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Abstract

Purpose: The study sought to analyze the impact of artificial intelligence on purchasing and procurement in South Korea

Methodology: The research was conducted entirely on computers. Secondary data, or data that doesn't require actual observation in the field, are the focus of desk research. Because it requires little more than an executive's time, telephone rates, and directories, desk research is generally seen as a low-cost strategy in comparison to field research. As a result, the research used data that had already been collected and reported. This secondary data was readily available via the internet's digital library and scholarly articles.

Findings: The results show that the impact of AI on purchasing and procurement is significant. AI is used in automate manual tasks, reducing costs and improve accuracy. It also provides insights into purchasing and procurement processes that have previously been difficult to quantify. AI is a powerful tool that is used to improve the efficiency and effectiveness of the purchasing and procurement process. South Korea is making great strides in the use of AI and the impact it is having on purchasing and procurement is clear.

Unique Contribution to Theory, Practice and Policy: Future research in the field of purchasing and procurement may be grounded in the rational economic theory and the resource based view theory. Policymakers, researchers, and academics from all across the world will all stand to gain from this study's findings. Executives in charge of national purchasing and procurement initiatives will also use the study's findings to boost artificial intelligence performance across the board. The research suggests that the purchasing and procurement sector should implement technological policies to boost the effectiveness of their primary operations and activities.

Keywords: *Impact, Artificial Intelligence, Purchasing, Procurement, South Korea*

INTRODUCTION

Artificial Intelligence (AI) is a rapidly developing technology that has the potential to revolutionize the way we live, work and purchase. It has been proven to make an immense contribution to the world of purchasing and procurement. The impact of artificial intelligence (AI) on purchasing and procurement is far-reaching (Luo,2019). AI has the potential to revolutionize the procurement process and improve both operational efficiencies and cost savings. AI can help to automate manual tasks, increase accuracy, and provide insights into purchasing and procurement processes that have previously been difficult to quantify. This paper will discuss the impact of AI on purchasing and procurement, including its potential to improve operational efficiency, reduce costs, and increase accuracy. Companies benefit from the expanding market potential brought about by AI's rapid development. Machines (programs) using technologies like machine learning, data mining, natural language processing, image recognition, etc. to mimic human intellect constitute artificial intelligence (Allal-Chérif,2021). Artificial intelligence has the potential to enhance productivity, cut costs, boost product quality and enhance customer service. If you want to find new business prospects, you need strong enterprise skills. While artificial intelligence capability (AIC) has the potential to greatly enhance a business's performance, doing so presents a number of important hurdles.

AI can have a significant impact on the purchasing and procurement process. It can automate manual tasks, reduce costs, and improve accuracy. AI can also provide insights into purchasing and procurement processes that have previously been difficult to quantify. AI can be used to automate manual tasks that are traditionally associated with the purchasing and procurement process (Bhagat,2022). This can include tasks such as data entry, data processing, and product ordering. AI can also be used to monitor the purchasing and procurement process, ensuring that all steps are being followed correctly. This can reduce the amount of time spent on manual tasks and free up resources to focus on more important tasks. The use of AI in purchasing and procurement can help to reduce costs. AI can be used to identify potential cost savings, such as reducing the cost of goods, negotiating prices with suppliers, and streamlining processes. (Beyari,2022). AI can also be used to identify opportunities for bulk buying, which can help to reduce costs. AI can provide insights into purchasing and procurement processes that are difficult to quantify. AI can be used to identify trends and patterns in purchasing and procurement data, allowing companies to make more informed decisions. AI can also be used to identify potential risks and opportunities in the purchasing and procurement process.

South Korea is one of the most advanced countries in the world when it comes to technology, and its adoption of AI has been no exception. AI has enabled South Korea to gain a competitive edge in the purchasing and procurement market, giving it a distinct advantage over its competitors (Haseeb,2019). AI is being used to automate processes, reduce costs, improve accuracy and speed up the procurement process. Current State of the South Korean purchasing and procurement industry. According to a study conducted by the Korea Institute of Public Management, the South Korean P&P industry was estimated to be worth around $44 billion in 2017. This has grown significantly from the estimated $30 billion in 2015, indicating that the industry has been steadily increasing in size (Chen,2022). The South Korean purchasing and procurement industry is characterized by a high degree of automation and efficiency. This is due to the fact that South

Korean companies are increasingly turning to AI-driven tools and processes to automate their Purchasing and Procurement operations. This has enabled South Korean companies to save time and money by streamlining their operations, allowing them to focus on core activities such as strategic planning and customer service.

The use of AI technologies in the South Korean P&P industry has had a number of positive impacts. Firstly, it has resulted in an increase in efficiency and productivity by streamlining and automating the Purchasing and Procurement process. This has allowed companies to reduce costs and become more competitive in the market, as well as freeing up resources for more strategic activities (Cho,2021). Furthermore, the use of AI-driven tools and processes has enabled South Korean companies to gain access to more accurate and up-to-date data and insights into their Purchasing and Procurement operations. This has allowed them to gain better insights into their operations and make more informed decisions. Additionally, AI has enabled South Korean companies to improve their customer service (Jahani,2021). By leveraging AI-driven tools, companies are able to provide more personalized experiences for their customers. This has allowed them to build better relationships with their customers and improve their customer retention rates. Finally, AI has enabled South Korean companies to gain access to new markets and customers. AI-driven tools can provide companies with insights into new customer segments, allowing them to expand their customer base and reach new markets.

Statement of the Problem

In recent years, the use of artificial intelligence (AI) technology has grown exponentially in South Korea, with applications now found in many industries, including purchasing and procurement. AI-driven purchasing and procurement technologies are enabling companies to automate and optimize the purchasing process, eliminate manual tasks, and gain insights into customer behavior. By leveraging AI technology, companies can gain significant cost savings, increase operational efficiency, and reduce risk. In South Korea, the purchasing and procurement process is primarily handled by government agencies and large enterprises. According to a survey conducted by the Korea Institute for International Economic Policy (KIEP), the purchasing and procurement market in South Korea is estimated to be worth around $100 billion. Of this, about two-thirds is handled by government agencies, and the remaining one-third is handled by large enterprises. Currently, the purchasing and procurement process in South Korea is mostly manual and time-consuming. It involves a great deal of paperwork and there is a high risk of errors. Moreover, the process is labor-intensive and can be subject to corruption and fraud. AI technology offers the potential to improve the efficiency, accuracy, and integrity of the procurement process.

The use of AI in purchasing and procurement in South Korea is expected to continue to grow in the future. According to a survey conducted by the Korea Institute for International Economic Policy, the adoption of AI-enabled purchasing and procurement systems is expected to increase from around 20 percent in 2016 to around 60 percent by 2025. One of the primary concerns is the potential for AI-driven technologies to reduce customer service. As AI technology becomes more advanced, it may be possible for AI-driven technologies to replace human customer service representatives, leading to a decrease in the quality of customer service. This could lead to customers feeling frustrated or alienated, which could lead to decreased customer loyalty and lower sales. Finally, there is the potential for AI-driven technologies to be hacked or manipulated.

According to a survey conducted by the Korea Communications Commission (KCC), only 7% of businesses reported having adequate security measures in place when implementing AI into their purchasing and procurement processes. This indicates that businesses are not taking the necessary steps to ensure the security of their data and systems when implementing AI. If an AI system is hacked, the data it is given could be manipulated, resulting in inaccurate results or recommendations. This could lead to costly mistakes and could potentially harm customer relationships.

Theoretical Review

This study will benefit from the rational economic theory which was proposed Adam Smith (1776) and resource based view theory by Birger Wernerfelt (1984)

Rational Economic Theory

also known as the neoclassical economics theory, is based on the assumption that individuals and firms are rational decision makers. According to this theory, individuals and firms will act in their own best interests, making decisions that maximize their utility and that are in line with their goals and objectives. In purchasing and procurement, this means that firms will seek to procure the best goods and services at the least cost (Ekelund ,2013). AI has made it easier for firms to identify the best products and services, as well as the lowest price, allowing firms to optimize their purchasing decisions. AI-powered tools such as price comparison websites and automated procurement systems make it easier for firms to find the best deals and make optimal purchases.

Resource Based View Theory

According to the RBV, fundamental assets are the driving force behind a company's success. Value-creating and performance-enhancing competitive advantages can be built on the backs of unique, uncommon, inimitable, and irreplaceable resources, as proposed by this theory. This benefit may last for quite some time. The value of a company's resources can be increased by bringing in complementary resources, the worth of which is more than the sum of its parts. (Hitt,2016). In recent years, the ability to use AI has emerged as a key intangible asset for improving corporate performance. It hints that enterprises may get an edge in the market thanks to AI. AIC can provide companies with access to unique and priceless assets. Business operations cannot take place without the presence of a company's capabilities. In order to boost company performance, these competencies aid in the deployment of other crucial resources. To that end, we zero in on the firm's capability in value creation because AIC has been shown to boost both

Empirical Review

Gunjan (2023) investigated factors that affect consumers' purchase intention through AI. The research utilized cross-sectional data collected via an online survey. PLS-SEM and the SPSS process macro were used to analyze the data. The findings indicated that customers want anthropomorphized products so that they can have a more enjoyable shopping experience, and that they also want characteristics that entice and drive them to buy using AI by way of mediating variables like perceived animacy and perceived intelligence.

Hasan (2022) determined the correlation between the consideration set and the propensity to make purchases online. The researchers used a structural equation modeling (SEM) strategy to decipher

the data. The research found that the end-users' online purchasing decisions are influenced by customer consideration sets.

Rohit (2022) investigated the elements that influence consumers' propensity to make purchases online while using artificial intelligence. A model has been developed in this research that shows how businesses may use AI to better comprehend their clients' wants and needs and win them over to new forms of technology. The results of this study demonstrated that AI has a favorable impact on consumers' propensity to make purchases.

Lujie (2021) analyzed a unified framework for thinking about how AI may be used in this setting. Based on a content analysis of 59 papers published in scholarly journals, this study takes a conceptual development approach to the question. There are seven results that were identified such as, more productivity, higher accuracy, better decision-making, better customer relationships, higher sales, lower costs, and lower risks.

Tarbiat (2021) forewarned businesses of potential problems and help them capitalize on promising new opportunities by improving the quality of their strategic decision-making processes. The 227 responses were analyzed using a structural equation model. Based on the findings, open big data has a considerable effect on digital marketing, and AI analytical competencies mitigate this effect.

Mohammed (2019) determined the impact of artificial intelligence(AI) on the selected economies in the Asia-Pacific region. This secondary data was collected from macro-economic and AI-specific data sets. According to the findings, China produced more than 25,000 cited papers on the subject of AI between 2014 and 2016. China (600), Hong Kong (1,100), and Singapore (2,000) have the most institutions that have published over 500 times on the issue of AI. Therefore, this study established that Asia-Pacific economies like Hong Kong and Singapore, despite having smaller populations, have made a significant contribution to AI research through the efforts of the vast majority of their higher education institutions.

Samoei (2018) analyzed the impact of electronic procurement on the Ministry of Education, Science, and Technology in Kenya. This included electronic tendering, sourcing, ordering, and notifying. Questionnaires were used to collect primary data from participants. Percentages, frequencies, averages, and variances were all used to describe the data. According to a study of the collected data. E-tendering was found to have a statistically significant relationship with the Ministry of Education, Science, and Technology's financial performance ($r=0.788$, $p=0.006$). In addition, the Ministry of Education, Science, and Technology's financial performance improved significantly after adopting an E-sourcing strategy ($r=0.611$, $p=0.016$).

Musyimi (2016) examined how the Kenyan Judiciary's use of an electronic procurement system affects the institution's strategic sourcing. The research design used in this study was descriptive. A total of 106 individuals working in the procurement department for the Judiciary were included in the analysis. Questionnaires were sent out to a representative sample of the population to compile the data. The study found that the emergence of new ICTs presented potential opportunities for improving the effectiveness, openness, and transparency of public procurement.

Ngunyi (2014) investigated how have procurement practices impacted the performance of Kenya's Parastatals. A descriptive research strategy was used for this study. 76 upper and middle management staff members were surveyed utilizing an online, self-administered questionnaire.

Procurement was found to be a key resource in the effort to boost business performance and a major factor in the choice of competitive strategies. It was discovered that using procurement procedures successfully will lead to better firm-customer relationships, environmental protection, employee motivation, and streamlined operations.

METHODOLOGY

The study adopted a desktop methodology. Desk research refers to secondary data or that which can be collected without fieldwork. Desk research is basically involved in collecting data from existing resources hence it is often considered a low cost technique as compared to field research, as the main cost is involved in executive's time, telephone charges and directories. Thus, the study relied on already published studies, reports and statistics. This secondary data was easily accessed through the online journals and library

RESULTS

The results were grouped into various research gap categories namely as conceptual, geographical and methodological gap

Conceptual Gaps

Studies by Gunjan (2023), Hasan and Rohit (2022), Lujie and Tarbiat (2021), Mohammed (2019), Samoei (2018), Musyimi (2016), Ngunyi (2014) had conceptual framework gap in addition, all the mentioned studies did not establish the challenges of artificial intelligence on purchasing and procurement. The studies did not outline the challenges in a clear manner. Therefore, the current study seeks to address these conceptual gaps.

Geographical Gap

Studies by Gunjan (2023), Hasan and Rohit (2022), Lujie and Tarbiat (2021), Mohammed (2019), Samoei (2018), Musyimi (2016), Ngunyi (2014) had geographical gap because they were not conducted in South Korea. This implies that the results may be inapplicable in South Korea since the social economic environment of South Korea and other countries differ. The current study seeks to address this gap.

Methodological Gap

A methodological gap presents itself in this study, Samoei (2018) analyzed the impact of electronic procurement on the Ministry of Education, Science, and Technology in Kenya. This included electronic tendering, sourcing, ordering, and notifying. Questionnaires were used to collect primary data from participants to analyze data while our study will use a desk study literature review methodology.

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

Conclusion

AI has the potential to revolutionize the Purchasing and Procurement process, bringing numerous advantages such as cost savings, improved accuracy and customer satisfaction. However, there are also potential drawbacks, such as potential bias, job losses and a lack of flexibility. As with any new technology, it is important to weigh the pros and cons before implementing it. South Korea is making great strides in the use of AI, and the impact it is having on Purchasing and Procurement

is clear. With careful implementation, AI can bring enormous benefits to South Korea's Purchasing and Procurement process. The potential impacts of AI on purchasing and procurement in South Korea include reduced customer service, biased AI algorithms, and the potential for hacking and manipulation. These impacts are a problem because they could lead to decreased customer loyalty, inaccurate recommendations, and costly mistakes. As AI technology continues to advance, it is important for companies to be aware of these potential impacts and take steps to mitigate them

Recommendations

In order to address the potential negative impacts of AI on purchasing and procurement in South Korea, there are a number of potential solutions that could be implemented. Firstly, companies should ensure that they are using the technology responsibly, and that they are being transparent about the data that they are collecting and how it is being used. This will help to ensure that data is not being misused, and that customers are aware of how their data is being used. Secondly, companies should ensure that they are not relying too heavily on AI, and that they are continuing to innovate and find new ways to improve their processes. This will help to ensure that the technology does not become a crutch, and that companies are able to stay ahead of the competition. Finally, companies should ensure that they are providing adequate training and support for their human workers, as this will help to ensure that they are able to adapt to the changing environment and remain employable. This will also help to ensure that the economy is not negatively impacted by the introduction of AI.

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