



The Influencing Factors of Organizational Excellence on Corporate Foresight: Artificial Intelligence as Moderator

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Abstract: Malaysian oil and gas industry still have underperformed with high potential and industry had laid emphasis on efforts of organizational excellence with context of improving the corporate foresight. It has presence of moderating role of artificial intelligence in Malaysian oil and gas industry. Moreover, study was motivated through different findings inconsistent stated in literature on basis of relationship with organizational excellence with corporate foresight. These types of inconsistency have led for the emergence of innovative stream of research which had recommended the systematic investigation of different moderate variables that contributed to the relations among variable. Simultaneously with context to this study, various theories were employed as this comprises resource based view and social exchange theory to give insight within variables relationships in proposed conceptual framework. Apart from this, it has presence of survey questionnaire with random distributed to gas and oil quality's 932 managers through Malaysia's big five companies. In this aspect, total numbers of different regained questionnaires were 238 in which only 204 could be implied for purpose of analysis. Further, there is presence of employed correlation along with hierarchical regression analysis with purpose of analyzing the study variables with actual relationships. The outcome reflects positive relationship among principals of organizational excellence and the corporate foresight. While, artificial intelligence moderates the relationship between organizational excellence and corporate foresight. Lastly, this study has been summarized through offering managerial policy along with different theoretical and practical implications and even recommendations of basis of future studies

Index Terms: Organizational excellence, corporate foresight, artificial intelligence, Malaysian oil and gas industry.

I. INTRODUCTION

The corporate foresight concept has become increasingly significant in the past few decades all around the global manufacturing and service sectors.

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In particular, the oil and gas industry has noted a raise in awareness of social and environmental impacts of organizational excellence where issues of development have leaked to all oil and gas industry facet. This may be attributed to several factors; owners' and operator's attempt to mitigate operational costs, the changing attitudes of investors towards the environment that coincides with the creation of several corporate social responsibility initiatives,

Heightened regulatory policies concerning facility operations and development, and a shift towards the corporate foresight paradigm Goldstein et al., [1].

Porter and Kramer [2], companies that do good can do well. From this basic belief emerges the concept of corporate foresight and how important this concept is for organizations that adopt long-term policies and objectives. In this regard, corporate foresight attempts to adopt and employ development strategies that they may reap economic and cultural benefits from by doing what is environmentally responsible. In the circles of businessmen and academics, the natural environment has recently become a major strategic issue. Through "implementing development corporate strategies, business could integrate profitability for long term perspective with efforts for purpose of protecting the ecosystem and laying opportunities for attaining cost leadership and traditional competitive advantage and whereas marker differentiation through responsibility of environment. Van Marrewijk [3]. The impact of corporate foresight was examined by Eccles, Ioannou and Serfeim (2013) and they revealed that businesses voluntarily adopting sustainability policies have distinct processes in comparison to their non-adopting counterparts.

Moreover, corporate foresight is referred to as the search for a balance among socially desirable, ecological sustainable and desirable as well (Silva & Quelhas, 2006). In other words, a sustainable company is one that produces margins for shareholders, is environmentally friendly, and is one that improves the welfare of the people through its interactions with them Savitz & Weber [4]. Similarly, Dyllick and Hockerts (2002) referred to corporate foresight as the companies' capacity to leverage their economic, social and environmental capital with reference to contributing for development in their political domain. According to Malek and Kanji [5], organizational excellence refers to the continuous attempt to meet or exceed the requirements and expectations of external and internal customers in the entire organizational processes,

wherein all the employees work towards continuous improvement. In this regard, organizational excellence facilitates the combination of the best organizational aspects by not letting fear of failure stand in the way, providing customer-oriented services, doing right the first time by preventing error, and mitigating inventory waste. Organizational excellence was proposed to achieve an aim that has been established at a strategic level ensuring that objectives are met.

Furthermore, new business models, advancing technologies, and socio-economic, geopolitical, and demographic developments are accelerating the pace of change and will create opportunities for job creation and prosperity (WEF, 2016). These changes also pose major challenges requiring organizations, governments, societies, and individuals to adapt (WEF, 2016). For organizations and individuals to be prepared for the future, new skills need to be developed. According to the respondents in the WEF 2016 Future of Jobs survey, future workforce planning is a leadership priority, with 81% of respondents recommending investing in reskilling current employees. By 2020, 35% of the skills that are predicted to be important are different than the top skills in 2015 (WEF, 2016). Chief human resource and strategy officers from global employers anticipate the top skills in 2020 will comprise cognitive flexibility, complex problem solving, people management, service orientation, critical thinking, emotional intelligence, negotiation service orientation along with judgment and decision making (WEF, 2016). In addition to complex problem solving, social skills including persuasion, artificial intelligence, and teaching others helps in creating demand throughout the industries. By 2020, organizations need to understand the impact of advanced technologies including artificial intelligence (AI) on their organization and the skill sets that their employees need in the future. Organizations need to invest in employee skill set development in parallel to investment in advance technologies.

In fact, issues of advance technologies can be found in almost all oil and gas companies and in management aspects and this called for the alignment among the environmental, social and financial factors in order to bring about responsible business processes over time. Although there is not clear, universally acknowledged metrics, a notable shift towards artificial intelligence is obvious from the increasing number of initiatives that have emerged in the oil and gas industry itself through managers and operators, and in the environmental community. In the same series, Adams [6] has recommended that there should be systematic investigation of artificial intelligence on basis of nation. However, current study has chosen artificial intelligence as a moderating construct within organizational excellence and corporate foresight which makes the relationship stronger and determines the significance of artificial intelligence enhancing the organizational excellence of Malaysian oil and gas industry.

II. LITERATURE REVIEW

A. Corporate foresight

Current literature marks various authors referring about concept of corporate foresight as an ambiguous and debatable

one although a consensus has been reached as to its general definition, which is the capacity or capability for purpose of endure Broekhuis&Vos [7]; Giannettia, Almeida & Bonilla [8]; Geelsa, [9]. According to Brundtland [10], Moreover, Brundtland [10] defined corporate foresight as to satisfy the need of the present generation, and it ensures ability of future generation to satisfy their needs Ginsberg, [11]. It is evident that this information has its basis on the distinction outcomes that man has in his current surroundings, which drive him to propose and develop a new culture-nature relationship. Similarly, Osay (2002) stated that the development idea is imposed as a term that is globalizing, as it encompasses biological, economic and social systems in the need to reach equilibrium and to enhance man's life quality.

Aside from the above studies, Silva and Quelhas (2006) defined corporate foresight as the achievement of equilibrium between what the society needs, what is viable for the economy, and what is sustainable for the environment. Also, Savitz and Weber [4] explained that a sustainable firm is among one that produces margin which belongs to shareholders and even environment is safeguarded and enhances the people's welfare with whom it deals with. Meanwhile, corporate foresight according to Dyllick and Hockerts (2002) is the firm's capacity to leverage its economic, social and environmental capital to contribute towards the development of a sustainable political domain.

Moreover, corporate foresight activities are described as actions that are responsible for minimizing the environmental impact of organisational processes, while focusing on the socio-economic development which provides help to the organization for attaining survival in the short and long-term Munck&Borim-de-Souza [12]. This development should be largely dependent on the people working in the organisation and in the society as eventually, they are the ones accountable for the final decisions and validations of their activities Munck&Borim-de-Souza [13].

Similarly, in the study, there is attempt through researcher for purpose of filling literature gap with appropriate investigation of corporate foresight in the context of big five oil and gas companies in Malaysia along with examining the organizational excellence's impact on corporate foresight. The next section will detail about organizational excellence's overview as the independent variable of the study.

B. Organizational excellence

Organizational excellence entails the definition and deployment of major elements (Thiagaragan, Zairi& Dale, 2001), where the question to be addressed is, "What makes organizational excellence work?" Sebastianelli&Tamimi [14]. Also, among the issues related to organizational excellence critical factors it the way to define them and to measure their impact prior to becoming critical Zairi& Youssef [15]. This is owing to the fact that the critical success factors (CSFs) of organizational excellence are latent variables, indicting the inability for their direct measurement Ahire et al. [16]. This led to the different organizational excellence critical factors proposed by one author to another, despite the commonality of issues.

In this background, organizational excellence is not just comprised of several factors but rather it also encapsulates various techniques and tools on basis of improvement of organizational excellence (Tari, 2005). These method comprises different practices, tools and methods derived through censorious critical factors, and they designs the fundamental elements needed for factors implementation (Tari, 2005). Prior studies have evidenced that organizational excellence programs end up in failure owing to the absence of critical success factors Curry &Kadasah [17].

C. Organizational excellence and corporate foresight

Notwithstanding the popularity and extensive implementation of organizational excellence, there are still ambiguities as to the concept. Reeves and Bednar (1994) attributed these ambiguities to the lack of a universal definition of organizational excellence. Nevertheless, there are some commonalities in the principles used to describe the underpinning aspects of organizational excellence models with the first being the principle of customer-orientation. In organizational excellence, customer satisfaction is a fundamental aim and is expressed through the institution design and delivery of products/services that satisfies customers' requirements. The second principle is ongoing improvement indicating that the organisation has to be committed about continuous examination of technical and administrative processes and to the search for organizational excellence methods. The third principle is the teamwork between managers and workers in different functions among suppliers and customers Dean & Bowen [18].

The above principles may be mentioned separately but they are all interconnected, with the ultimate objective being corporate foresight using effective and efficient methods. The focus on customers is urged by the organization's desire to determine customers' needs and obtain feedback of their satisfaction in relation to the current efforts of the organization. Continuous improvement is the next phase requiring organizations to base their actions on the obtained authentic information. Moreover, the achievement and maintenance of customer satisfaction would need continuous development of products/services, and enhanced methods of their generation and delivery. Lastly, for continuous improvement in the organization, every worker that is engaged with production and delivery of the goods/services has to determine improvement opportunities and to cooperate with each other to bring about the changes. This calls for collaboration throughout levels, functions and boundaries, essentially establishing the need for effective teamwork.

Studies in literature stated that if corporate foresight concentrate on the management of organizational excellence critical factors, enhancement in service excellence as reflected through the financial outcomes will eventually occur. The next sections discuss the hypothesis of this study among organizational excellence and corporate foresight in detail.

1) Continues improvement

Successful organizational excellence largely hinges on the top management's commitment and it involves the articulation of a long-term vision that is clear and effective on basis of strategic leadership's provision (Tsang & Antony, 2001). Top management commitment in the creation of a corporate foresight providing employees with empowerment is a must Ugboro & Obeng [19]. Moreover, the level of

management support in the implementation of organizational excellence is crucial Pheng & Jasmine, [20] and there will be not successful organizational excellence implementation without or with the lack of top management commitment. Henceforth, on basis of bridging and overcoming the literature gap there is development of hypothesis which is stated below:

H1: Continues improvement positively effects on corporate foresight

2) Training and education

Another important requirement for successful implementation of organizational excellence is training and education. The delivery of excellent services and products calls for employees' using their knowledge and skills. In other words, management personnel, supervisors, and employees have to have to be armed with relevant education and training Zhang, Waszink & Wijngaard [21]. Training assists employees working in each level for understanding the organizational excellence and their related roles and responsibilities (Tsang & Antony, 2001) and thus, training has to be considered as an ongoing process Ugboro & Obeng, [19]. Further, literature gap has been overcome and bridged so hypothesis has been developed and mentioned below;

H2: Training and education positively effects on corporate foresight

3) Customer focus

Each organization aims to understand, satisfy and surpass their customers' needs and expectations in this regard, Zhang, Waszink and Wijngaard [21], claimed that the implementation of organizational excellence needs customer focus in order to achieve corporate foresight. Thus, for purpose of overcoming the literature gap hypothesis has been developed below:

H3: Customer focus positively effects on corporate foresight

4) Teamwork and involvement

Employee involvement has been often considered as a crucial indicator based on the premise that companies have to employ the skills and abilities of their employees. Employee involvement promotes a deeper understanding of the significance of the product excellence in employees and their commitment to organizational excellence. It is significant for staff which had feeling as part of the organization and for this, they have to be encouraged to manage, enhance and control the processes that recoup their task responsibilities (Tsang & Antony, 2001). The below hypothesis has been developed on basis of overcoming the literature gap:

H4: Teamwork and involvement positively effects on corporate foresight

5) Quality department

Another important aspect of organizational excellence in that the selection of high-quality supplier can lead to enhanced product/service quality as materials and parts are frequently a primary source of quality issues as explained in

Pheng and Jasmine [20]. Therefore, a cooperative relationship that is long-term should be established with suppliers. The advantages of such long-term relationship were also addressed by Zhang, Waszink&Wijngaard [20]. Hence, to overcome and bridge literature gap this study developed hypothesis as follows;

H5: Quality department positively effects on corporate foresight

6) Strategic planning

Strategic planning is a crucial indicator of organizational excellence and it covers the creation of the vision, mission, quality policy, quality control use, and management tools, among others. Suitable planning systems could lead to the enhancement of the quality of product and in turn, organizational excellence Chong &Rundus, [22]. Moreover, for overcoming and bridging literature gap this study developed hypothesis as follows;

H6: Strategic planning positively effects on corporate foresight

7) Information and analysis

Successful implementation of organizational excellence requires product and service design Ahire& Dreyfus, [16]. The relevance of such design in the process of development of product has been stressed on in literature. Design is referred to as a main determinant of organizational excellence Fynes&DeBurca, [23], where effective design could lead to optimum customer satisfaction. Hence, to overcome and bridge literature gap this study developed hypothesis as follows;

H7: Information and analysis positively effects on corporate foresight

8) Process management

In any organizational excellence strategy, process management forms a special part and thus, emphasis should be placed on the processes affecting goods and services excellence. More specifically, process management is focused on the management of processes for their effective operation. Hence, in order to realize product/process high quality, the major processes have to be determined and enhanced in a continuous manner (Pheng& Jasmine, [20]. Simultaneously, to overcome and bridge literature gap this study developed hypothesis as follows;

H8: Process Management positively effects on corporate foresight

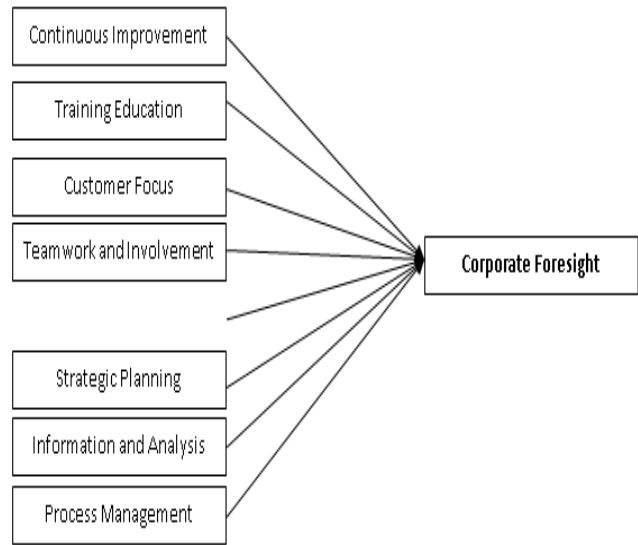


Fig 1. Conceptual framework of direct relationships between organizational excellence factors and corporate foresight.

D. Artificial intelligence (moderator)

The ability to define artificial intelligence is a challenge. Even artificial intelligence experts, developers, and employers differ on the definition. Schank [24] noted there was a lot of talk about artificial intelligence and “almost completely misunderstood by individuals outside the field even artificial intelligence practitioners are somewhat confused about what artificial intelligence really is” (p. 59). According to Schank, artificial intelligence is mathematics, software engineering, linguistics, psychology; artificial intelligence is a bit of everything and thus lacks a clear definition (1987). Over 30 years later, there is various definitions of artificial intelligence. While artificial intelligence depends upon the perspective of the author; researchers, in general, agree on the two primary goals of artificial intelligence. One is to build an intelligent machine and to the other to find out about the nature of intelligence.

Artificial intelligence promises benefits, but organizations and employees need to adapt as they adopt advancing technologies. McKinsey (MGI) recommends the organizational culture must support collaboration of humans and machines and that trust is key (2017). In the adoption of new technologies, to build trust, McKinsey recommended companies communicate with employees and address any concerns and employees have about working with advanced technologies as the adoption of the technology will require many employees to reskill.

Collaboration with machines will require reskilling or redeploying employees; therefore, employees need to be prepared for a lifetime of reskilling. McKinsey estimated 60% of all occupations will have at least 30% of technically automatable activities which also consists of highly structure physical tasks and forecast able environment along with data gathering and data processing (2017). Organizations and workers need new skills, mindsets, and culture. Artificial intelligence has the ability to automate many tasks and automation leads to adjustments in the workplace. While there is some fear around automation, other experts note how machines will complement people Autor [25]; Brynjolfsson& McAfee [26];



Davenport & Kirby, [27]. Indeed, people and machines together have increased output and results leading to higher demand for specific skills Autor, [25]. Thus technology alteration changes the types of work available, skills needed, along with types of skills pay. Levy and Murname predicted problem solvers would be valued in the market; people who could solve all unstructured issues, work with innovative information, and do non-routine work (2012). The World Economic Forum predicted new skills (including problem solving) are becoming more important and that by 2020, more than a third of the core skillset which is desired and most occupations will include skills that were not considered important in 2018. Artificial intelligence will require organizations and individuals to adapt. Thus, to overcome and bridge literature gap this study developed hypothesis as follows;

H9: Artificial intelligence moderates the relationship between organizational excellence and corporate foresight.

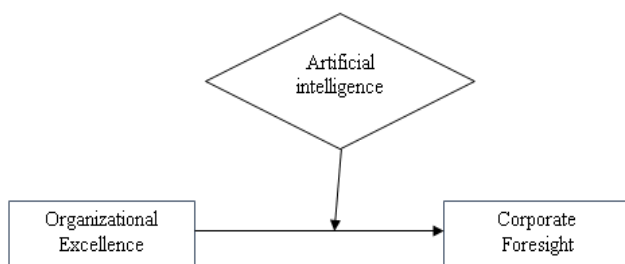


Fig 2. Conceptual framework of moderating effect of artificial intelligence between organizational excellence and corporate foresight.

III. RESEARCH DESIGN

A. Population and sample

The population of the present study includes big five oil and gas companies in Malaysia represented by the managers in charge of oil and gas quality of those companies. Specifically, 932 oil and gas quality managers are representing the population five big oil and gas companies in Malaysia. In the present research, Krejcie and Morgan [28] was used to determine the sample and which implies that for total population of 932 oil and gas quality manager in Malaysia, 238 is the sample size. However, in order to distribute the questionnaire, a proportional random sampling technique through Microsoft excel was adopted through which the number of questionnaires to be distributed to each company was determined. In this aspect, the total 238 were retrieved questionnaire in which 204 were implicated for analysis. Henceforth, aggregate of 204 completed questionnaire were implied on basis of empirical analysis had offered response rate of 66%. With context to table 1, which replicates distribution of big five oil and gas companies in Malaysia, which represent the population in this study.

Table 1: Distribution of questionnaire

Oil and Gas Companies	Total	Calculation	Proportionate sampling
Gas Malaysia Berhad	606	606/932*27	17
		4	8

(Northern)			
WahSeong (Malaya) Trading Co SdnBhd	77	77/932*274	23
Malaysian Petroleum Resources Corporation	86	86/932*274	25
Synergy Oil & Gas Engineering SdnBhd	106	106/932*274	31
Altus Oil & Gas Malaysia SdnBhd	57	57/932*274	17
			27
			4

B. Measurement

In a related study in the context of Malaysia, Alharbi (2012) made use of a scale based on Social Exchange Theory (SET) and the resource-based view Barney [29] to measure organizational excellence in the private sector. Because the scale was employed in the context of Malaysia, it was deemed to be suitable to be adopted in the present study and thus, the items used in Alharbi's (2012) study to measure the organizational excellence scale were tweaked to suit the present one. Moreover, corporate foresight is adapted from Graetz and Smith's [30] measured with six items. More specifically, the moderating variable as artificial intelligence is adopted from Adams [16] with seven items. Furthermore, the respondents were requested to reflecting the disagreement/agreement level to each of the items measuring organizational excellence in the Malaysian oil and gas sector based on their knowledge and experience. They were requested for rating items on a six-point Likert scale that ranges from 1 denoting "strongly disagree" to 6 denoting "strongly agree".

IV. DATA ANALYSIS AND FINDINGS

Regarding the background information of the responding managers, to begin with the age of the managers, 2% of the respondents were between 20-27 years of age, over 40% were between 28-35 years of age, and over 34% were between 36-43 years of age. The rest of the managers are divided as follows; 22% were between 44 and 50 years of age, and 0.5% of the respondents were above 50 years old. Table 2 offers correlation's summary of its final outcome. In this hypothesis on basis of affecting organizational excellence and corporate foresight were tested through regression. Before performing the test of actual hypotheses, correlations among them is constructed was derived.

A. Direct effect and hypothesis testing

Table 2 reflects structure of correlation of the data implied in this study. As stated in table 2, there is existence of positive correlations among corporate foresight and continuous improvement ($r = .41$; $p < .01$), training and education ($r = .39$; $p < .01$), customer focus ($r = .47$; $p < .01$), teamwork and involvement ($r = .28$; $p < .01$), quality department ($r = .37$; $p < .01$), strategic planning ($r = .34$; $p < .01$), information and analysis ($r = .27$; $p < .01$), and process management ($r = .47$; $p < .01$).

The individual hypothesis tested with application of a model of regression prediction (Hair et al., 1998) with corporate foresight as the dependent variable. Outcome of the analysis are briefed in table 3. As shown in table 3, significant relationship among corporate foresight and continuous improvement ($\beta = .57$; $p < .01$), corporate foresight and training and education ($\beta = .44$; $p < .01$), corporate foresight and customer focus ($\beta = .54$; $p < .01$), corporate foresight and teamwork and involvement ($\beta = .56$; $p < .01$), corporate foresight and quality department ($\beta = .31$; $p < .01$), corporate foresight and strategic planning ($\beta = .29$; $p < .01$), corporate foresight and information and analysis ($\beta = .30$; $p < .01$), corporate foresight and process management ($\beta = .47$; $p < .01$). Therefore, all eight hypotheses were supported.

Table 2: Pearson Correlation

	corporate foresight	continuous improvement	training and education	customer focus	teamwork and involvement	quality department	strategic planning	process management	Information and analysis
corporate foresight	1.0								
continuous improvement	.413	1.0							
training and education	.396	.588	1.0						
customer focus	.472	.687	.683	1.0					
teamwork and involvement	.284	.488	.515	.722	1.0				
quality department	.376	.273	.621	.829	.983	1.0			
strategic planning	.349	.434	.485	.231	.589	.784	1.0		
Information and analysis	.272	.677	.776	.375	.471	.570	.677	1.0	
process management	.473	.576	.872	.976	.372	.874	.771	.870	1.0

Notes: Correlation is significant at the 0.01 level (2-tailed) for all variable associations in the table given above

Table 3: Regression Analysis

Independent variables	Coefficient (β)	B	SEB
Dependent variable: corporate foresight			
Continuous improvement	.57**	.31	.08
Training and education	.44**	.24	.06
Customer focus	.54**	.33	.04
Teamwork and involvement	.64**	.54	.03
Quality department	.31**	.26	.04
Strategic planning	.29**	.15	.02

Information and analysis	.30**	.45	.07
Process management	.47**	.32	.08

B. Moderator model analysis

The moderator variable is chosen for the study among organizational excellence and corporate foresight also replicated as moderation analysis. On the contrary, moderator variable is normally familiarized with presence of inconsistent or weak relationship within the independent variable and dependent variable. Henceforth, the method implied for purpose of testing the moderating variable as product indicator approach (Chin et al., 2003).

Table 4: Moderation Analysis

S. No	Hypothesis	Coefficient (β)	Standard Error (STERR)	T-Value	P-Value	Result
H9	OE * AI -> CF	0.137	0.035	2.681	0.002	Supported

On basis of attaining t-values the researcher performs bootstrapping, after outcome of bootstrapping the table deals with the moderating effect of artificial intelligence (AI) in predicting the corporate foresight. The results reflected in Table 6 gives support the last hypothesis, and demonstrate that artificial intelligence moderates the relationship among organizational excellence and corporate foresight ($\beta = 0.137$, $T = 2.681$, $p\text{-value} < 0.02$). Also after comprising artificial intelligence (AI) has raised the effect on DV by approx. 2% whereas R square 0.367.

V. DISCUSSIONS AND CONCLUSION

Prior studies and theories were used to develop the nine hypotheses of the present study regarding the positive relationship among total quality management and corporate foresight by introducing a new moderating variable which is artificial intelligence (AI) in Malaysian oil and gas industry. More specifically, the obtained statistical results showed a positive and significant relationship between the eight variables at the level of significance of 0.01 These findings evidence that organizational excellence positively impacts corporate foresight, indicating that the greater the organizational excellence level, the better the development level.

The above result is consistent with those reported by prior studies that revealed a positive significant relationship within organizational excellence and corporate foresight. In regard to this, the likely description for such positive and significant relationship is displayed in good development with organizational excellence being the application of the organizational excellence throughout the organizational levels (Dale, 1999). Organizational excellence implementation entails a managerial system that provides tools and work methodologies Hellsten&Klefsjo, [14]. The minimization and preservation of resources is deemed to be the core of organizational excellence, and this in turn is related with corporate foresight, it is thus crucial to emphasize that organizational excellence is a representative of the organizational value that encapsulates the overall cultural environment Hellsten&Klefsjo,[14],



where the assignment of values vary throughout scholarships. For example, according to Sila and Ebrahimpour [31] there are differences and similarities among organizational excellence. Added to this, in consistent with the resource-based view (Barney, 1991), organizational excellence facilitates processes, continuous improvement, customer satisfaction and organizational commitment Bergman & Klefsjo, [32]

The aspect of organizational excellence has now become the top factors in the global market competition. Increased customer demands for superior product excellence in the market have urged firms to bring about excellent product/services to be able to compete successfully. In their quest to meet the global competition challenges, several businesses have turned to investing in resources that assist them in adapting organizational excellence throughout their operations. Organizational excellence refers to an action plan that generates and delivers commodities and services which are aligned to the customer's need through better, cheaper, faster, safer, easier processes compared to rivals, where all the employees participate under the direction of an effective top management leadership Lakhal et al., [33]. Moreover, manufacturing companies should keep organizational excellence in top consideration as this positively affects corporate foresight through production costs and earnings (Gaspersz, 2005).

This study's main aim is to examining the impact of organizational excellence on corporate foresight moderated by artificial intelligence in the context of Malaysian oil and gas industry. The achievement of these objectives would facilitate the contribution of the study in both theory and principals of organizational excellence-corporate foresight relationship in different industries, particularly the oil and gas industry. More specifically, the study findings are expected for contributing to the Malaysia and its people as the findings can be used as guidance by oil and gas companies whereby environmental and social issues can be tackled to improve people's lives. The theoretical and practice contributions of the research are detailed in the next sub-sections.

A. Contribution of this research

In the past decades, corporate foresight has been considered as the reason behind top performance of firms and their securing of competitive advantage in the market, and long-term survival (Vanagas&Zirgutiene, 2005; Bertels, 2010). Moreover, organizations that often employ a holistic method to corporate foresight are more capable of meeting their short-term needs while positioning themselves for long-term survival and successful performance in a dynamic market rife with competition (Shelly & Walker, 2007). Added to this, Reed, Lemak and Mero (2000) stated that researchers appear to be of a consensus that organizational excellence are related to corporate foresight regardless of the lack of theory that underpins the relationship. This indicates the need for more studies to examine the relationship and the present study attempts to fill this literature gap by examining and confirming the organizational excellence - corporate foresight relationship by introducing artificial intelligence in the context of the Malaysian oil and gas industry.

The present study attempted to investigate the level of involvement of the Malaysian oil and gas industry in the

development of social and environmental welfare of the country and its people. The findings of the study in this regard indicate that Malaysian oil and gas industry is contributing to the social and economic development of Malaysia by creating number of employments, contributing to GDP and offering other social responsibilities that would ensure continued sustainability of the country. Holistically therefore, the findings are expected to be of practical and managerial significance as it generates useful recommendation for management and policy makers for Malaysian oil and gas industry. Such recommendations would significantly influence Malaysia's social and environmental aspects.

Additional research also needs to conduct at the macro level on society's preparation for the impact of artificial intelligence. Research should be conducted to understand what organization are doing to prepare employees in the future including developing digital literacy, adaptability, creativity, emotional intelligence, critical thinking, service orientation and judgement. Research also should be conducted on what governments are doing to prepare their communities. Finally, more research needs done on the ethics of artificial intelligence and the impact of its automation on tasks, skills, the workforce and society. As technology continues to advance, more thoughts, more data, more insights, more analysis and more research needs to be conducted.

B. Limitations of the study

Although the study objectives were fulfilled and the findings contribution to literature and practice are evident, its limitations should be kept under consideration when interpreting the findings. The first limitation is the focus that is limited to the Malaysian oil and gas industry to the exclusion of others.

The study's second limitation is the adopted cross-sectional approach employed to examine the relationship at a certain point in time. The psychological human aspects are constantly evolving and hence, a longitudinal study is called for to examine the impact of organizational excellence on corporate foresight.

The third limitation concerns the context of the study, which is the Malaysia context – in this regard, future authors should examine the same variables in the context of other Asian countries (e.g., China, India, Indonesia etc.) to help policy makers to enhance the principals of organizational excellence in the hopes of enhancing corporate foresight.

The forth limitation concerns the primary objective, which is the examination of the relationship between organizational excellence and corporate foresight other factors have the potential of contributing to corporate foresight can be focused on by future studies like leadership and organizational culture.

Lastly, some limitations provided by prior studies could be compared to this study by other authors. Because this study is one of the few studies conducted in this context, benchmarking the findings to provide a deep insight is impossible and hence, more studies of this caliber are called for, for this purpose.

C. Recommendations for future research

The present study provides avenues for future studies in many ways. The first recommendation pertains to the data collection procedure that was conducted at a single point in time (cross-sectional method). Because strategies like organizational excellence and corporate foresight moderated by artificial intelligence and the relationships among them are rife with complexity, it is important for future studies to adopt a longitudinal design to shed better light on the phenomenon. The latter design is more suitable to examine the developing variables over time to determine the changes in the relationships among them. Added to this, the call for the employment of longitudinal design of study is compounded by the fact that psychological human aspects are ever- evolving and this aspect can only be captured through such a method.

The second recommendation for future authors is the examination of variables in the context of other countries other than Malaysia; for instance, the Asian countries in order to contribute to the policy makers agenda of improving the antecedent variables of organizational excellence with the objective of enhancing corporate foresight.

The third recommendation is the examination of future studies of moderating variables other than artificial intelligence, that was examined in the present study. Other variables such as Islamic perspective, culture, regulation, foreign factors, Islamic work ethics and other may also moderate the relationship between organizational excellence and corporate foresight.

Last recommendation for future studies is the relationship of other variables with corporate foresight aside from organizational excellence. Other variables may also have the potential to enhance the level of corporate foresight like leadership, these variables can be employed by future authors

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