

USER EXPECTATION AND BENEFITS OF IMPLEMENTING ARTIFICIAL INTELLIGENCE IN THE UAE ENERGY SECTOR

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ABSTRACT:

Energy is one of the most fundamental elements to drive economic development. Therefore, it is a significant element of the economic development of UAE. United Arab Emirates (UAE) is keen to exploit the benefits of AI to deliver clean, secure, affordable energy. Thus this paper studied the benefits and user expectations if AI is adopted in the energy sector. This was achieved through a questionnaire amongst the personnel working in the energy sector. From the analysis of 350 completed questionnaire form, this was found that “AI able to increase employees’ job performance”; “AI able to improve the customer retention” and “AI bring positive impact to the organization” are three significant benefits of AI implementation in energy sector. Similarly, “Using AI Technology fits well with the way I work”, “Interacting with AI Technology is often frustrating” and “Assistance is available if facing difficulty using AI Technology” are three major expectations of the users. Further, the difference of the opinions amongst the respondent groups with different level of working experience and working positions was presented based on comparing means. The findings of this study will encourage the practitioners to implement AI in energy sector. This will also enhance the performance of the energy sector.

1. INTRODUCTION

Artificial Intelligence (AI) is a beneficial and widely adopted technology. It facilitates a device to distinguishing its setting and make appropriate decisions. AI technology uses enhanced databases and increases computing power to process the faster with suitable interpretation. It enables routine and non-routine tasks (Russel & Norvig, 2013; Brynjolfsson & Mitchell, 2017; Frey & Osborne, 2017). Voice interaction, personalisation, and face recognition are the most common AI components. As a result, the user may converse with the voice assistant and carry out requests such as searching for information. Personalization is offering people with material, goods, and services that are tailored to their specific qualities and needs. Face recognition systems recognize one user from another by using distinctive facial features such as the eyes, lips, forehead, nose, or other spatial

geometric features (Xiao & Benbasat, 2007; Jayaraman et al., 2020). AI development and application have had an impact on nine areas of human society: transportation, health, space, renewable energy, water, technology, education, the environment, and traffic (Epstein, 2015).

The United Arab Emirates (UAE) is eager to capitalize on the benefits of artificial intelligence (AI) in order to achieve its goals and aspirations of delivering sensible self-service technological governance. The UAE public sector has adopted AI technology in many of its services like healthcare, security, business, and others. It can overcome the challenges in coordinating amongst ministries and agencies. Thus, it creates public trust with effective and efficient service delivery and avoids corruption (Grint & Woolgar, 2013). Government organizations utilize AI-based services to increase job productivity and customer experience, cut

service costs, and relieves human workloads (Buell et al., 2010). Artificial intelligence (AI) has become one of the most successful methods of increasing efficiency and production; to the point where there is a rising need to integrate it into major organizations, including government institutions (Hahn, 2015).

The United Arab Emirates (UAE) energy sector, primarily based on oil and gas, is the main contributor to its economy. Among the aims of the UAE National Energy Strategy 2050 are to provide clean, secure, and inexpensive energy while treating the environment responsibly, to maximize the UAE economy's energy productivity, and to assure the satisfaction of UAE inhabitants. The plan is to minimize carbon dioxide emissions by 70%, raise the ability to generate clean, renewable energy and nuclear power by 50%, and develop Energy Efficiency (EE) by 40% across the entire primary energy sector by the mid of the present century (de Sousa et al., 2019). Ministry of Energy and Industry analysed numerous scenarios to recognize the optimum electricity capacity mix by considering energy security and affordability from now till 2050 (Fatima et al., 2020). This energy sector employs an AI-assisted system to gather, store, and analyze data on a big scale in a timelier manner, allowing firms to improve the quality of services and products adapted to the demands of customers. However, little is known about what factors influence stakeholder user experience when AI-based services are made available to them. A knowledge gap like this could greatly impede the improvement of the quality of AI-based services. At worst, it may result in stakeholder unhappiness with service, prohibiting governments from pursuing AI advancements in the energy industry. Since that there are not many studies on service quality related to technology adoption of artificial intelligence in the UAE energy sector. Hence this study intended to investigate various benefits and user expectations with the adoption of AI in the energy sector. The finding of this study will help in realizing the importance of AI in the energy sector of the UAE.

2. LITERATURE REVIEW

2.1 Artificial Intelligence Techniques

Intelligence is a mental activity exclusively in human beings that is distinctively identified. The intelligence processes within the brain and directs other parts of the bodies to work collectively to make reading and comprehension possible (Spiro et al., 2017). In the early century, intelligence is understood as superior understanding and wisdom (Russel & Norvig, 2013). However, now intelligence means potential different of things to

other people across the various disciplines. Intelligence describes how a life [human being and animal] interacts with an environment; the ability of life to succeed at a particular task and ability on learning, adaptation, and flexibility within a wide range of situations (Russel & Norvig, 2013).

Alan Turing is the pioneer researcher who published Artificial Intelligence (AI) with his famous Turing test for judging the conversation using natural language between humans and machines (Shepard, 1964). The idea of Artificial Intelligence (AI) has emerged from communication and control studies. Human tasks can be interpreted in a laborious way in which computers can simulate the tasks. Minsky developed the earliest work of neural networks for problem-solving in artificial intelligence application. He developed a stochastic neural analog reinforcement calculator (SNARC), a neural network application in problem-solving algorithms (McCorduck & Cfe, 2004). McCarthy created a mathematical description of the LISP programming language, which was later ported to other computer languages such as Common Lisp and Scheme (McCorduck & Cfe, 2004; Muthukrishnan et al., 2020). Eli-Chukwu (2019) used AI in agriculture due to flexibility, high performance, accuracy, and cost-effectiveness.

Newell & Simon (2007) studied three artificial intelligence programs, which are geometry, logic problem-solving. The authors promoted rules-of-thumb in reasoning based on a series of discovered studies that were not perfect but valuable ways to solve problems. They also proposed using the Means Ends Analysis (MEA) approach for problem-solving. However, using MEA approach alone can result to be minimal application (Brooks, 1990).

Artificial Intelligence (AI) enables problem-solving, perception, decision making, understanding human communication, and much more through machines such as computer applications. At its core, it is the endeavour to replicate or simulate human intelligence in machines. As shown in Table I, artificial intelligence is classified according on the machine's ability to use past experiences to predict future judgments, memory, and self-awareness.

No.	Category	Description
1	Machine Learning	Artificial intelligence is applied to machine learning is not explicitly programmed to perform specific tasks; instead to learn and improve from completing the job

		automatically.
2	NLP (Natural Language Processing)	In NLP, the Artificial intelligence creates the interactions between computers and human language. The computers are programmed to process natural languages.
3	Automation and Robotics	Artificial intelligence in automation and robotics is to create the monotonous and repetitive tasks done by machines. This improves productivity and in receiving cost-effective with more efficient results
4	Machine Vision	Artificial intelligence assists machine vision to capture visual information and then analyze it. The cameras are used to capture the visual information, convert the image to digital data, and process the data using digital signal processing.

Table 1. The Categories of AI

In its broad sense, artificial intelligence can be described as the study of computations that make it possible to perceive, reason, and act with the automation of intelligent behaviour, driven by a need for simplification. Some many definitions and typologies constitute artificial intelligence. It is defined as non-human intelligence that can replicate human mental skills, such as pattern recognition, understanding natural language (NLP), adaptive learning from experience (Machine Learning), decision-making, or classification (Calvanese et al., 2013).

2.2 Energy Sector of UAE

United Arab Emirates (UAE) energy depends considerably on oil & gas resources to assist its economy and has remained in major petroleum producers in the world since 1971 (EIA, 2017). It formed Abu Dhabi National Oil Company (ADNOC) to achieve progress in the emirates' oil & gas industry. In 1990, the ADNOC Refinery and several other companies started to manage and operate an advanced oil & gas industry in Abu Dhabi. According to Statistics Centre Abu Dhabi (SCAD), the oil & gas sector contributed about 55% of Abu Dhabi GDP in 2013. After Saudi Arabia, Iran, and Iraq, the UAE is the fourth-largest oil-producing country outside of the Organization of Petroleum Exporting Countries (OPEC) (Mills, 2016). By 2020 by using Enhanced Oil Recovery (EOR) methods, the UAE expects to increase the

development of crude oil production to 3.5 million BPD (EIA, 2017).

ADNOC operates in 12 subsidiaries and organizations in Abu Dhabi with various operations from discovery, production, storage, refining, and distribution to improving a wide variety of petrochemical productions as cited by AlMansoori et al., 2020). Abu Dhabi created Vision 2030 to enhance the oil and gas industry while also expanding the economy's reliance on it. This achievement was recognized partly to the significance of employees' performance to this industry. To lead the oil and gas sector, Abu Dhabi National Oil Company (ADNOC) is focusing on petrochemical production. Abu Dhabi National Oil Company (ADNOC) reflects the industry's overall performance. The industry developed rapidly and captured new markets as it was positively influenced by the mentioned factors (Al-Harbi et al., 2018).

3. DATA COLLECTION AND ANALYSIS

This study adopted a simple convenience non-probability sampling technique amongst the two methods used to select sample from the population as probability or non-probability approaches. The probability approach assumes four strategies as a simple random sample, stratified sample, cluster sample, and systematic sample. In comparison, the non-probability sample approach uses five strategies as convenience sampling, consecutive sampling, quota sampling, judgmental or purposive sampling, and snowball sampling (Al-Harbi et al., 2018). Among this non-probability sampling techniques allows the researcher to select settings, groups, or individuals that are deemed most readily and easily accessible and are willing to participate in the research (Onwuegbuzie & Collins, 2007; Teddlie & Yu, 2007; Yeager & Walton, 2011; Sarstedt et al., 2018).

The collection of data was performed with the help of a questionnaire survey. Survey research is the most extensively used technique of collecting data from respondents concerning their attitudes, beliefs, values, habits, ideas, opinions, feelings, perceptions, plans, and demographics. A structured questionnaire is handy for studies depending on human perception (Lewis, 2015) and it was a very suitable method for this study. This study collected the perception of the practitioners working in the energy sector regarding the adoption of AI techniques and the effects of various factors on AI performance. Data was recorded based on the 5-point Likert scale. The Likert scale is a scale made to measure a group of individuals' ideas, approaches, and expectations about social phenomena. When responding to Likert scale

questions, respondents will determine his/their level of disagreement or agreement on asymmetric disagrees or agrees scale for a sequence of statements (Lewis, 2015; Lee & Rha, 2016). The scale used in this study is (i) strongly disagree, (ii) disagree, (iii) neutral, (iv) agree, and (v) strongly agree. Collected data was analyzed statistically with the help of Microsoft Excel and SPSS software packages. The factors were ranked based on R.I.I value calculate by following the formula as adopted by Memon et al. (2018).

$$R.I.I. = \frac{\sum_{i=1}^5 a_i n_i}{5N}$$

where: a=constant expressing the weight assigned to each response, n=frequency of each answer, N=total number of responses. Further, the practitioners' perception difference among the factors was assessed by comparing means based on the working position.

5. LITERATURE REVIEW

The practitioners working on higher positions in the energy sector of UAE were contacted, which resulted in 350 completed questionnaire forms for data analysis. Before analysis of the data, the respondents' demographic information was assessed to check the suitability of the data sample. The summary of the demographic information of the respondents is presented in Table 2.

Characteristics	Frequency	%	Cumulative Percent
Qualification			
Bachelor Degree	175	50.0	50.0
Master Degree	140	40.0	90.0
Doctor of Philosophy	35	10.0	100.0
Experience			
Less than 5 years	87	24.9	24.9
5 to 10 years	175	50.0	74.9
11 to 15 years	35	10.0	84.9
More than 15 years	53	15.1	100.0
Working Position			
Executive	175	50.0	50.0
Senior executive/ Head of Department	140	40.0	90.0
Managers	35	10.0	100.0

Table 2. Demography of the Respondents

Table 2 depicts that the majority of the respondents with 50% representation in the data collection process have obtained bachelor's degree while 40% of the respondents have completed their master's education. Also, 10% of the respondents are Ph.D. holders, which reveal that they are well qualified and have strong knowledge of their field. Most of the respondents have been working in the energy sector for more than 5 years. Only 25% of the respondents have working experience of less than 5 years. The statistical analysis reveals that a significant number of respondents, with 50% of respondents, hold executive positions in their respective organizations. On the other hand, 40% of the respondents are senior executives or heads of their departments and 10% work in managerial positions. These characteristics show that the respondents are capable and reliable for providing appropriate facts and figures.

The data was tested for consistency using a reliability test and the Cronbach Alpha score (Souza et al., 2017; Hashemi & Dehghanian, 2017). Cronbach's alpha coefficient, whose value ranges from 0 (the lowest internal consistency) to 1 (the highest internal consistency), is extensively used for measuring reliability (Sekaran & Bougie, 2016). If the Cronbach's alpha value equals or exceeds 70%, the measure is considered credible (Thanasegaran, 2009). This study also evaluated the reliability based on criteria that Alphan value must be equal of greater than 0.7 as adopted by Soomro et al., 2020; Sohu et al., 2018). In this study, the Cronbah Alphas values were computed with the help of the SPSS software package, and the results are shown in Table 3.

Name of construct	Number of items	Cronbach's alpha	Remark
Benefit	12	0.874	Good
User expectation	12	0.935	Excellent

Table 3. Reliability test of the Data

Table 3 depicts that the Alpha value of the data for both groups of the factors is higher than 70%. This means that the data is reliable and acceptable for further analysis. The data was analysed statistically for ranking to prioritize based on the level of agreement. This was measured by calculating RII value for each indicator. The RII values and the rank for the parameters defining benefits of implementation of Artificial Intelligence are presented in Table 4.

Attribute	Scale/Frequency					N	RII	Rank
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree			
AI able to increase employees' job performance	12	59	68	107	104	350	0.733	1
AI able to improve customer	12	54	76	114	94	350	0.728	2
AI bring positive impact to	16	48	80	113	93	350	0.725	3
Reliable AI product and	12	76	73	87	102	350	0.709	4
Delivery of AI products and	26	55	70	124	75	350	0.695	5
AI able to increase employees'	25	62	65	118	80	350	0.695	5
AI able to improve service	25	43	114	90	78	350	0.687	6
AI can bring the organization actively involved in the	26	50	88	126	60	350	0.682	7
AI increase customer	28	78	94	100	50	350	0.638	8
AI able to reduce the labour	34	77	107	78	54	350	0.623	9
AI able to reduce customer	41	74	97	83	55	350	0.621	10
AI can increase organisation	28	91	85	120	26	350	0.614	11

Table 4. Ranking Of the Benefits of the AI in Energy Sector

Table 4 depicts that with RII value of 0.733, the first ranking factor is "AI able to increase employees' job performance". This is true because AI is very much useful for reducing uncertainties and helpful for enhancing productivity. It lowers labour efforts which save time and increases the performance of the employee. Ultimately, it will secure the job of the employee. From the survey results, we see that the factor "AI able to improve the customer retention" is placed at second rank and "AI brings positive impact to an organization" is placed at third rank by the respondents. This is very true and obvious because when the

performance of the employees' is enhanced, it ensures that the works can be completed successfully and maintains the satisfaction level of the client and users. This helps the organization achieve more projects and maintains the reputation in the industry and the organization reaches higher peaks of fame and success. Agreement level of the perception of different groups of the respondents was compared based on the working position and the experience level for the factors comparing means computed with SPSS software as presented in Table 5.

Working Position			Reliable AI product and services quality	Delivery of AI products and services on time	AI able to increase employees' commitment	AI able to increase employees' job performance	AI able to improve service quality	AI bring positive impact to organization	AI can bring the organization actively involved in the community	AI increase customer satisfaction	AI able to improve customer retention	AI able to reduce customer complaints	AI can increase organisation profits	AI able to reduce the labour cost
Executive	5 to 10 years	Mean	3.44	3.33	3.36	3.67	3.35	3.88	3.47	3.37	3.70	3.34	3.12	3.30
		N	175	175	175	175	175	175	175	175	175	175	175	175
		Std. Deviation	1.225	1.136	1.283	1.151	1.184	1.105	1.103	1.177	1.142	1.249	1.052	1.191
	Total	Mean	3.44	3.33	3.36	3.67	3.35	3.88	3.47	3.37	3.70	3.34	3.12	3.30
		N	175	175	175	175	175	175	175	175	175	175	175	175

		Std. Deviation	1.225	1.136	1.283	1.151	1.184	1.105	1.103	1.177	1.142	1.249	1.052	1.191
Senior executive / Head of Department	Less than 5 years	Mean	3.61	3.68	3.55	3.64	3.49	3.38	3.38	3.01	3.63	2.89	3.10	2.99
		N	87	87	87	87	87	87	87	87	87	87	87	87
		Std. Deviation	1.214	1.234	1.139	1.161	1.170	1.144	1.213	1.115	1.122	1.185	1.100	1.136
	11 to 15 years	Mean	3.83	3.60	3.74	3.66	3.71	3.49	3.26	3.00	3.49	2.83	2.80	2.86
		N	35	35	35	35	35	35	35	35	35	35	35	35
		Std. Deviation	1.098	1.218	1.172	1.235	1.073	1.095	1.172	1.188	1.121	1.224	1.256	1.287
	More than 15 years	Mean	3.22	3.50	3.06	3.44	3.00	2.94	3.56	3.06	3.33	2.83	3.17	2.94
		N	18	18	18	18	18	18	18	18	18	18	18	18
		Std. Deviation	1.396	1.425	.998	1.247	1.328	1.162	1.199	1.056	1.283	1.200	1.200	1.259
	Total	Mean	3.61	3.64	3.54	3.62	3.49	3.35	3.37	3.01	3.56	2.86	3.04	2.95
		N	140	140	140	140	140	140	140	140	140	140	140	140
		Std. Deviation	1.215	1.248	1.141	1.184	1.178	1.137	1.196	1.119	1.140	1.189	1.153	1.183
Managers	More than 15 years	Mean	3.80	3.60	3.80	3.77	3.69	3.46	3.29	2.97	3.69	2.89	2.97	2.86
		N	35	35	35	35	35	35	35	35	35	35	35	35
		Std. Deviation	1.132	1.265	1.183	1.215	1.051	1.146	1.202	1.224	1.078	1.207	1.175	1.192
	Total	Mean	3.80	3.60	3.80	3.77	3.69	3.46	3.29	2.97	3.69	2.89	2.97	2.86
		N	35	35	35	35	35	35	35	35	35	35	35	35
		Std. Deviation	1.132	1.265	1.183	1.215	1.051	1.146	1.202	1.224	1.078	1.207	1.175	1.192

Table 5. Comparing the perception of various groups of the respondents

From the table 5, it can be seen that all respondents occupying an executive position in their organizations have working experience of 5 to 10 years. Hence there is no point of difference between the groups of respondents. Based on the executives' perception, the factor "AI brings positive impact to organization" is the significant benefit of the AI implementation. This factor is at third rank based on comprehensive data. While the factor "AI able to improve customer retention" is placed at a second position, which is in line with the study's overall finding. The respondents holding the positions of a senior executive or head of the department who have participated in this study are classified into three categories based on the working experience i.e. 0-5 years' experience, 11-15 years' experience and experience of more than 15 years. Results show that "Delivery of AI products and services on time" is ranked at highest position by the respondents having experience of 0-5 years while the respondents who have experience of 11-15 years have placed this factor at 5th rank while the respondent working for more than 15 years placed this factor at second position. This

shows that there is big difference in the perception among the groups of respondents. Overall results indicated that this factor is ranked at 5th position. Similarly, let's compare the results of table IV which indicated that from RII value "AI able to increase employees' job performance" was reported at first rank. The respondents having experience of 0-5 years have placed these factors at second place. The respondents with experience of 11-15 years rated this factor at fourth position while the practitioners working for more than 15 years also placed this factor at second place.

Similarly, the analysis results show that all the respondents working at managerial positions have experience working for more than 15 years. Hence, the results cannot be compared among the groups of the respondent. However, comparing the results with RII value of the overall data shows that the managers believe the major benefits of AI implementation are "Reliable AI product and services quality" and "AI able to increase employees' commitment" with a mean value of 3.8. RII value of the data shows that these factors are at

fourth and fifth rank, respectively, as perceived by the respondents. The indicators measuring user

expectations were assessed based on RII value and ranked accordingly as presented in table 6.

Attribute	Scale/Frequency					N	RII	Rank
	strongly disagree	disagree	neutral	agree	strongly agree			
Using AI Technology fits well with the way I work	30	47	73	101	99	350	0.710	1
Interacting with AI Technology is often frustrating	13	48	111	97	81	350	0.706	2
Assistance is available if facing difficulty using AI Technology	29	64	54	122	81	350	0.693	3
Training of AI Technology is	13	61	93	124	59	350	0.689	4
Comfortable using AI	16	55	93	131	55	350	0.688	5
AI Technology is not compatible with other systems I	34	52	79	100	85	350	0.686	6
Don't need to have complex knowledge to use AI	19	64	88	123	56	350	0.676	7
Implementing AI	27	65	87	96	75	350	0.673	8
AI Technology takes too much time from my normal duties	30	61	95	103	61	350	0.659	9
AI Technology provides better decision-making tasks	27	80	119	69	55	350	0.626	10
It is easy to learn and operate	46	74	91	105	34	350	0.604	11
AI Technology is easy to use	66	77	83	73	51	350	0.581	12

Table 6. Ranking of the parameters of user expectations of the AI in energy sector

Table 6 shows that “Using AI Technology fits well with the way I work” is the most common expectation of the respondents. It is ranked as first place by the respondents with RII value of 0.710. While the respondents highlighted that “Interacting with AI Technology is often frustrating” is second-ranked parameter. There might be several reasons for frustration in implementing AI despite several benefits such as implementing AI needs advance

learning, familiarity with advanced computer techniques. This is why the respondents ranked “Assistance is available if facing difficulty using AI Technology” as third significant parameter. Implementing AI in any sector may require extensive training and skills. The respondents' opinion difference was studied based on comparing means computed with SPSS and tabulated in Table 7.

Working Position			AI Technology is easy to use	It is easy to learn and operate AI Technology	AI Technology takes too much time from my normal duties	Interacting with AI Technology is often frustrating	Comfortable using AI Technology	Don't need to have complex knowledge to use AI Technology	Training of AI Technology is available	Implementing AI Technology/Training is easy	Assistance is available if facing difficulty using AI Technology	Using AI Technology fits well with the way I work	AI Technology is not compatible with other systems I use	AI Technology provides better decision-making tasks
Executive	5 to 10 years	Mean	2.93	3.33	3.19	3.65	3.35	3.39	3.31	3.28	3.54	3.55	3.59	3.37
		N	175	175	175	175	175	175	175	175	175	175	175	175
		Std. Deviation	1.408	1.185	1.249	1.055	1.145	1.173	1.129	1.267	1.342	1.320	1.255	1.111

Senior executive / Head of Department	Total	Mean	2.93	3.33	3.19	3.65	3.35	3.39	3.31	3.28	3.54	3.55	3.59	3.37
		N	175	175	175	175	175	175	175	175	175	175	175	175
		Std. De- viation	1.408	1.185	1.249	1.055	1.145	1.173	1.129	1.267	1.342	1.320	1.255	1.111
	Less than 5 years	Mean	2.91	2.72	3.38	3.41	3.52	3.39	3.57	3.45	3.38	3.53	3.31	2.91
		N	87	87	87	87	87	87	87	87	87	87	87	87
		Std. De- viation	1.216	1.117	1.154	1.116	.975	1.060	.996	1.149	1.133	1.209	1.232	1.127
	11 to 15 years	Mean	2.71	2.66	3.43	3.37	3.63	3.37	3.54	3.37	3.49	3.69	3.17	2.89
		N	35	35	35	35	35	35	35	35	35	35	35	35
		Std. De- viation	1.274	1.187	1.092	1.190	1.031	1.114	1.039	1.239	1.197	1.255	1.382	1.207
	More than 15 years	Mean	3.11	2.89	3.44	3.44	3.17	3.17	3.50	3.56	3.11	2.94	3.06	2.61
		N	18	18	18	18	18	18	18	18	18	18	18	18
		Std. De- viation	1.410	1.079	1.247	1.042	.857	.985	1.043	1.097	1.079	1.056	1.305	1.243
	Total	Mean	2.89	2.73	3.40	3.41	3.50	3.36	3.56	3.44	3.37	3.49	3.24	2.86
		N	140	140	140	140	140	140	140	140	140	140	140	140
		Std. De- viation	1.253	1.124	1.143	1.118	.978	1.060	1.006	1.158	1.140	1.214	1.274	1.158
Managers	More than 15 years	Mean	2.83	2.66	3.40	3.40	3.63	3.43	3.63	3.46	3.43	3.77	3.34	3.00
		N	35	35	35	35	35	35	35	35	35	35	35	35
		Std. De- viation	1.224	1.162	1.090	1.218	1.060	1.092	1.031	1.268	1.267	1.190	1.259	1.213
	Total	Mean	2.83	2.66	3.40	3.40	3.63	3.43	3.63	3.46	3.43	3.77	3.34	3.00
		N	35	35	35	35	35	35	35	35	35	35	35	35
		Std. De- viation	1.224	1.162	1.090	1.218	1.060	1.092	1.031	1.268	1.267	1.190	1.259	1.213

Table 7. Comparing the perception of various groups of the respondents

Table 7 highlights that the personnel respondents have different opinions and their priority level is different. One of the reasons for this difference is the level of involvement of the respondents at ground level.

6. CONCLUSION

UAE National Energy Strategy 2050 aims to minimize carbon dioxide emissions by 70% raise ability to generate clean renewable energy and nuclear power by 50%, and develop Energy Efficiency (EE) by 40% across the entire primary energy sector. They have promoted the adoption of Artificial Intelligence (AI) technology to experience maximum benefits and aspire to provide competent self-service technology government. This paper examined the benefits and user

expectations for AI implementation in the energy sector of UAE. By collecting the perception of 350 practitioners working at managerial and executive posts, it was found that major benefits of AI implementation in energy sector are; "AI able to increase employees' job performance"; "AI able to improve the customer retention" and "AI bring positive impact to the organization". On the other hand, studying the user expectations, the respondents highlighted that major attributes are "Using AI Technology fits well with the way I work", "Interacting with AI Technology is often frustrating," and "Assistance is available if facing difficulty using AI Technology". Overall, AI techniques have shown several benefits in various industries. This study has presented a clear picture of the benefits and the expectation of using artificial intelligence. The findings of the study will work as a visual tool to motivate the practitioner in

realizing the importance of artificial intelligence to embrace it in the energy industry. By selecting adequate human resource and equip them with AI, it will lead to successful project.

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