relationships within the organization.

- Leaders have understanding.

Understanding is a key characteristic of a servant leader. This principle emphasizes the importance of leaders developing an understanding of their followers, their needs, and their perspectives. This involves active listening, empathy, and an open mind. By understanding their followers, leaders can make informed decisions that are in the best interest of the organization and its members. Furthermore, leaders who show understanding build trust and rapport with their followers, leading to a more productive and harmonious work environment.

- Leaders respect diversity.

A servant leader must value diversity and treat everyone with respect and dignity. This principle emphasizes that leaders must be inclusive and create an environment where everyone feels valued and included. This involves being aware of and respecting differences in race, ethnicity, gender, age, religion, and culture. Leaders who respect diversity promote a culture of acceptance, which fosters creativity and innovation within the organization.

- Leaders are human.

The principle of "Leaders are human" emphasizes that leaders are not infallible and must recognize their own limitations. This means that leaders must be humble and willing to admit mistakes, ask for help, and seek feedback from others. By acknowledging their own imperfections, leaders can create a culture of openness and trust, where followers feel comfortable sharing their own weaknesses and concerns.

- Leaders have an attitude of serving others.

A servant leader must have a genuine desire to serve others. This means that leaders must be committed to helping their followers achieve their goals and supporting them in their personal and professional growth. This principle emphasizes that leaders must be selfless, putting the needs of others before their own. Leaders who have an attitude of serving others create a culture of collaboration and teamwork, which leads to greater success for the organization as a whole.

- Leaders promote the personal and professional growth of team members.

A servant leader must be committed to the growth and development of their followers. This involves providing opportunities for learning and development, coaching and mentoring, and recognizing and rewarding achievements. This principle emphasizes that leaders must invest in their followers, helping them to reach their full potential. Leaders who promote personal and professional growth create a culture of continuous improvement, leading to greater success for both the organization and its members.

- Leaders play a leadership role for the purpose of the organization.

The principle of playing a leadership role for the purpose of the organization emphasizes that leaders must be committed to achieving the goals and objectives of the organization. This involves aligning the actions and decisions of the leader with the strategic direction of the organization, and working to ensure that everyone in the

organization is aligned with these goals. Leaders who play a leadership role for the purpose

## 2) Understanding AI (artificial intelligence)

### (1) Definition of AI (artificial intelligence)

Artificial Intelligence (AI) refers to the branch of computer science and technology that focuses on the development of intelligent systems capable of performing tasks that typically require human intelligence. These tasks encompass a wide range of cognitive functions, including but not limited to reasoning, problem-solving, learning, perception, and natural language understanding (Russell & Norvig, 2016). AI systems aim to simulate human-like intelligence through the utilization of algorithms, data, and computational power, enabling them to analyze complex patterns, make decisions, and adapt to changing environments autonomously (Nilsson, 1998).

Furthermore, AI can be categorized into two main types: Narrow AI and General AI. Narrow AI, also known as Weak AI, is designed to perform specific tasks or functions within a limited domain, such as image recognition, language translation, or virtual assistants (Russell & Norvig, 2016). In contrast, General AI, also referred to as Strong AI or Artificial General Intelligence (AGI), represents the hypothetical ability of AI systems to exhibit human-like intelligence across a wide range of cognitive tasks and domains (Bostrom, 2014).

In summary, Artificial Intelligence (AI) encompasses the field of computer science dedicated to creating intelligent systems capable of emulating human cognitive functions. Through the utilization of algorithms, data, and computational power, AI systems aim to perform tasks that traditionally require human intelligence, ranging from problem-solving to natural language understanding. By categorizing AI into Narrow AI and General AI, researchers can explore the various applications, capabilities, and implications of AI within the academic domain.

### (2) Historical background of AI (artificial intelligence)

The concept of artificial intelligence (AI) is rooted in the field of computer science, and has a history that dates back to the mid-20th century. According to Russell and Norvig (2010), the term "artificial intelligence" was first coined in 1956 by John McCarthy and a group of researchers at the Dartmouth Conference. The conference marked the beginning of AI as a formal research field and was attended by many notable figures in the field, including Marvin Minsky and Claude Shannon.

However, the idea of creating machines that could think and reason like humans predates the Dartmouth Conference by several decades. In the early 1940s, researchers such as Alan Turing and John von Neumann were already working on the theoretical foundations of what would later become known as AI (Kurzweil, 2005).

The development of AI progressed rapidly in the following decades, with a focus on rule-based systems and symbolic reasoning. In the 1960s and 1970s, researchers such as Edward Feigenbaum and Joshua Lederberg worked on the development of expert systems, which used knowledge and rules to solve specific problems (Nilsson, 1983). In the 1980s, the focus of AI research shifted towards neural networks and machine learning, with breakthroughs such as the backpropagation algorithm and the development of the first deep learning models (LeCun et al., 2015).

However, the field of AI also experienced setbacks and

periods of skepticism, known as "AI winters". The first AI winter occurred in the 1970s, when it became apparent that rule-based systems and symbolic reasoning were insufficient for solving complex problems (Russell and Norvig, 2010). The second AI winter occurred in the 1990s, when many AI startups failed to deliver on their promises of intelligent machines and the field was seen as overhyped (Shoham, 2017).

In recent years, AI has experienced a resurgence, thanks to advances in machine learning, deep learning, and natural language processing. AI is now being applied in a wide range of fields, from healthcare to finance to transportation (Jordan and Mitchell, 2015). The development of AI is still ongoing, and researchers are exploring new approaches, such as explainable AI and quantum computing, to address the limitations of current AI systems (Waldrop, 2020).

In conclusion, the history of AI is a rich and complex subject, with many important figures and milestones. From its early theoretical foundations to its current applications, the development of AI has been shaped by advances in computer science and a drive to create machines that can reason and think like humans. However, the field has also experienced setbacks and skepticism, and the development of AI continues to be an ongoing process with many challenges and opportunities for future research.

### (3) The Development Status of Artificial Intelligence (AI) Technology: A Theoretical Analysis

Artificial Intelligence (AI) technology has experienced significant advancements in recent years, driven by breakthroughs in machine learning, deep learning, and neural network algorithms (LeCun et al., 2015). One notable development is the proliferation of AI applications across various domains, including healthcare, finance, transportation, and entertainment (Russell & Norvig, 2016). For example, AI-powered diagnostic tools are revolutionizing medical diagnosis and treatment planning, while AI-driven financial algorithms are optimizing investment strategies and risk management practices (Esteva et al., 2017; McKinney et al., 2016).

Furthermore, AI technology has made remarkable progress in natural language processing (NLP) and computer vision, enabling machines to understand and interpret human language and visual information with unprecedented accuracy and efficiency (Devlin et al., 2019; He et al., 2016). For instance, state-of-the-art NLP models like BERT and GPT have demonstrated human-level performance on a wide range of language tasks, including text generation, summarization, and translation (Devlin et al., 2019; Radford et al., 2019).

Moreover, AI research has witnessed significant advancements in reinforcement learning, a branch of machine learning focused on training agents to interact with environments and learn optimal decision-making policies (Mnih et al., 2015). Deep reinforcement learning algorithms, such as Deep Q-Networks (DQN) and Proximal Policy Optimization (PPO), have achieved remarkable success in solving complex tasks, ranging from video game playing to robotic control (Mnih et al., 2015).

Despite these advancements, several challenges remain in the development of AI technology. These include issues related to data privacy and security, algorithmic bias and fairness, interpretability and transparency of AI models, and the ethical implications of AI deployment (Floridi et al., 2018; Mittelstadt et al., 2016). Addressing these

challenges is essential for ensuring the responsible and ethical development and deployment of AI technology in society.

In conclusion, the development status of Artificial Intelligence (AI) technology reflects significant progress across various domains, driven by advancements in machine learning, deep learning, and reinforcement learning algorithms. However, challenges related to data privacy, algorithmic bias, and ethical considerations remain critical areas for further research and development in the field of AI.

#### (4) Current Status of AI Real-life Application

The development of AI technologies has led to various real-life applications across multiple domains, ranging from healthcare, finance, transportation, to entertainment, and more. In the healthcare industry, AI has been used for disease diagnosis and personalized treatment, drug discovery, and medical image analysis (Rajkomar et al., 2018; Topol, 2019). In the finance industry, AI has been utilized for fraud detection, risk management, and trading (Chen et al., 2019; Tay and Liu, 2020). In transportation, self-driving cars have emerged as a promising application of AI (Alam et al., 2019). In the entertainment industry, AI has been applied to gaming, music, and movie production, enhancing user experience and creating new forms of entertainment (Kawaguchi et al., 2019).

AI has also been used to improve customer service and marketing through chatbots, recommendation systems, and sentiment analysis (Liu et al., 2019; Wang et al., 2020). Furthermore, AI has been employed in smart city development, which involves the integration of various technologies, such as the internet of things (IoT) and big data, to optimize urban management and enhance the quality of life of citizens (Zanella et al., 2014; Ahmadi et al., 2020).

Despite the numerous real-life applications of AI, there are still challenges to overcome, such as data privacy and security concerns, ethical issues, and the potential impact on employment and society (Cath et al., 2018; Floridi et al., 2018). In addition, the adoption of AI technologies in some industries is slower than others due to various reasons, such as regulatory barriers, high implementation costs, and cultural resistance (Liu et al., 2019; Tay and Liu, 2020).

In conclusion, the current status of AI real-life applications is promising, with a wide range of applications in various domains. However, there are still challenges and barriers that need to be addressed before AI can fully realize its potential in transforming society and improving human life.

#### (5) The relationship between servant leadership and AI

##### ① Impact on Individuals:

Servant leadership in the AI era can have profound effects on individuals within organizations. Firstly, servant leaders prioritize the development and empowerment of their followers (Liden et al., 2008). In the context of AI, this may translate into leaders providing opportunities for skill development and continuous learning to help employees adapt to technological changes and harness the potential of AI tools effectively (Sendjaya, 2018). Secondly, servant leadership fosters a supportive and inclusive organizational culture where employees feel valued and appreciated (Greenleaf, 1977). This can be particularly important in mitigating fears and anxieties associated with AI implementation, as employees are more likely to embrace change when they feel supported and respected by their

leaders (Liu et al., 2021). Lastly, servant leaders prioritize the well-being of their followers, promoting work-life balance and emotional support (Sendjaya, 2018). In the AI era, where concerns about job displacement and automation-induced stress are prevalent, servant leaders can play a crucial role in providing emotional support and guidance to help individuals navigate these challenges (Hoch et al., 2018).

##### ② Impact on Society:

Servant leadership's impact extends beyond individual organizations to society as a whole. Firstly, servant leaders prioritize social responsibility and ethical conduct (Greenleaf, 1977). In the AI era, where ethical considerations surrounding data privacy, algorithmic bias, and job displacement are paramount, servant leaders can advocate for responsible AI development and use, ensuring that AI technologies are deployed in a manner that benefits society as a whole (Floridi et al., 2018). Secondly, servant leadership emphasizes empathy, compassion, and inclusivity (Stone et al., 2004). These values are essential for fostering social cohesion and addressing societal challenges exacerbated by AI, such as inequality and digital divide (Floridi et al., 2018). Servant leaders can champion initiatives aimed at bridging the gap between AI haves and have-nots, ensuring that the benefits of AI are equitably distributed across society (Cath et al., 2018). Lastly, servant leadership encourages collaboration and collective problem-solving (Liden et al., 2008). In the face of complex societal issues amplified by AI, such as climate change and global health crises, servant leaders can mobilize diverse stakeholders to work together towards sustainable solutions (Sendjaya, 2018).

The emergence of Artificial Intelligence (AI) has led to concerns about its potential impact on leadership practices and theories. However, there is growing recognition that AI and servant leadership can complement each other, as AI technologies can enhance the ability of leaders to serve their followers in various ways. In this thesis, we will explore how servant leadership complements AI, and the potential benefits that can arise from this relationship.

One way in which servant leadership can complement AI is through the use of AI tools to support communication and collaboration within teams. For instance, AI-enabled chatbots and virtual assistants can facilitate real-time communication, provide feedback and support, and help employees overcome language and cultural barriers. Such AI-powered tools can enable leaders to engage with their teams in a more personalized and efficient manner, which is a key aspect of servant leadership (Krause, 2017).

Another area where AI can enhance servant leadership is in gathering and analyzing data to better understand the needs and preferences of employees. AI technologies can help leaders to gain insights into employee sentiments, work patterns, and overall organizational performance. By leveraging this data, leaders can develop more tailored and responsive leadership strategies that align with the principles of servant leadership (Hoch, Dulebohn, & Bordia, 2018).

Furthermore, AI can also help leaders to automate routine and time-consuming tasks, enabling them to focus more on strategic decision-making and value-added activities. This can help leaders to better serve their followers by reducing the burden of administrative tasks and freeing up more time for mentoring, coaching, and relationship-building

activities (Hoch et al., 2018).

Despite the potential benefits of AI for servant leadership, there are also concerns that AI could undermine some of the core principles of servant leadership, such as empathy, personal connection, and ethical decision-making. Therefore, it is important to ensure that the design and implementation of AI technologies align with the values and principles of servant leadership, and that leaders continue to prioritize human-centered approaches to leadership (Krause, 2017).

In conclusion, the relationship between servant leadership and AI is complex and multifaceted, with both opportunities and challenges. However, by leveraging the potential benefits of AI, leaders can enhance their ability to serve their followers, and ultimately create more inclusive, supportive, and effective organizations.

### 3. Implementation

The implementation of artificial intelligence (AI) presents a significant challenge for organizations, as they must balance the potential benefits of the technology with the risks and uncertainties associated with its use. In this context, servant leadership can play a critical role in facilitating successful AI implementation.

One key aspect of servant leadership in the context of AI implementation is its focus on empowering and enabling followers. Servant leaders prioritize the needs of their team members and work to build their skills and capabilities, which can be particularly important in the context of AI implementation. By providing training and support, servant leaders can help employees develop the skills needed to work effectively with AI technologies, reducing the risk of resistance or rejection.

In addition, servant leadership can help to foster a culture of trust and transparency that is essential for successful AI implementation. Servant leaders prioritize open communication and seek to build strong relationships with their team members, which can help to promote trust and buy-in for new technologies. This can be particularly important in the context of AI, where there may be concerns about job displacement or other potential negative impacts.

Moreover, servant leadership can help to ensure that AI implementation is aligned with the values and goals of the organization. By engaging in ongoing dialogue with employees and other stakeholders, servant leaders can help to ensure that AI is implemented in a way that reflects the organization's mission and vision. This can help to promote a sense of purpose and meaning among employees, increasing their engagement and commitment to the organization.

Servant leadership is necessary as a tool to compensate for the emotional exhaustion of individuals caused by the fragmentation and mechanization of modern society.

Despite the potential benefits of servant leadership in the context of AI implementation, there are also challenges to consider. For example, servant leaders may struggle to balance the competing demands of AI implementation with other organizational priorities. Additionally, the complex and rapidly evolving nature of AI technologies may require leaders to continually adapt their approach to implementation.

Overall, the role of servant leadership in AI implementation is an important area for further research and exploration.

By understanding the ways in which servant leadership can support successful AI implementation, organizations can better prepare for the challenges and opportunities presented by this rapidly evolving technology.

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