Original Research Article

Days of Future Past: Scrutinising the Artificial Intelligence Impact on Leadership inside Internationalising SMEs

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ABSTRACT

This study finds a gap within the literature and aims to conduct research that primarily highlights the role of artificial intelligence technology on internationalising SME's leadership system, especially from Makassar, Indonesia.A quantitative research method is applied in this study through the collection of both primary and secondary data and the time span of this study is from November 2023 to January 2024 and over 200 active SMEs received research questionnaires.Through specific statistical measurements and tests, this study then aims to contribute to the body of knowledge and theoretical contribution, through the offer of research findings, which confirm that artificial intelligence plays an important role on leadership inside internationalising SMEs in a developing country, Indonesia, primarily in Makassar district. As for theoretical contribution, the explanatory variable, which is artificial intelligence affects significantly and positively the predictor, which is the leadership of the internationalising SMEs, particularly on: (1) the surveillance and monitoring; (2) the ethical considerations; and (3) the decision-making process. As for managerial contribution, this study elaborates in the particular sections of this research article.

Keywords: artificial intelligence, leadership, SMEs, human resource management, internationalisation

1. INTRODUCTION

Literature denotes that artificial intelligence has attracted many scholars interest since a few decades ago, especially within the 21st century era [1, 2]. The research streams of organisational behaviour, management, business, accounting, and economics are also affected by AI, and as a result, a great number of studies have been conducted to explain the role of AI in such research streams. For example, the study of Paesano [3] indicates that artificial intelligence, together with its technologies, is able to replace the development of organisations, especially their human resources, e.g., the takeover of human jobs and so on. Other scholars [4, 5] also imply that artificial intelligence is able to potentially transform the organisation by delivering various positive impacts, such as the improvement of the decision-making process, the preparation of administrative jobs, and the enhancement of organisation efficiency.

Furthermore, some studies in the literature explain that artificial intelligence plays a significant role in the organisational leadership system. For example, the study of Titareva [6] denotes that artificial intelligence, which is a further expansion of the earlier digitalisation, affects the working environment within the organisation, particularly the organisation's leader behaviours and leadership system. To be more specific, the study of Titareva [6] above elaborates that the leader of an organisation may potentially deal with more challenges during the application of artificial intelligence technology. In other words, the organisation's leader may potentially deal with a challenge, which is to select which events are executed by artificial intelligence technology and which actions are conducted by humans. Based on the

above discussions, this study finds that although there are great numbers of studies investigating the role of artificial intelligence on leadership within organisations, there is a scarcity of studies investigating the role of artificial intelligence on leadership within the context of small and medium-sized enterprises (SMEs), especially the internationalising SMEs from emerging countries. As a result, this study finds a gap within the literature and accordingly aims to conduct research that primarily highlights the role of artificial intelligence technology on internationalising SME's leadership system, especially SMEs, which are from Makassar, Indonesia.

2. MATERIAL AND METHODS

2.1 Artificial Intelligence (AI)

According to the literature, computer systems development, which is able to perform particular tasks through the creation of machines that can learn and solve problems, is always referred to as AI [2]. In addition, the study of Raisch and Krakowski [5] denotes that the technology of AI is designed for environment identification, decision-making processes, and performance improvements. Recently, AI also refers to the improvement of robotic systems, language, and vision [1, 2, 4], and eventually AI will have the ability to analyse as well as decode a great number of data and generate specific related patterns and predictions, e.g., chatbots for online customer service, etc. Moreover, literature also implies that although numerous industries around the world have been revolutionised and improved by AI technology, nevertheless, some effects on ethical and social considerations have also existed. Such effects later become both the indicators and challenges of AI for organisations' leaders, which are: (1) a privacy issue, or PI; (2) unfairness of decision-making, or UDM; and (3) ineffectiveness of job replacement as well as displacement, or IJRD [4-7]. Overall, artificial intelligence encompasses the development of intelligent machines that can mimic human cognitive functions, enabling them to perform tasks in a way that resembles human intelligence.

2.2Leadership (L)

Every organisation perceives that a leadership is one of vital factors in achieving a success in general, and in shaping the culture, innovation, performance of organisation in particular [8, 9]. In explaining the definition of leadership, various leadership studies, especially based on the recent competitive and rapid movement of business environment, are found within the literature. For example, according to the study of [10], leadership within the perspective of management science is defined as a manager and/or leader ability to inspire as well as lead groups of people or individuals in order to achieve the goals of organisation. In addition, leadership also encompasses personal skills, behaviours, and characters in order to encourage, stimulate, and lead the staffs and/or the rest subordinate members of organisation. Furthermore, the indicator of leadership is divided into 4 skills, which are: (1) decision-making, or DM; (2) communication skill, or C; (3) task and responsibility delegation skill, or TRD; and (4) positive job environment creation skill, or PJEC [8, 11-17]. A proper, effective, as well as correct leadership management within organisation is accordingly indispensable for the success and growth of an organisation [11, 12]. This is because of leadership assists an organisation in amplifying efficiently and effectively the organisation's innovation, change management, and performance of employee.

2.3Research Framework and Hypothesis

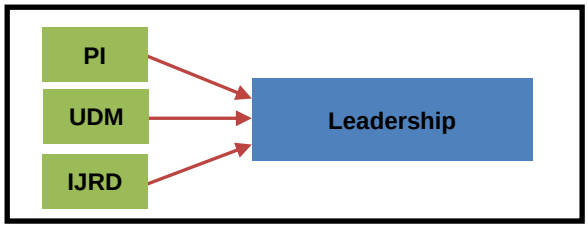

Fig. 1.Conceptual Framework(Data Generated, 2024)

In line with the research framework of this study, as it is shown in Figure 1, this study then constructs the research hypothesis, which is demonstrated in Table 1 below.

Table 1. Research Hypothesis

No	Hypothesis
H1	There is a positive with significant effect of PI on L
H2	There is a positive with significant effect of UDM on L
H3	There is a positive with significant effect of IJRD on L

Source: Data Processed (2024)

In this study, a quantitative research method is applied through the collection of both primary and secondary data from the related research source, especially from internationalising SMEs in Makassar, Indonesia. To be more specific, the first data source is from direct observation at the internationalising SMEs location, and the second data source is mainly from several bases, which are: (a) related literature; and (b) internationalising SMEs relevant documents, e.g., sales reports, training reports, etc. Furthermore, through the application of the non-probability sampling technique with around 200 active internationalising SMEs as the research sample for this study, a research questionnaire is then applied and distributed to the research sample. The reason is that, through the use of a questionnaire, this study aims to discover in detail the role of AI in the leadership of internationalising SMEs in Makassar, Indonesia. The time span of this study is from November 2023 to January 2024 and over 200 active SMEs received research questionnaires. Only 173 questionnaires were sent back and met the requirement to be statistically processed further. In addition, this study applies several statistical measurement tools in order to analyse the collected research data. The measurements are: (1) validity test; (2) reliability test; (3) linear regression approaches, which are T-tests or hypothesis tests; and (4) R-square tests.

3. RESULTS AND DISCUSSION

3.1Validity and Reliability Test Results

The study of Sekaran and Bougie [18] explains that to guarantee the measured research constructs in quantitative research methodology are valid, validity tests are then essential to be conducted, and it is vital to highlight the r-count score in order to determine the validity of the research variable. Once the r-count score is higher than the score of the r-table, the construct is confirmed to be valid, and vice versa. Likewise, the reliability test is vital within quantitative research because, based on the study of Bell, Bryman [19], the reliability test is helpful for statistical measurement to ensure the data collection and research constructs produce consistent and reliable results. If the Cronbach's alpha score of constructs is higher than 0.60, it is confirmed that the constructs are reliable, and vice versa [20, 21]. The results of the validity and reliability tests of this study are demonstrated in the following Table 2.

Table 2. The Results of Validity and Reliability Test

Constructs	Indicator	Cronbach's Alpha	r-count	r-table	Result
Artificial Intelligence	X1	0.723	0.729	0.149	Valid and Reliable
	X2	0.779	0.780	0.149	Valid and Reliable
	X3	0.734	0.710	0.149	Valid and Reliable
Leadership	Y1	0.711	0.622	0.149	Valid and Reliable
	Y2	0.695	0.683	0.149	Valid and Reliable
	Y3	0.738	0.740	0.149	Valid and Reliable

Source: Data Processed (2024)

This study applies linear regression analysis for the determination of the accuracy of the independent variable, which is artificial intelligence, and its impact on the dependent variable, which is leadership. The first test in this linear regression analysis is the T-test or hypothesis analysis. This T-test is conducted to disclose whether the relationship between artificial intelligence (X) and leadership (Y) is significant or insignificant. The following table below demonstrates the results of the T-test.

3.2T-test

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Table 3. The Results of T-test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	24.361	6.831		3.27	.000
	PI	.344	.077	.459	4.51	.000
	UDM	.296	.052	.375	2.28	.000
	IJRD	.144	.039	.266	1.93	.000

a. Dependent Variable: leadership

Source: Data Processed (2024)

Table 3 shows that the significancy score of the privacy issue, or X1, is 0.000, i.e., H1 is confirmed to be accepted and H0 is rejected because, as suggested by Sekaran and Bougie [18], the rule of thumb for the significant score of measured variables is less than 0.05. As such, based on the findings of Table 3, this study recommends that the privacy issue of artificial intelligence positively and significantly affects leadership. Likewise, the significant scores of both unfairness of decision-making and ineffectiveness of job replacement as well as displacement are also lower than 0.05. In other words, H2 and H3 of this study are accepted, or (a) unfairness of decision-making; (b) ineffectiveness of job replacement as well as displacement play a significant and positive role on the leadership inside internationalising SMEs in Makassar, Indonesia.

3.3Coefficient of Determination (R Square Test)

Table 4. The Results of Coefficient of Determination Test (R-square Test)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.755[a]	.628	.291	4.822

a. Predictors: (Constant), PI, UDM, IJRD

Source: Data Processed (2024)

Table 4 shows that there are 0.628, or 62.8%, of a determination coefficient score for the artificial intelligence variable and its indicators. Eventually, the results in Table 4 indicate that artificial intelligence affects the leadership in both significant and positive ways inside internationalising SMEs in Makassar, Indonesia. In addition, the rest score, which is 37.2%, is from other variables that were not explored and investigated in this study.

4. CONCLUSION AND RECOMMENDATION

In order to fulfil the research gap in the literature as well as to contribute to the body of knowledge and theoretical contribution, the findings of this study suggest, discover, and conclude that artificial intelligence plays an important role on leadership inside internationalising SMEs in a developing country, Indonesia, primarily in Makassar district. The reasons are: (1) the surveillance and monitoring, which is the application of facial recognition technology in order to recognise and fill the employee's presence report in the office; however, some irresponsible parties use this face recognition database for negative purposes; (2) the ethical considerations, which are the algorithms and technology of AI are able to duplicate and strengthen any damaging biases that may lead to some issues, especially a privacy issue; and (3) after completing the decision-making process, the most concern of organisations once they use AI technology within the office is data privacy issues and cybercrime due to the application of inaccurate information. The findings of this study are also similar to the study of Smith and Green [22], which implies that AI machines, especially roboethics, are expected to be changed with a greater focus on ethical and moral mentoring. In other words, Smith and Green [22] recommend that if any roboethics method is used, the machine and the programmer will be involved and will need leadership presence for an effective and fruitful achievement. Furthermore, for a managerial contribution, this study recommends that the findings of this study are eventually central for internationalising SMEs in particular and organisations in general to assist their leaders and managers to design, establish, start, and monitor the proper AI technology application in order to have a better result in the leadership system, employee performance, and organisation performance as well.

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