Impact of Artificial Intelligence Usage and Technology Competence on Competitive Advantage with Mediating Role of Effective Information Management System

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Abstract

Competitive advantage has been considered as the foremost element for the organizational success and this could be achieved using artificial intelligence (AI) and technological competencies. The current study investigates the impact of AI usage and technology competencies on the competitive advantage of manufacturing industries in China. The paper also investigates the mediating role of effective information management system (IMS) among AI usage, technology competencies and competitive advantage. Data was obtained from a sample comprising employees of manufacturing companies through questionnaires. The data reliability and association among variables were measured with SPSS-AMOS. The results exposed that the AI usage and technology competencies have a positive nexus with competitive advantage and also revealed that the effective IMS significantly mediates among AI usage, technology competencies and competitive advantage of manufacturing industry in China. The study provides useful insights to the regulators in establishing regulations towards improving competitive advantage, effective AI usage and technology competencies.

Keywords

AI Usage, Technology Competencies, Competitive Advantage, Effective Information Management System, Manufacturing Industry.

1. Introduction

Competition has surpassed all boundaries owing to the business growth and rapid technological changes. There are numerous ways to concur competition in industry but the most reliable is through a secured competitive advantage. A

firm may achieve a competitive advantage over its competitors by providing high-quality products and services that give value to customers. As a result of technological advancements, business interactions have taken into account these important considerations. For instance, AI functions play a critical role in the connection with enterprises including smart machines that accomplish company tasks (**Krakowski *et al.***, 2023). Understanding how a person thinks and behaves is becoming increasingly vital, whereas corporations should grasp behavioral biases, social behavior, and restricted rationality. As a result, information flows quickly through technological skills, leaving society exposed to manipulation of their surroundings. Technological competencies have also boosted AI in firms, altering the company's direction towards competitive advantage (**Farida; Setiawan**, 2022; **Bu**, 2023).

AI is transforming organizations and industries, by influencing business intelligence decisions and knowledge discovery (**Azeem *et al.***, 2021). Long, complicated, process-dependent procedures may be carried out very instantly. Big data sets may be gathered, analyzed, and executed in less than a minute. In international corporations, real-time language processing can be used to interpret conversations in many languages. From a geopolitical and economic standpoint, it is critical to develop and use this technology in a well-studied and responsible manner (**Morris *et al.***, 2019; **Hagiu; Wright**, 2020). Another factor which is vital is core competence technologies. Customer experiences and digitization may be eased across a wide range of industries. However, there are significant responsibilities associated with this potential. While implementing core competence technologies appropriately might open up remarkable possibilities for handling commodities, it is technically and operationally hard (**Barney; Hesterly**, 2019; **Belyalova; Yem**, 2023).

China, referred to as a world factory, is a perfect example of competitive advantage for all firms across the world. The business model of the Chinese firms, particularly in the manufacturing sector, is preferred around the world (**Qiu *et al.***, 2020). The reason is that China has applied almost every form of technology in every aspect of business, which creates the difference. With annual GDP growth of over 10% for more than two decades, China had already become world's third-largest economy in 2008 (**Hu *et al.***, 2024). In addition, manufacturing accounts for more than one-third of the overall GDP and 94.54% of China's export sales (**Zameer *et al.***, 2020). Most Fortune 500 businesses have established manufacturing facilities in China. China's industries are quickly growing and playing a significant role in global commerce. This is the ultimate competitive advantage of China. This proves how the adoption of technology becomes the backbone of Chinese success (**Hou; Dong**, 2022; **Tu; Wu**, 2021; **Alkorta; Mujika**, 2022). The country has applied technology, particularly AI in every aspect. Furthermore, society has provided bright chances to learn the core competence technologies to support the country (**Yongqing; Jieyi**, 2023).

The study aimed to address the gaps related to competitive advantage, AI usage, technology competencies along with the mediating effect of effective information system. The selection of the constructs of the study was made after identifying these gaps, particularly emphasized in previous studies. For instance, **Ristyawan** (2020) and **Cui *et al.*** (2024) explored the nexus between AI usage and competitive advantage; the present study added factors like technology competencies to this framework, and also checked the mediating effect of effective IMS. Similarly, **Tong *et al.*** (2022) and **Feng *et al.*** (2020) explored the nexus between technology competencies and competitive advantage. However, this paper included the factors like AI usage, and checked the mediating effect of IMS. Studies by **Abbas** (2020) and **Tan and Nasurdin** (2011) have investigated the mediating effect of effective IMS in multiple relationships at different times, hence, the current study also used it as mediator.

The current study is significant as it highlights the importance of AI as well as technology competence to achieve the competitive advantage in a country like China. The study also contributes to the domain of technology and competitive advantage, which will offer useful insights to the professionals in designing their polices and regulations.

2. Literature Review

2.1. AI as a Tool for Competitive Advantage

AI has transformed several fields, resulting in a more intellectual and creative society, and businesses switching over to data-driven decision-making processes. This requires a proper deployment of AI measures and their utilization (**Awamleh; Bustami**, 2022). It has also been proposed that AI is one of the strong tools for competitive advantage (**Hossain *et al.***, 2022; **Aguilar *et al.***, 2020). It motivates entrepreneurs, strategists, and investors to use AI to generate new revenue streams and develop competitive advantage tactics (**Kemp**, 2023). Since AI is all about future, it helps businesses in an advanced way to have more solid decision-making regarding their present and future competition with rival companies (**Chatterjee *et al.***, 2021).

The incredible pace with which AI is gaining traction in industry forces businesses to compete to make their company more intelligent. Of several strategies for dealing with market rivalry and market competition, the most reliable one is a competitive advantage over competitors (**Kordon**, 2020). Competitive advantage results in creating a difference which attracts the customers and enables the firm to win the competition. In this context, **Cui *et al.*** (2024) checked whether AI plays any role in the attainment of competitive advantage. The study concluded that there are certain market linked

conditions in which AI helps firms to have maximum output from it regarding the attainment of competitive advantage. These conditions should be incorporated in the firm's activities and strategies. Similarly, **Mendoza Valencia *et al.*** (2019) strongly recommend that firms across the globe should adopt AI to support them in achieving a competitive advantage in a competitive environment.

Ristyawan (2020), too, explored the effect of AI on competitive advantage. The study focused on a resource-based view, and collected data from 100 MSMEs of Indonesia and explored it with the help of regression analysis. The results proposed that the AI is significant towards achieving the competitive advantage. Further, the study also concluded that human resources are the top priority for firm attention. The adoption of AI would enable the firm to bring betterment in its overall performance. During this running era, one of the worst disasters faced by the universe was the pandemic which had frozen almost the entire humanity. Its consequences were worse for businesses due to the lockdown. In the context of COVID-19, the association between AI and competitive advantage was explored by **Awamleh and Bustami** (2022). Data from 224 individuals from Jordan was selected as a sample. The collected sample was analyzed with the help of the Smart PLS analysis approach. The results of the study proposed that the association between AI and competitive advantage remained alive even in pandemic. Further, the study also concluded that the adoption of IT capabilities results in mediating this relationship. Thus, the first hypothesis of this study was derived from this argument.

H1: AI usage significantly influences the competitive advantage.

2.2. Technology Competencies and Competitive Advantage

The world has witnessed rapid changes, innovations, and discoveries with the passage of time, owing to the technological advancements and technology competencies (**Dymitrowski; Mielcarek**, 2021). Information technology is the medium that integrates all types of computers, electronic equipment, computer software, automation technologies, and communication programs and equipment. The adoption of IT, therefore, will improve the firms to capitalize on opportunities (**RodrÍGuez Pomeda *et al.***, 2001). However, adoption is not enough with the rapid changes: there is a need to learn about those changes and have the technology competence. Such competencies would also result in a better analysis of the competitive market and to ease the decision-making process regarding concurring the competition vide competitive advantage.

Core technical competency is a set of knowledge sets that separate one organization from another in terms of competitive advantage (**Putra; Darmawan**, 2022). When a business's core technical competency is defined as the unique knowledge required to identify and solve problems, it may frequently serve as the most fundamental sustainable competitive advantage of a given enterprise, allowing it to produce more new goods to fulfill varied market demands (**Stelzer; Brecht**, 2011). In this context, the association between technology competencies and competitive advantage was explored by **Tong *et al.*** (2022). A data of 379 instances was selected as a sample. The collected sample was analyzed with the help of the SEM analysis approach. The results of the study proposed the association between technology competencies and competitive advantage. Further, it was found that the core technology competencies result in better data analysis with the usage of technology which helps in better decision-making in competitive strategies. Similarly, **Feng *et al.*** (2020) also explored the association between core technology competencies and competitive advantage particularly in China. The study focused on the high-tech industry, and its outcomes proposed that there is an association between core technology competencies and competitive advantage. The study also proposed strategies for sustaining the competitiveness of high-tech industries, therefore increasing firms' competitive edge and attaining sustainable management. Moreover, if high-tech sectors continue to innovate and do scientific research, they will keep their competitive advantages. The adoption of modern-era technologies may be easier but to have the core competence in it is difficult and a continuous process as well as a challenge for the current business industry. To address such challenges of social as well as technological in the context of competitive advantage **Haseeb *et al.*** (2019) conducted an investigation, which addressed the concept of business performance on a sample of 500 SMEs in Malaysia. The results of the study proposed that core technology competencies are an active player for competitive advantage. Further, the firms should pay special focus towards the core technology competence as it will help them in better and quick decision-making in complex situations. The second hypothesis of the study was derived based on these arguments.

H2: Technology competencies significantly influence the competitive advantage.

2.3. Effective Information Management vis-à-vis AI usage and Competitive Advantage

There is no doubt that AI has brought revolution in every aspect of life. Not only social life but it is not less than a blessing for the business world. One of its prime benefits is the streamlining, collecting, disseminating and summarizing the information through AI operations. Although AI is beneficial, but it does not operate automatically, and needs input for a better output. It is therefore dependable on many factors like AI usage for competitive advantage. However, despite the implementation of AI, the firms often do not succeed in achieving the required outcome in the form of competitive advantage. This requires to explore further such factors that affect this implementation of AI. One such

factor commonly used in previous literature is information management, since the information flow plays a keen role in creating a competitive advantage through AI.

It is well known that with the passage of time effective management of information results in the betterment of AI output. Such output helps the firms to have solid decision-making in the process of competitive advantage (**Garrido-Moreno *et al.***, 2014). Thus, effective information management acts as a mediator in this relationship. Literature also shows that effective information management is a vital mediator. For instance, **Abbas** (2020) explored whether the information i.e., knowledge management mediates in the nexus between total quality management and corporate sustainability. The study used a sample of 612 instances collected through a simple random sampling technique. The results proposed that total quality management significantly influences the corporate sustainability and information. Likewise, **Tan and Nasurdin** (2011) explored whether the effective information mediates in the nexus between HRM practices and organizational innovation. The study used a sample of 171 large Malaysian firms to collect data. The results proposed that HRM practices significantly influence organizational innovation and effective information i.e., knowledge management mediates in this relationship. Thus, the third hypothesis was derived as under.

H3: Effective information management significantly mediates the nexus between AI usage and competitive advantage.

2.4. Effective Information Management vis-à-vis Technology Competencies and Competitive Advantage

Technology has affected humans either positively or negatively in all aspects of life. The business community particularly has benefitted in the form of communication and information dissemination through technology. Technology has affected every business vertical including production, supply chain, marketing, finance or management. More technological competence leads to a positive effect in achieving a competitive advantage. However, in some cases, despite having the core technological competencies, firms fail to secure competitive advantage, owing to many reasons such as ineffective information management. Studies have proposed that effective information management leads to better firm's performance (**Ayoub *et al.***, 2017). Effective information management is also a good sign of competitive advantage, since it acts as a vital mediator in a nexus between constructs. To this regard, **Wu and Hu** (2018) explored whether the information management design mediates in the nexus between open innovation-based knowledge management (KM) implementation for effectively executing the support. The study used a sample of 1500 firms collected through a simple random sampling technique. The results proposed that open innovation-based KM implementation for effectively executing the support and information i.e., KM design mediates in this relationship. Similarly, **AlMulhim** (2023) explored whether the information management practices mediates in in the nexus between administrative management and information technology and e-government success. The study used a sample of 163 public sector participants collected through a simple random sampling technique. The results proposed that administrative management and information technology significantly influence the e-government success and information i.e., knowledge management practices mediates in this relationship. This led to framing the fourth hypothesis of the study.

H4: Effective information management significantly mediates the nexus between technology competencies and competitive advantage.

The above-mentioned arguments and excerpts from studies hint at a positive association of AI usage and technology competences with competitive advantage while the effective IMS significantly mediates the association among these extracts, viz., AI usage, technology competences and competitive advantage. Figure 1 presents the research framework of the study.

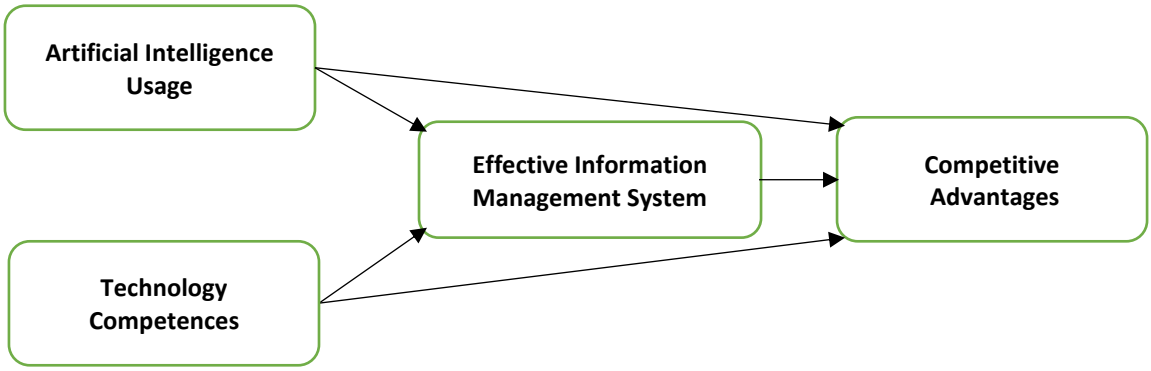

Figure 1: Research Framework.

3. Research Methodology

The study investigates the impact of AI usage and technology competencies on the competitive advantage and also investigates the mediating role of effective information management system (IMS) among these constructs

viz., AI usage, technology competencies and competitive advantage of manufacturing industries in China. Data was gathered from employees of manufacturing unit in China through survey questionnaires, which measured the variables of the study. The questionnaire items were extracted from past literature as depicted in Table 1, Table 2, Table 3 and Table 4.

For instance, Table 1 mentions the six questions on AI usage (AIU) borrowed from **Pan *et al.*** (2022).

Table 1: Artificial Intelligence Usage Items.

Items	Statements	Sources
AIU1	AI helps to attract candidates	(**Pan *et al.***, 2022)
AIU2	AI helps to communicate with candidates	
AIU3	AI helps to evaluate candidates	
AIU4	Using AI technology improves our recruitment performance.	
AIU5	Using AI technology enhances our recruitment effectiveness.	
AIU6	Using AI technology increases our recruitment ability.	

Table 2 exhibits five questions to measure technology competences (TC), independent variable of the study, extracted from **Jean *et al.*** (2010).

Table 2: Technology Competences Items.

Items	Statements	Sources
TC1	Our company uses the most advanced IT.	(**Jean *et al.***, 2010)
TC2	Our IT is always state-of-the-art technology.	
TC3	Relative to our competitors, our IT is more advanced.	
TC4	My company is always first to use new IT in our industry.	
TC5	In our industry my company is regarded as an IT leader.	

Table 3 contains four questions to measure Effective IMS (EIMS), taken as mediating variable in this study, extracted from **Żywiołek and Schiavone** (2021).

Table 3: Effective Information Management System Items.

Items	Statements	Sources
EIMS1	IMS provides the access to information and knowledge.	(**Żywiołek; Schiavone**, 2021)
EIMS2	IMS provides the usefulness of information and knowledge.	
EIMS3	IMS maintains the level of knowledge.	
EIMS4	IMS has the ability to use big data	

Finally, the competitive advantage, dependent variable of the study, was measured with six questions, extracted from **Singh *et al.*** (2019). These measurements are given in Table 4.

Table 4: Competitive Advantage Items.

Items	Statements	Sources
CA1	My firms' products are better than its competitors.	(**Singh *et al.***, 2019)
CA2	My firms' R&D capabilities are better than its competitors.	
CA3	My firms' managerial capabilities are better than its competitors.	
CA4	My firms' profitability is better than its competitors.	
CA5	My firms' image is better than its competitors.	
CA6	My firms' competitive advantage is better than its competitors.	

The sample of the study comprised 290 employees of manufacturing companies in China, who were the respondents of the questionnaire. A total of 511 employees were distributed the survey forms through personal visits and emails. but only 290 valid surveys were received after one month. These valid surveys showed an approximate 56 percent response rate. In addition, the researchers also used the SPSS-AMOS to examine the data reliability and association among variables, which are effective tools to deal with the primary data and give best outcomes even when complex models are used (**Hair *et al.***, 2014).

All question items were checked using composite reliability (CR), whose values must be larger than 0.70; while factor loadings were used to measure average variance extracted (AVE), whose values must be greater than 0.50 (**Hair *et al.***, 2017). Finally, MSV and ASV were also examined, with both values being lower than AVE values. The variable correlation was checked using Fornell Larcker, whose values exposed the correlation among variable itself must be larger than the values that exposed the correlation with other variables (**Hair *et al.***, 2017). In addition, it checks the structural model using p-values and t-values and p-values must be less than 0.05 and t-values should be larger than 1.96 for the significant association among variables (**Hair Jr *et al.***, 2020).

4. Findings and Results

The convergent validity of all the items showed correlation when it was examined using CR. The values exceeded 0.70 while factor loadings were also examined to ensure AVE values were greater than 0.50. Finally, MSV and ASV were examined and both values were lower than AVE values. These values exposed a valid convergent validity. Table 5 shows these outcomes.

Table 5: Convergent Validity.

Constructs	Items			Loadings	CR	AVE	MSV	ASV
AI Usage	AIU1	<---	AIU	0.998	0.897	0.696	0.588	0.417
	AIU2	<---	AIU	0.694				
	AIU3	<---	AIU	0.982				
	AIU4	<---	AIU	0.739				
	AIU5	<---	AIU	0.686				
	AIU6	<---	AIU	0.993				
Technology Competences	TC1	<---	TC	0.807	0.943	0.741	0.063	0.052
	TC2	<---	TC	0.991				
	TC3	<---	TC	0.504				
	TC4	<---	TC	0.624				
	TC5	<---	TC	0.565				
Effective IMS	EIMS1	<---	EIMS	0.999	0.835	0.519	0.488	0.421
	EIMS2	<---	EIMS	0.627				
	EIMS3	<---	EIMS	0.638				
	EIMS4	<---	EIMS	0.993				
Competitive Advantage	CA1	<---	CA	0.516	0.894	0.591	0.213	0.149
	CA2	<---	CA	0.675				
	CA3	<---	CA	0.866				
	CA4	<---	CA	0.802				
	CA5	<---	CA	0.853				
	CA6	<---	CA	0.838				

The discriminant validity check was carried out using Fornell Larcker method, which showed a correlation among variables and values. This exposed the correlation among variables which was larger than the values that exposed the correlation with other variables. This proved that values carried a valid discriminant validity. Table 6 shows these outcomes.

Table 6: Discriminant Validity.

	EIMS	AIU	TC	CA
EIMS	0.734			
AIU	0.247	0.761		
TC	0.394	0.250	0.721	
CA	0.450	0.181	0.461	0.769

Finally, the study examined the model good fitness that is also an essential part of the measurement model assessment. Both TLI and CFI were examined which showed values larger than 0.90. In addition, RMSEA test showed less than 0.05 values. These figures confirmed that the model was good fit. Table 7 presents these outcomes.

Table 7: Model Good Fitness.

Selected Indices	Result	Acceptable level of fit
TLI	0.906	TLI > 0.90
CFI	0.908	CFI > 0.90
RMSEA	0.003	RMSEA < 0.05 good; 0.05 to 0.10 acceptable

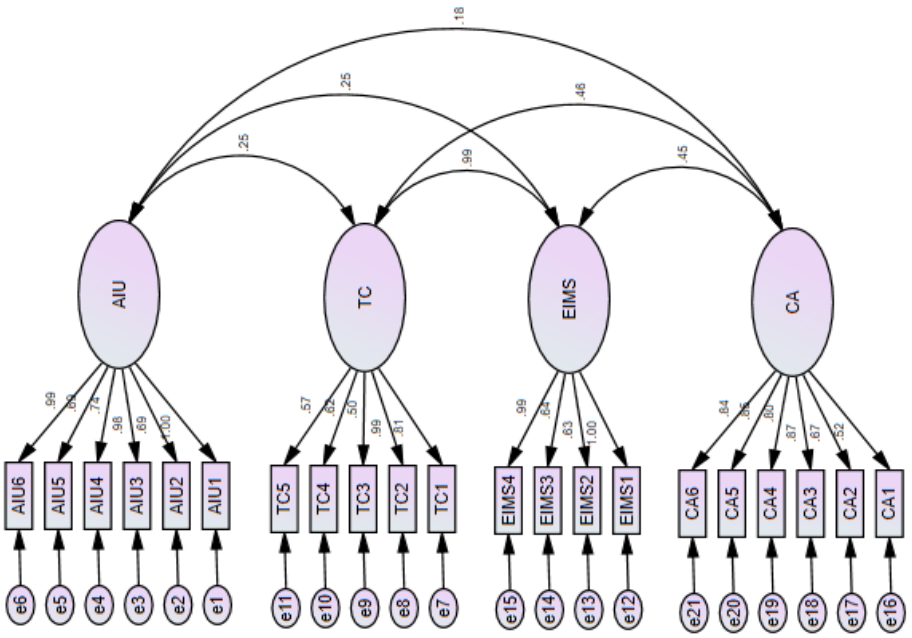

Figure 2: Measurement Assessment Model.

Figure 2 depicts the direct path of the measurement assessment model, exposing the direct nexus among variables. The results exposed that the AI usage and technology competencies have a positive nexus with competitive advantage of manufacturing industry in China and thus H1 and H2 were accepted. Table 8 exhibits these results.

Table 8: Direct Path Analysis.

Relationships			Beta	S.E.	C.R.	P
Effective Information Management System	<---	Technology Competences	0.884	0.032	27.625	0.000
Effective Information Management System	<---	Artificial Intelligence Usage	0.026	0.003	8.667`	0.000
Competitive Advantage	<---	Technology Competences	0.257	0.100	2.570	0.021
Competitive Advantage	<---	Artificial Intelligence Usage	0.067	0.023	2.913	0.012
Competitive Advantage	<---	Effective Information Management System	0.222	0.085	2.601	0.046

Likewise, Figure 2 also exposed the indirect path showing the indirect nexus among the variables. These results reveal that effective IMS significantly mediates among AI usage, technology competencies and competitive advantage of manufacturing industry in China and thus H3 and H4 were accepted. Table 9 and Figure 3 show these results.

Table 9: Indirect Path Analysis.

	Artificial Intelligence Usage	Technology Competences	Effective Information Management System
Effective Information Management System	0.000	0.000	0.000
Competitive Advantage	0.005	0.177	0.000

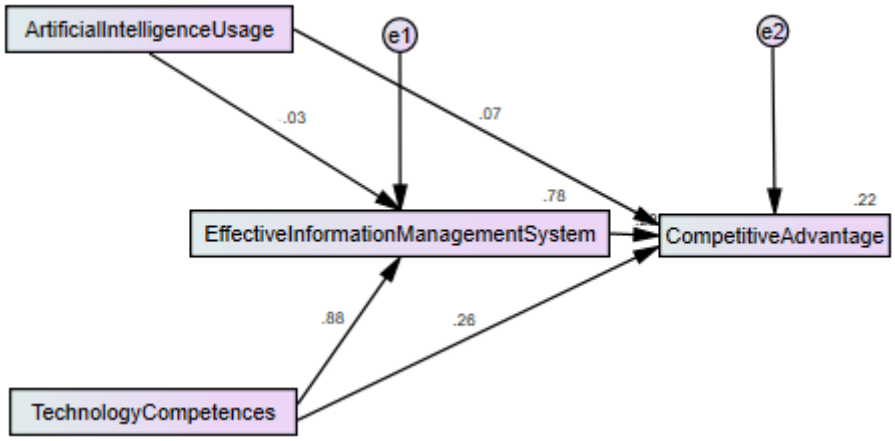

Figure 3: Structural Assessment Model.

5. Discussion

Several companies in the manufacturing sector in China have adopted AI to integrate business processes, change the nature of IMS, in order to achieve a strong competitive advantage in the context of China's growing market. This study focused on the interaction between AI usage, technology competencies and organizational IMS to assess their combined effect on competitive advantage. More specifically, the study showed that functional IMS had a conclusive intermediate position in this process, thus, enabling and explaining how technological development, based on AI, contributed to the improved competitive advantage. Due to China's focus on the advancement in technology, studies like **Arenal *et al.*** (2020) find that AI has been adopted across all sectors and become one of the world leaders in this sphere.

The study found out that AI was being integrated into enterprises for improving their IMS area of organizing the accumulation, treatment, storing, and further distribution of information. Automated technologies including machine learning and Neuro-linguistic programming were being employed in the information management processes which, when implemented, expedited the management of information (**Tyagi *et al.***, 2020). For instance, **Ma and Sun** (2020) believed that machine learning can well anticipate market trends and consumers' behavior, thus helping business entities to make sound decisions rapidly. This is why any IMS scheme must enhance the organizational decision making process as a key component that underpins competitiveness. In addition, the study finds that enhancement of technology competences in organizations is critical in achieving the application of AI within IMS. This is why technology competences mean the ability, know-how, and capital needed to harness the AI technologies properly. In China, emphasis is placed to develop such competences through investment in education, training and collaboration with the tech firms (**He *et al.***, 2019). This indicates that companies that boast of higher level technology competences enable the right use of the new IMS through AI. Such integration according to **Arenal *et al.*** (2020), also improves on the effectiveness of managing information and does create the basis for creating new products and services that can meet the customer needs

The mediating role of effective IMS is also depicted as how it turns technology and AI competences into business advantages. Thus, it is concluded that efficient IMS serves a mediator link where the opportunities arising from AI and competences in the technology field are unveiled. Overall, an IMS results in improving the information processing

capacity of an organization and ensuring that proper and timely data reaches the decision makers. This agility is especially relevant to China's fast-improving business circumstance that necessitates prompt responses to dynamic conditions to drown competitors. Moreover, **Rajagopal *et al.*** (2022) finds, through AI integration into IMS, the organizations create the culture of intelligent data usage within the companies. The application of proper data mining techniques of data analytics is gradually gaining ground in china as companies start to realize data as an essential strategic resource (**Yu *et al.***, 2022). IMS that is fueled through AI allows businesses to make real use of data in volume which can be easily analyzed and put to strategic use (**Wamba-Taguimdje *et al.***, 2020). The benefit of this analytical approach is that any company can cut costs, find new business areas to develop, and enhance the delivery of products and services to clients.

6. Conclusion

The study concludes that organizations that implement a qualitatively performed IMS have a more significant opportunity to gain sustainable competitive advantage in the market. The specifics of how AI and technology competences affects competitive advantage through the management of IMS are also seen in the improvement of CRM. AI technologies help to gather and evaluate the information about customers to predict their needs and wants to a greater extent (**Haleem *et al.***, 2022). This information is very useful to establish a marketing plan as well as enhancing the ways of communicating with the clients. Thus, proper IMS allows to provide accurate storage and usage of such insights thus bringing more relevant and effective CRM strategies. In Chinese market shares which is highly competitive most of the time clients are very loyal hence value that added to a firm can greatly enhance it from the rest (**Balci *et al.***, 2019). However, utilized in managing IMS, **Venkatesh *et al.*** (2024) points that AI is identified to support SCM in the present study.

Based on the characteristics explained above, the integration of AI into IMS can enhance the reliability of the supply chain by giving the accurate visibility status of inventory and customer demand and the supplier's performance. Such real-time data helps firms to apply proper strategies in advance, and cut unnecessary expenses to boost operational performance. As demonstrated by China's manufacturing industry, in which supply chain management is a main focus, the incorporation of AI into IMS is quite impactful. The findings of this study are therefore very challenging to businesses and policy makers in China. Leveraging AI and creating technology competences should be critical to firms so as to improve their IMS. This way they can gain a competitive edge through enhanced decision making, operational effectiveness and customer satisfaction. In this regard, policymakers should ensure funding in the areas of education and training so as to enhance the development of the required competences for such a technological change.

As for practitioners, the study implies that the deployment of AI technologies into their IMSs must be done in a manner that makes the systems optimally mediate their relations with AI and competitive advantage. In general, this research outlines general guidelines towards the use of AI and technology competences to foster better business performance in China's competitive economy. The study provides guidelines to the regulators as well in establishing regulations related to improve the competitive advantage using effective AI usage and technology competencies.

The study faced several limitations that need to be addressed in future studies. First, the scope of the research was mainly confined to only the Chinese businesses, and therefore the results and conclusions cannot be applied to other geographic locations that might have different levels of technological, economical, and cultural development. Second, this research was based on the available literature and data which might not capture the dynamic view on the IMS integrated AI technologies due to their recent emergence. Third, this type of study was also cross-sectional, which limited the possibilities of observing the long-term effects and tendencies as well. Finally, the assessment of technology competences and appropriate IMS may be further different among various industries and, therefore, destabilize the outcomes. The research does not capture other variables that could affect the interconnection between the implementation of AI and IMS, as well as enhanced competitive advantage. Further studies should overcome these limitations with the help of using longitudinal data and extending the focus of the research into the different geographical and industrial areas.

6.1. Acknowledgements:

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