



Prospective Role of Chatgpt to Support Management Research in Terms of Proposing a Conceptual Framework and Investigating Factors Influencing Using a Structural Equation Model Approach Based on Smart PLS-SEM Analysis

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Abstract: Purpose: The article discusses the current relevance of artificial intelligence (AI) in research and how AI improves various research methods. And aims to analyze the factors that affect the performance of Supporting Management Research. The Factors of effect are derivatives of the philosophy of artificial intelligence (GPT). This research makes a significant contribution to the existing body of literature, and the author proposes a valuable theoretical framework. This article focuses on practical systematic literature reviews to provide a guideline for employing AI in supporting management research.

Design/methodology/approach – Researchers no longer require technical skills to use AI in their research. The recent discussion about using Chat Generative Pre-Trained Transformer (ChatGPT), a chatbot by OpenAI, has reached the academic world and fueled heated debates about the future of academic research. Nevertheless, according to the researchers and the previous study, AI will not replace our job; a human being using AI will. A quantitative approach (survey questionnaire) was selected for this research. The Data Collection It was utilized to collect research data on responses from three different Malaysian Universities. The sampling size was collecting 105 academic staff, Utilizing Partial Least Squares Structural Equation Modeling, by using Smart (PLS-SEM) software an analysis data academic. This research makes a significant contribution to the existing body of literature by proposing a theoretical framework. This study endeavors utilization of guidelines for the use of AI in the scientific research process. And evaluate the impact of various factors, role, on the performance of Supporting Management Research.

Findings: The main result is guidelines for the use of AI in the scientific research process. The guidelines were developed for the literature review case. The findings demonstrate that the proposed model corresponds with the characteristics of the data and the research variables. An examination of the impact of these factors on Supporting Management Research can assist Malaysian Universities in avoiding or reducing risks and costs and obtaining advantageous management research. A summation of the study outcomes revealed that hypotheses H1, H2, H3, and H4 were affirmed and significant. The results of the hypotheses are significant.

Originality/value – AI already has the potential to make researchers' work faster, more reliable, and more convenient. The authors highlight the advantages and limitations of AI in the current time, which should be present in any research utilizing AI. The further analysis of the outcomes of the research demonstrated that the hypotheses H1, H2, H3, and H4 were all statistically significant and had positive findings. The most substantial disadvantages lie in the architecture of current general-purpose models, which understanding is essential for using them in research.



Keywords: ChatGPT, Support Management Research, Opportunities and Challenge, Limitations and Drawbacks, Structural Equation Modeling, Smart plss.

1. INTRODUCTION

The use of artificial intelligence (AI) in research is becoming increasingly prevalent as more and more researchers recognize its potential as a valuable tool for data analysis and literature reviews, as demonstrated in recent studies, such as, for e.g., systematic literature reviews (SLR) (Burger et al., 2023). AI can methodically and productively support academic research. Despite being in its early stages, AI is already showing great promise and has the potential to revolutionize the way we conduct research, particularly for no-code research applications (Calo, 2017). As we delve further into the possibilities of AI, we consider the technology at a stage where no technical skills are required to use AI to enhance and improve research (Dwivedi et al., 2023).

ChatGPT, the potential for using AI to facilitate design knowledge acquisition has become a promising area of research. ChatGPT is a transformer-based language model developed by OpenAI that has been trained on a massive corpus of text data. This model can generate text in a wide range of styles and formats, making it a potentially valuable tool for design knowledge acquisition. The use of ChatGPT in design knowledge acquisition is still in its early stages and has yet to be fully explored. There are several potential benefits of using ChatGPT in this context, including the potential to provide more accurate and comprehensive information, and the ability to integrate generated knowledge into the design process more easily. However, there are also several challenges associated with the use of ChatGPT in design knowledge acquisition, such as the difficulty of controlling the quality and accuracy of the information, the potential to be biased, and the challenge of ensuring that the information is relevant and useful for the specific design task at hand. The purpose of this paper is to explore the opportunities and challenges of ChatGPT for design knowledge acquisition.

The point of contention of the current discussion is the Generative Pre-trained Transformer

(GPT) models by the private company OpenAI. ChatGPT, a GPT-3.5-based application, has gathered much attention lately as of early 2023. This editorial aims to discuss how researchers can utilize GPT-3 and similar models to improve their research, thus outlining a practical guide for using this technology in scientific research. Instead of discussing the pros and cons of AI, which have been covered extensively elsewhere (see, e.g. Bostrom and Yudkowsky, 2018), we will focus on how GPT-3 and similar models can be a tool to support research. Several studies across different research fields published recently even listed a GPT derivative as a co-author (e.g. Kung et al., 2022; Transformer and Zhavoronkov, 2022; Transformer et al., 2022).

We will not delve into the nature of AI, as it is a complex and loosely defined collection of a vast number of methods and concepts that, given sufficient computing power, can solve different problems of classical computing (see e.g. Moroney, 2020). Our goal is to show researchers how they can harness the power of High-Level Transformer- and similar models to improve their research and to provide a clear and actionable guide on how to do so. We believe that providing this guide can help researchers better understand AI's potential and how to use it to improve their research. We will not discuss AI's pros and cons on any moral dimension, which numerous outlets discussed in detail.



2. LITERATURE REVIEW

2.1. Chat GPT

ChatGPT is an advanced language model that utilizes transformer-based neural network architecture to understand complex language structures and generate contextually relevant and coherent responses. Compared to its predecessors, such as GPT-3 and InstructGPT, ChatGPT first stands out for its exceptional conversational capability and ability to interact seamlessly with users. Besides, ChatGPT is trained by a diverse range of text data from various sources. It can provide engineers with access to a wealth of information and insights. Thirdly, Reinforcement Learning from Human Feedback (RLHF) is adopted in ChatGPT, outputting the more desirable results. Through RLHF, the model can learn and improve from feedback provided by users, leading to the production of more desirable design solutions (Qiao, H., Wu, Y., Zhang, Y., Zhang, C., Wu, X., Wu, Z., ... & Duan, H. 2022).

2.2. Applying AI To the Research Process

There are many good reasons to consider the use of AI in research. The most obvious is that AI can take on tedious tasks and everyday chores. Adding AI to the research process has numerous contribution advantages as well. The most important of which is reducing human error. Unlike humans, AI will never skim data due to tiredness or be distracted, ensuring repeatable results if the input is provided thoroughly and correctly (Wu et al., 2018). Another advantage is that AI – as well as most other computational systems – can deliver repeatable results. With the proper parameters, the AI will always produce the same responses given the same history and input. This consistency is especially valuable as it eliminates the possibility of human variability in interpreting research. Furthermore, AI can offer a second set of eyes, providing an additional layer of precision in research protocol without requiring additional time, resources, or money. While AI may not reach the same accuracy as double-blind research conducted by multiple researchers, it offers a cost-effective alternative for organizations looking to improve their research process. Where to add AI At the current stage of development, AI can serve in various use cases. It can prove helpful in almost all cases of data analysis and classification. We will follow with a short description of the most apparent applications: In data classification in interviews, AI can help identify patterns and themes in data classification in interviews that may not be immediately apparent to human researchers (Cui and Zhang, 2021). In image analysis, computer vision tools can analyze images, such as microscopy images, to identify patterns and insights (Davenport and Kalakota, 2019). In emotion analysis in chats and other unstructured data, AI can help identify sentiment, emotion and other information that may not be obvious to human analysts (Gopalakrishnan et al., 2019). In quantitative data analysis, AI can help identify patterns and trends in the data that may not be immediately apparent to human researchers. In pattern recognition, AI can analyze large amounts of data, such as medical records, to identify patterns and insights that may not be immediately apparent to human researchers (Kong et al., 2020). Finally, tools can automate repetitive tasks such as data entry and annotation, freeing up researchers' time to focus on more critical tasks. This enumeration does not claim to be exhaustive but might give a feeling for the versatility of this new technology.

H₁: There is a positive relationship between Applying AI To the Research Process and Support Management Research.

(Burger, B., Kanbach, D. K., Kraus, S., Breier, M., & Corvello, V. 2023).



2.3. Status Quo Of Ai in Research

Current developments in AI Recent trends in AI outside of research have seen significant advancements in capabilities. The current hype around transformer models can potentially revolutionize areas such as entertainment, art and advertising. Additionally, AI is increasingly integrated into various industries, such as finance, healthcare and manufacturing, to automate repetitive tasks, optimize processes and improve decision-making. The recent hype in late 2022 and early 2023 is about transformer networks, a type of neural network architecture. These models train on a large dataset of text, such as books, articles and web pages, and they learn to predict the next word in a sentence based on the previous words (Vaswani et al., 2017). The model uses an attention mechanism that allows it to focus on specific parts of the input when making predictions, allowing it to understand the context of the text better. Once the model is trained, it can be fine-tuned for a specific task, such as language translation or text summarization, by training it on a smaller dataset of text specific to that task. The fine-tuning process allows the model to adapt to the specific characteristics of the task and to learn patterns and structure of the text specific to that task. The model can then be used to generate text by providing it with a prompt or a seed text, which it uses to generate a coherent and fluent response. GPT-3 and similar models can also perform other language-based tasks such as question answering, text completion and sentiment analysis. Thus, the model is, of course, not “thinking” but simply predicting what to say next. research While there has been significant progress in the development of AI technologies in recent years, the potential of AI in research is by far not yet fully realized and many opportunities remain unused. We see important and welcome trends in research, such as the use of open science practices, where researchers make their data, code and methods available to others. This procedure enables greater transparency, reproducibility and collaboration in research (Ramachandran et al., 2021). Additionally, we see a growing emphasis on using rigorous experimental design and statistical methods to validate research findings. This experimentation includes using randomized controlled trials, large sample sizes and powerful statistical methods to improve the accuracy and generalizability of research findings. Furthermore, there is a growing trend in using meta-research, which involves studying the research itself. This meta-research includes the study of biases, reproducibility and research transparency. All of which aims to improve the overall quality of the scientific enterprise. All these developments improve the quality of research, but they also put on new challenges for the researchers. As the computer helps us work with larger data sets and protocol our procedures, we will need to eventually adapt to AI to create a new level of research. However, many researchers are still unfamiliar with the current state-of-the-art AI techniques and lack the necessary skills to leverage them effectively in their research. Therefore, much more work must make AI a more valuable tool for researchers.

H₂: There is a positive relationship between Status Quo Of AI In Research and Support Management Research.

(Burger, B., Kanbach, D. K., Kraus, S., Breier, M., & Corvello, V. 2023).

2.4. Limitations and Drawbacks in Research

Progress in AI application

The field of AI continues to evolve and improve. One of the most notable developments has been the recent release of the GPT-3 model, which has received significant attention due to its advanced capabilities. While GPT-3 has many strengths, it is not without its limitations. One of the most notable challenges is its lack of advanced context sensitivity, which can sometimes make it less effective in certain situations.



However, progress has in recent months – and weeks – with the release of ChatGPT, new Bing, Bard and others, a newer and more advanced AI model. Unlike GPT-3, ChatGPT is context-sensitive, which allows it to integrate more deeply with the system in use. This advanced capability has been praised by many experts as a major step forward in the field of AI and promises to lead to many exciting and innovative applications shortly.

The AI landscape is rapidly changing, and there are several key points that researchers must keep in mind when working with AI models. One of the first things to be aware of is the cut-off date for most models, including GPT-3 and ChatGPT, beyond which they have no training data. This cut-off date means that if the field of research has changed substantially after that point, AI may not provide insightful data. Additionally, it is essential to note that all training data is open-access only and closed-access papers are usually not part of the AI training. Exceptions can be made for papers accessible through alternative measures, but publishing houses that use paywalls to protect articles are hindering progress in yet another way. Predatory journals often publish Open Access and might enter the generative AI training set and create a bias, despite the developers' best efforts to discount misinformation sources. It is also worth mentioning that, even when using OpenAI models, the AIs may sometimes fabricate untruthful responses. This “hallucinating” is particularly true when asking for a literature reference; GPT-3 and ChatGPT can come up with compelling elaborate titles and authors that are, however, wholly made up. To ensure repeatability, documentation of the exact wording of the AI prompts, and all input parameters of the AI are crucial. Peer reviewers are also encouraged to reproduce the results of the AI quickly and adjust the prompts slightly, as the most popular AI models are owned by private companies and can be adjusted and changed at will without snapshots of previous versions. Open-source implementations like Stable Diffusion for image generation are available but not as popular and not in all fields of AI. After all, it is important to remember that the researcher is always fully responsible for the results they get from AI models. The researcher must always keep these points in mind and exercise caution when working with AI, as the field is constantly evolving and new challenges are always emerging. In that line of argument, AI will not and cannot provide a reliable explanation. In general, the researcher needs to understand the model in use. For example, this includes reading the base papers of each architecture to understand the capabilities and limitations. We understand that this is a bone-dry task, even by research standards. However, with the speed of development in AI, there is no alternative to it. The most common types of neural networks are:

1. Feedforward Neural Networks (MLP – not to be confused with NLP): A type of artificial neural network where the data flows in only one direction, from input to output, without looping back.
2. Convolutional Neural Networks (CNN) (LeCun et al., 1998): A type of neural network used in image recognition and processing that applies a convolution operation to the input data to extract features for classification.
3. Recurrent Neural Networks (RNN) (Le et al., 2015): A type of artificial neural network that uses recurrent connections to allow the network to process sequences of input data, such as time series or natural language.
4. Transformer Networks (Vaswani et al., 2017): A type of neural network architecture that uses self-attention mechanisms to process data sequences, such as in natural language processing tasks.
5. Generative Adversarial Networks (GAN) (Goodfellow et al., 2020): A type of deep learning algorithm where two neural networks are trained together, with one trying to generate data that



is indistinguishable from actual data and the other trying to distinguish between real and generated data.

6. Autoencoder (Hinton and Salakhutdinov, 2006): A type of neural network architecture used for unsupervised learning where the network trains to reconstruct its input data while learning to reduce the dimensionality and extract the essential features. Of course, neural networks are not the only methods in AI. However, to stick with the example of neural networks, the deeper the levels of the network become, the harder it is to interpret the decision-making vectors of each engine. Particularly complicated is this understanding, as the decision-making of neural networks is not semantic but statistical. What results is a lack of interpretability. In summary, AI will not provide a theory/model for any research and non-domain-specific tools cannot be made to do so.

H₃: There is a positive relationship between Limitations and Drawbacks in Research and Support Management Research.

(Burger, B., Kanbach, D. K., Kraus, S., Breier, M., & Corvello, V. 2023).

2.5. Opportunities and Challenge in Research

2.5.1. Opportunities

The traditional methods of knowledge acquisition in the field of design follow a linear and discrete inquiry to acquire knowledge. This approach is effective for conveying single basic information but can be limited when it comes to more complex design problems. ChatGPT offers an alternative approach to knowledge acquisition in design that is more dynamic and interactive. Rather than following a linear and discrete inquiry process, it enables designers to engage in situated interactions that are tailored to their specific design problem by understanding the semantic and contextual information of the designer's inquiry. Through a back-and-forth conversational interaction with ChatGPT, designers can continually ask questions and receive answers in real-time, enabling them to explore different aspects of a design problem and to seek clarification and additional information as needed. In the context of design, iterative and continual knowledge acquisition is particularly beneficial for an ill-defined problem, requiring consideration of multiple perspectives and criteria to arrive at a solution. Furthermore, the ability of ChatGPT to support iterative knowledge acquisition enables designers to continually refine their understanding of a design problem as they work through the design process. This is especially helpful for designers that cannot well articulate the design problem they are trying to address.

In the context of design, concurrent engineering often involves multiple stakeholders from various domains and at different stages of the design process. Collaboration is therefore essential for the successful development of a design solution. ChatGPT has the potential to support concurrent engineering by serving as a shared knowledge platform that enables team members to acquire knowledge and collaborate effectively. This multi-object interactive process encourages collaboration and knowledge exchange among team members, enabling them to holistically view problems. Specifically, relevant stakeholders can ask questions, seek clarification, and explore problem space from their different disciplines. For example, a mechanical engineer may ask ChatGPT for information about the design of a robotic arm, while an electrical engineer may ask about electrical systems. It can provide relevant information to both designers in real-time, allowing them to proceed with their work in parallel and coordinate their efforts.

Furthermore, ChatGPT also has the potential to facilitate expansive learning, which involves acquiring new knowledge and skills through the process of engaging in new and challenging activities [20]. By enabling team members to acquire and transfer knowledge effectively, team



members can develop a shared understanding of the design problem, identify knowledge gaps, and co-create new knowledge that can enhance the quality and effectiveness of the design solution.

2.5.2. Challenges

Engineering design is a highly involved, often ill-defined, complicated, and iterative problem-solving process, requiring access to a vast and diverse array of knowledge. Design problems are characterized by the term “wicked problems” that have a large problem space and no fixed problem-solving sequences [19]. By leveraging design knowledge, engineers can better explore the problem space, identify potential solutions, and make informed decisions about how to proceed with the design process. The integration of ChatGPT in design knowledge acquisition provides several opportunities to support the design process from the perspectives of the knowledge provider, the knowledge seeker, and their interaction.

ChatGPT provides a novel opportunity for design knowledge acquisition through its ability to offer a general, common, and integrated platform for knowledge retrieval. In such a single and centralized platform, designers can acquire sufficient knowledge that pertains to common sense knowledge, various domain-specific knowledge, as well as engineering and technique knowledge, which support design decisions throughout the design process. Consequently, it is potential for designers to alter knowledge providers less when defining and solving problems derived from diverse stages of the design process. The reduction in the need for designers to frequently switch between different knowledge provides help streamline the design process and improve workflow efficiency. In addition, such an integrated knowledge tool can facilitate better collaboration and communication among designers by allowing them to work on the same platform and share knowledge easily. This can improve team productivity and reduce the risk of errors or miscommunications. It is also important to understand that the design process is not a linear, step-by-step process and that there is no fixed structure or sequence that designers must follow [12]. However, past design knowledge providers were more rigid and forced designers to use specific tools and follow certain procedures at different design processes, which impedes the ideation process and the creativity of designers. With its comprehensive integration that brings flexibility to designers, ChatGPT is exactly the knowledge provider to aid the designer rather than dictate the design process.

H₄: There is a positive relationship between Opportunities and Challenge in Research and Support Management Research.

(Burger, B., Kanbach, D. K., Kraus, S., Breier, M., & Corvello, V. 2023).

3. RESEARCH METHOD

In This study takes a descriptive A quantitative approach (survey questionnaire). The research utilized a self-administered questionnaire as the data collection tool, thereby accounting for the study's design. This research design was adopted once more in order to assess the respondents' opinions regarding the correlation factors. Furthermore, this research framework enables the collection and analysis of quantitative data using descriptive and inferential statistical techniques. In order to collect data primarily from the academic staff of three different Malaysian Universities, a cross-sectional research design and survey approach were utilized in this study.

This study has deemed it to be an apt approach as it is able to illustrate the correlations between the variables. The use of a cross-sectional design aids in attaining the aims of this investigation and providing a response to the research questions by facilitating the evaluation of the relationship between the independent variable of the research (Applying AI To the Research Process, Status



Quo Of AI In Research, Limitations and Drawbacks in Research, and Opportunities and Challenge in Research),

The population for this study consisted of three different Universities in Malaysia and 130 questionnaires were distributed. Eventually, 105 of questionnaires was administered for varying reasons (incomplete, missing, disregarded) to prevent insufficiency in the total survey questionnaire. of them were found to be suitable for analysis. Adaptations made from preexisting questionnaires were employed. The sampling recommendations of The selected sample size based on (Hair Jr, 2016), Sekaran and Bougie (2016) stated that the equal is to 10 times the largest number of formative indicators used to measure a single construct.

Questionnaire items were generated through the utilization of a systematic methodology. An initial data analysis was undertaken with SPSS to evaluate the issues of missing values, outliers, and non-normality of the data. The primary analysis was conducted using SPSS – Smart Pls. Squares Structural Equation Modeling, by using (PLS-SEM) software an analysis data academic model was evaluated by assessing reliability and validity values, and the hypotheses were tested to determine the significance of the proposed associations.

3.1. Research Design

Malaysia was chosen as the context of study, as the country a lot of experiences of these fields Malaysian citizens particulars are being by as well as credibility issue. Thus, this study used a quantitative research design in order to collect reliable and accurate data. Quantitative research design is used as it involves the reduction of phenomena to numerical values (Apuke, 2017). The survey method using an online questionnaire was utilized, as it allows for the standardizing of collecting quantitative data, so that the data are internally consistent and comprehensible to be analysed (Roopa & Rani, 2012).

3.2. Sampling Procedure

A non-probability sampling, namely purposive sampling was used in this study as researchers were unable to get the population list. Purposive sampling which is the deliberate selection of respondents due to the qualities the respondents possess. It aims to focus people on specific characteristics to better assist relevant research by identifying and selecting information-rich cases (Etikan, Musa, & Alkassim, 2016).

In addition, in order to know the sample size for the current study, researchers used a-priori sample size technique (Sooper, 2020 in Memon et al., 2020) via the power analysis as it is a prominent analysis in most social sciences research as suggested by Hair, Hult, Ringle, and Sarstedt (2017) Researchers managed to get 105 valid academic staff responses.

This has further supported the notion of Sekaran and Bougie (2016) who recommended that sample size between 30 and 500 are sufficient for the social science studies.

Researchers utilized survey. The online questionnaire forms send to 3 Malaysian universities via emails and meeting online, distributed through to researchers assured the anonymity and confidentiality of the respondents. The data collection was carried out from 12th July 2022 until 03rd may 2023 to gather the 105 responses.

3.3. Proposing A Conceptual Framework for This Study

conceptual Framework to investigate how they contribute to artificial intelligence (GPT) the literature indicates that they are the main indicators of performance. In reference to the developed conceptual Framework, 4 hypotheses are developed to investigate factors impact on supporting



management research. The following figure illustrates the Framework of this research. (Burger, B., Kanbach, D. K., Kraus, S., Breier, M., & Corvello, V. 2023).

A. Conceptual Framework

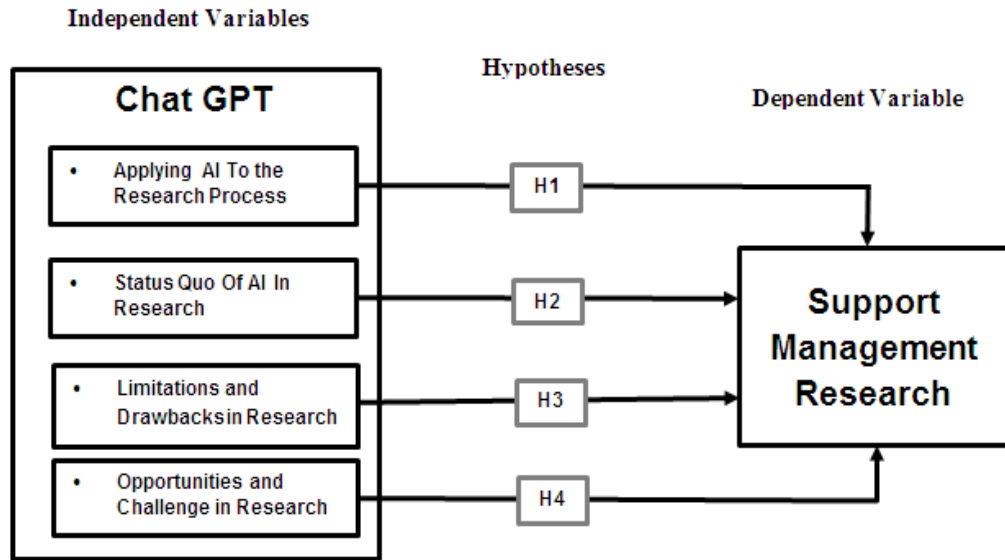


Figure 1. Proposing A Conceptual Framework for This Study

3.4. Statistical Analysis and Significance

All the hypotheses developed were tested using Structural Equation Modelling (SEM). Two-stage analytical procedures were performed using Smart-PLS 3.0. SEM is deemed as a suitable statistical tool for this study as PLS-SEM can handle complex models where there are many numbers of latent variables and constructs (Henseler, Ringle, & Sinkovics, 2009). In addition, PLS-SEM can also handle the data from non-probability sampling, with a small sample size and from non-normal distribution data (Awang, Afthanorhan, & Asri, 2015; Hair, Risher, Sarstedt, & Ringle, 2019). Most significantly, the current study implied to test the theoretical framework based on the perspective of prediction which justify the used of PLS-SEM (Cepeda-Carrion, Cegarra-Navarro, & Cillo, 2019; Hair et al., 2019). This has further supported the notion of Rigdon (2016), that the prediction analysis is timely in research as it provides new observations within and outside of the sample.

4. RESULTS AND DISCUSSION

Based on Table 1, more than half of the respondents are female (60%), with only 40% of the respondents being male and the majority of them are Malaysians (85.8%). In terms of age, 48% of the respondents aged from 30-50 years old. Additionally, nearly half of the respondents are Malays (56%), followed by Chinese (44%), Master’s Degree 67% and the Ph.D. 33%. Furthermore, almost all of the respondents (99.3%) have smartphone and have installed MySejahtera application (79.1%), which show that the respondents are techno-savvy and have knowledge on the use of information technology (ICT).

**Table 1. Demographic profiles of respondents (n = 105)**

Variables	Category	Frequency	%
Gender	Male	40	40
	Female	65	60
Nationality	Malaysian	65	56
	International	50	44
Age	<30	45	44.2
	31-40	48	47.0
	41-50	4	3.0
	>50	8	7.5
Race	Malay	65	55.6
	Chinese	50	43.4
Education	Master's	70	67
	Ph.D.	35	33
Academic Staff ?	Yes	105	100
	No	0	0.0

Before testing the model, this study examined the common method variance (CMV) which is the method bias or same source bias that may arise using self-report measures or cross-sectional design from the similar sample in the survey method (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Table 2. Correlations matrix among the variables (n = 105)

	PE	EE	SI	PC	ITU
PE	1				
EE	.695**	1			
SI	.661**	.562**	1		
PC	.625**	.577**	.605**	1	
ITU	.692**	.652**	.678**	.641**	1

Correlation is significant at the 0.01 level (2-tailed)

4.1. Structural Model

The structural model was tested using bootstrapping procedures with a resample of 5,000 (Hair et al., 2017) to assess all the relationships between the constructs, its corresponding beta and t-values. The results are shown in Table 6. Opportunities and Challenge in Research ($\beta = 0.095$, $t = 1.879$, $p = .030$), Limitations and Drawbacks in Research ($\beta = 0.114$, $t = 2.585$, $p = .005$) were found to have a positive and significant relationship with intention to use Support Management Research. H_3 , H_4 Supported and significant However, Applying AI To the Research Process and



Status Quo Of AI In Research showed no significant relationship with the intention to use Support Management Research. This gives support for H3, H4, and whereas H1 and H2 were rejected. R2 of 0.712 suggests that there is 71.2% of the variation in intention to use Support Management Research was explained. In this study, the Q2 values are more than zero for intention to use (Q2 = 0.622), suggesting that the model has sufficient predictive relevance.

Table 3. Convergent Validity

	EE	FC	HA	ITU	PC	PE	SI
EE							
	(0.735-	(0.766-					
	0.834)	0.868)					
ITU	0.705	0.797	0.870				
	(0.646-	(0.752-	(0.831-				
	0.761)	0.838)	0.904)				
PC	0.626	0.669	0.715	0.686			
	(0.556-	(0.602-	(0.655-	(0.622-			
	0.692)	0.728)	0.769)	0.744)			
PE	0.789	0.798	0.868	0.773	0.699		
	(0.726-	(0.740-	(0.832-	(0.716-	(0.635-		
	0.846)	0.853)	0.902)	0.827)	0.757)		
SI	0.664	0.716	0.897	0.789	0.706	0.806	
	(0.592-	(0.648-	(0.849-	(0.727-	(0.631-	(0.745-	
	0.732)	0.781)	0.943)	0.850)	0.772)	0.861)	

*CR= Composite Reliability; AVE = Average Variance Extracted

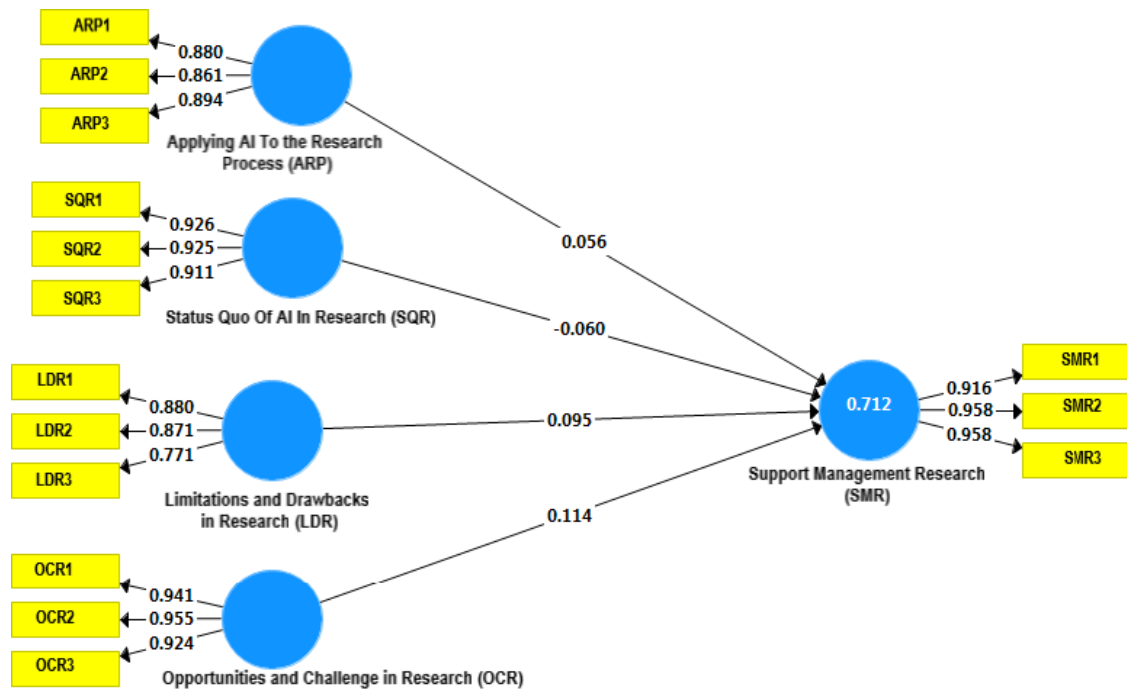


Figure 2. Structural model

Table 4. Direct Effects

						Confident Interval (BC)					
		Std. Beta	Std. Error	T values	P values	LL (5.0%)	UL (95.0%)	D	Q ²	R ²	f ²
H1	ARP -> SMR	0.056	0.057	0.987	0.162	-0.041	0.147	NS	0.622	0.712	0.004
H2	SQR -> SMR	-0.060	0.068	0.880	0.187	-0.168	0.055	NS			0.004
H3	LDR -> SMR	0.095	0.051	1.879*	0.030	0.015	0.181	S			0.012
H4	ORC -> SMR	0.114	0.044	2.585*	0.005	0.041	0.184	S			0.022

**p < 0.001, *p < 0.05; BC=Bias Corrected; LL=Lower Level; UL= Upper Level *S = Supported; NS = Not supported, 1-tailed test.

PLSpredict was used to examine the predictive power of the model under study. Based on Table 5, the results of the PLS-SEM model are compared to the results of the naïve linear regression (LM) benchmark model. As all Q²predict values are more than zero, hence, it can proceed with the comparison of both models. The comparison of predictive power (PLS-SEM – LM) is carried out using the root mean squared error (RMSE) values, which have high symmetrically distributed prediction errors (Shmueli et al., 2019). When the RMSE statistical values of the PLS-SEM model is compared to naïve LM benchmark model, most of the indicators show that RMSE values of PLS-SEM are lesser than the RMSE values of the naïve LM benchmark. Therefore, it suggests that the model has a high predictive power for intention to use.

Table 5. PL of Variables

	PLS SEM		LM	PLS SEM - LM	Interpretation
	RMSE	Q ² _predict	RMSE	RMSE	
SMR1	0.593	0.669	0.599	-0.006	
SMR3	0.670	0.596	0.686	-0.016	High
SMR2	0.691	0.585	0.722	-0.031	



4.2. Finding

Examining the effect Relationship Between (Applying AI To the Research Process, Status Quo Of AI In Research, Limitations ,Drawbacks in Research and Opportunities , Challenge) and Support Management Research in Malaysian universities. (Hair, J., Risher, J., Sarstedt, M., & Ringle, C. 2019). Regression coefficients for the following:

Applying AI To the Research Process Base. hasn't been impacting on Support Management Research, as measured by 0.162 with a probability level higher than 0.05.

Status Quo Of AI In Research Base. The Variable hasn't a regression coefficient of 0.187 and a probability value of less than or equal to 0.05, suggesting that raising the Status Quo Of AI In Research Base Variable hasn't improves Support Management Research in Malaysian universities.

As a result of the study's results, Support Management and in Malaysian universities will upgrade in the absence of an(Applying AI To the Research, Status Quo Of AI In Research) Base. This finding is inversely linked to this study, which shows that (Applying AI To the Research, Status Quo Of AI In Research) Base hasn't a significant impact on Support Management Research

Status Quo Of AI In Research Base. The Variable hasn't a regression coefficient of 0.187 and a probability value of less than or equal to 0.05, suggesting that raising the Status Quo Of AI In Research Base Variable hasn't improves Support Management and in Malaysian universities.

Limitations and Drawbacks in Research Base. The Variable has a regression coefficient of 0.030 and a probability value of less than or equal to 0.05, suggesting that raising the Calculative Trusting Base Variable improves Support Management in Malaysian universities .

Opportunities and Challenge in Research. the Variable has a regression coefficient of 0.005 and a probability value of less than or equal to 0.05, suggesting that raising the Calculative Trusting Base Variable improves Support Management Research in Malaysian universities .

The Variables have a regression coefficient of Opportunities and Challenge and Limitations and Drawbacks probability value of less than or equal to 0.05, suggesting that raising the Support Management Research Base Variables improves Malaysian universities . This indicates that in Malaysia, Institutional Trusting Base and Calculative Trusting Base have a significant effect on employee performance. Study supports this finding, showing that Personality Trusting Base has a significant effect on Support Management Research in Malaysian universities.

- Examining the effect of the factors of (Applying AI To the Research Process, Status Quo Of AI In Research, Limitations and Drawbacks in Research, Opportunities and Challenge) base relationship between the variables of the study.
- Contributes by combining variables in four factors (Applying AI To the Research Process, Status Quo Of AI In Research, Limitations and Drawbacks in Research, Opportunities and Challenge) to Support Management Research in Malaysian universities.
- This Study also has a methodological contribution by measuring the complexity of Management Research.



Table 5 Hypotheses Testing -Final result

Hypothesis statement	Significant. (+/-)	Decision
H ₁ : There is a positive relationship between Applying AI To the Research Process and Support Management Research.	- Significant	Not supported
H ₂ : There is a positive relationship between Status Quo Of AI In Research and Support Management Research.	- Significant	Not supported
H ₃ : There is a positive relationship between Limitations and Drawbacks in Research and Support Management Research.	+ Significant	supported
H ₄ : There is a positive relationship between Opportunities and Challenge in Research and Support Management Research.	+ Significant	supported

4.3. Discussion

The current findings were congruent with several past studies which showed that facilitating conditions have positive significant relationship to use technology (Haron et al., 2020; Khechine & Augier, 2019). The positive findings can be best explained that the Chat GPT is available every where where the Malaysian universities. However, the findings of (Burger, B., Kanbach, D. K., Kraus, S., Breier, M., & Corvello, V. 2023). were found to be different as facilitating conditions did not have significant relationship with the intention to use Chat GPT in the world, which makes the study different from the current findings. Furthermore, habit was found to have a significant relationship with the intention to use Chat GPT which supported previous studies (Kraus, S., Breier, M., 2023). This can be further explained that in the context of Malaysia, Chat GPT as the tracking application has been implemented for some period, where the Malaysian universities were already used to the new norms. Based on the responses, some of the respondents have not been using the ChatGPT. In addition, perceived privacy credibility was also found to positively influence the intention to use ChatGPT which is aligned with the study by (Burger, B. Corvello, V. 2023). The positive finding of the study can be best explained that the government of Malaysia has not given assurance to the Malaysian universities regarding the confidentiality of the universities academic information or details that are stored in the ChatGPT system; hence, the credibility of the ChatGPT isnt assured in Support Researches.

This is also reflected by the current demographic profile of the respondents where most of the respondents are within the age group of 30-50 years old, where this is a academic staff that is techno- savvy, educated, and has high level of knowledge with the use of media technology.

5. Conclusion

In conclusion, using AI in (management) research can significantly improve the objectivity and accuracy of the results when applied correctly. By adding an automated component to both the research initiation phase as well as the data analysis phase, we can reduce the potential for human error and achieve better reproducibility. While the current state of AI – generalized AI models in particular – is not where a researcher can trust the results blindly, they often hint in the right direction and uncover oversights. The ability to process data at a deeper level, as well as the ability to achieve faster results, makes AI a valuable tool in the field of research. The theoretical implications of this research suggest that using neural networks in data analysis can bring us one step closer to research results that are free of human error and can lead to a higher level of objectivity in the field. We must also highlight that the use of AI is not limited to any



methodology or a certain level of technical savvy required by the researcher. While it is true that a theoretical core understanding of AI in general and the AI employed in specific is necessary and basic skills.

5.1. Implications

To get started with AI, researchers first must familiarize themselves with the topic. OpenAI provides a “Playground” feature that allows users to experiment with the AI models without Application Programming Interface (API) access. Getting a feeling for how AI works and its limitations and capabilities is the crucial first step in any AI aspiration. As with any other tool, we need to understand its features first. With non-linear models such as AIs, exact control of the parameters is crucial (compare the “butterfly effect” in chaos theory). For the same reason, prompts must be reliable and exact. To be safe, we should always use a “fresh” process for each research task. Once we ask an AI process about the weather, future responses might be tainted. In ChatGPT, for example, this shows using several chats side by side. One to try out and fine-tune prompts, and one that strictly advances the research (and other chats as the researcher pleats). Most importantly, AI will not provide reasoning for any research. It is always the researchers’ responsibility to provide causality and reason for all findings. In our experience so far, AI is also unfitted for suggesting causality, as the models are always, and, trained on existing data and hence are unable to draw novel conclusions.

5.2. Future opportunities

the usage of AI in research has just begun. In the future, there will be plenty of applications that can support the research community with AI. Fed with suitable models and frameworks, AI could for example create continuous literature reviews that are always up to date and always sum up the current state of the research. Another practical application would be a list of every current call for paper to increase and simplify transparency of academic discussions. It can also help simplify research language so that scientific insights are accessible to a broader public as the linguistic barrier drops. We want to call aspiring entrepreneurs to create research-specific AI. While generalized AI is an excellent way for many use cases, research demands strongly differ from the broad public. For example, research questions are not interested in the most common or most convenient answer. Also, research has training requirements on all research literature and current databases, which some organizations are opposed to sharing. A research AI must also be highly sensitive to new data, setting that data into a research context and knowing and applying methodologies. Finally, a research AI must be able to differentiate between its own “creative” writing (as observed before, GPT-3 tends to “invent” research papers) and recitation of sources. Finally, as with other technologies, it is probable that AI will not entirely replace human work but will integrate with it, generating new and more complex forms of human-machine interaction. Critically analyzing these evolved forms of interaction and striving to quickly understand them, rather than being simplistically enthusiastic or hostile towards new technologies, is the right attitude to advance any area of activity, including scientific research.

5.3. Limitations and Suggestions for Future Study

stick with the example of neural networks, the deeper the levels of the network become, the harder it is to interpret the decision-making vectors of each engine. Particularly complicated is this understanding, as the decision-making of neural networks is not semantic but statistical. What results is a lack of interpretability. In summary, AI will not provide a theory/model for any research and non-domain-specific tools cannot be made to do so in conclusion, Chat GPT is a powerful tool for enhancing the learning experience by providing personalized and interactive



support. It can be used to tailor exercises and games to align with the learner's specific needs, as well as recommend learning materials and resources.

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