

# The Impact of Artificial Intelligence on the Labor Market in the Arab Gulf Region

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**Abstract**— This study aimed to investigate the impact of artificial intelligence (AI) on the labor market by exploring workers' perspectives on AI's positive and negative impacts and society's trends in coping with these impacts. Using a survey-based questionnaire, data were collected from 162 individuals, including both employed and unemployed people with various educational qualifications. The results indicated that AI has both positive and negative impacts to a high extent, with mean scores of 3.85 for positive impacts and 3.75 for negative impacts. Significant differences were observed based on gender, educational qualifications, and professional roles: males (Mean = 4.2, SD = 0.9) perceived AI's impact more positively than females (Mean = 3.6, SD = 1.1), while higher educational qualifications were associated with a more optimistic view of AI (e.g., Master's Degree holders had a Mean = 4.4, SD = 0.8). Additionally, freelancers (Mean = 4.0, SD = 1.1) viewed AI as both a threat and opportunity, whereas employees (Mean = 3.7, SD = 1.0) and job seekers (Mean = 3.3, SD = 1.2) had varying concerns regarding job security and skill demands. Overall, the high acceptance of AI reflects a positive trend towards technology in the labor market.

**Keywords**— *Artificial Intelligence, impact, labor market, Oman, UAE*

## I. INTRODUCTION

With the beginning of the fifth industrial revolution, societies have changed to keep pace with technological development and the use of Artificial Intelligence (AI) in various fields. This has increased AI's effective role in the labor market, increased productivity, and enhanced competitiveness. The AI revolution came in response to the human desire for progress and advancement, and the achievement of large tasks with high efficiency in a short time. AI has become an essential part of our daily lives, and we are using many of its applications that involve a wide range of processes, from simple online searches to self-driving cars. Whether we are browsing our phones, driving our cars, conducting bank transactions, or even going to the doctor, AI has a big role to play [1]. AI was founded on trends to simulate people's mental, cognitive, and sensory abilities and their ability to choose and make logical calculations to deal with the surrounding environment based on the extraordinary

development in the manufacture of processors and computers [2].

AI technologies are in the process of radically changing all aspects of life and work [3]. AI is expected to create new opportunities in areas such as technology, services, and healthcare, but it may also lead to the loss of some jobs in industry, agriculture, transportation, and others, especially jobs that involve repetitive or boring tasks. The impact of AI on unemployment rates depends on its prevalence and the nature of the job, and jobs that involve repetitive tasks are likely to be at greater risk by AI [4, 5]. AI jobs depend on the skills of the job, so those jobs that need creative, analytical, or human skills are likely to continue to grow. Therefore, we must be aware of AI's potential impacts and take action to mitigate potential negative impacts [6]. Research is especially important in the modern era, where AI has become an important international competitive element for the present and the future.

## II. PROBLEM STATEMENT

AI is expected to have a significant impact on the labor market in the future, as it may cause the loss of some jobs and the creation of new ones. The concern in this area is the ability of AI to do tasks at low cost, which can replace the human labor that relies on those tasks to earn income [7, 8, 9]. AI applications have caused some jobs to be replaced by machines, which could affect the source of working people's incomes. The issue is controversial because of its impact on the economy and societies, where the question arises of how workers can earn wages if they are replaced by AI applications. Due to its novelty, there is still ignorance of adequate understanding of this technology and its impact on work and the economy. In all countries, including Arab countries, there is a dearth of studies on applying AI technology, the challenges that arise from it, its disadvantages, its effects on the labor market, and its possible replacement at the expense of human labor.

### III. PURPOSE AND SIGNIFICANCE

#### A. Research Purpose and Questions

The main purpose of this research is to study the impact of artificial intelligence on the labor market.

This research attempted to answer the following questions:

1. To what extent do people perceive the positive impact of artificial intelligence on the labor market?
2. To what extent do people perceive the negative impact of artificial intelligence on the labor market?
3. To what extent do people's perceptions of the impact of AI on the labor market vary across different gender, educational qualification, and profession?
4. What are the trends of society to cope with the impact of artificial intelligence on jobs and labor?

#### B. Significance of Research

Understanding the advantages and impacts of artificial intelligence technology may help stakeholders and decision-makers promote global economic growth, and then create a lot of additional jobs. Moreover, identifying the uses of AI would help in productivity, cost reduction, and quality improvement of companies and service providers. The research includes studying the impact of artificial intelligence in the labor market after analyzing and describing the content, with a focus on the pros and cons and community trends in the Gulf countries, with a focus on the UAE and Oman.

### IV. LITERATURE REVIEW

#### A. Artificial Intelligence

Artificial intelligence is an advanced technology that includes machine learning, analytics, and robotics and is the most important output of the fifth Industrial Revolution for its multiplicity of uses in military, industrial, economic, technical, medical, educational, and other fields, radically changing human life [10]. It is defined as techniques consisting of ideas and conclusions reached by computers after receiving data inputs, and thus the use of human intelligence differs from artificial intelligence in the process of receiving, storing, and analyzing information [11]. Meanwhile, [12] indicates that AI is a modern computer-related science that seeks sophisticated and innovative methods of doing similar work and conclusions, albeit narrowly attributable to human intelligence, and the purpose is to rebuild using artificial means -computer- thinking and smart procedures.

#### B. Artificial Intelligence Importance

No doubt that AI has many benefits and advantages that have been mentioned by several to authors [1, 12, 13, 14], the importance of lies in the following:

- Contribute to maintaining accumulated human experience by transferring it to smart machines.
- AI technologies enable companies to design promotional and marketing software for products with great effectiveness by setting the right price.
- Enable people to use human language in dealing with machines rather than computer programming languages, thus making machines easy to use and accessible to all.

- Contribute to accurate management decision-making as AI has autonomy, accuracy, and objectivity making decisions far from error, bias, or prejudices and personal and external interventions.
- AI plays a key role in the recruitment process, to the extent that up to 75% of CVs are rejected by the automated applicant tracking system, which helps recruiters in the process of selecting and hiring the person most suitable for the job.
- AI helps create a more predictable work environment through complex algorithms that enable it to handle a great deal of big and hard data and process it to predict the evolution of companies' financial conditions. This feature supports the efforts of companies and institutions to detect future opportunities and risks.
- AI helps increase the productivity of companies in both manufacturing and services by relying on robotics and algorithms to regulate the plant's operations to reduce time and loss of raw materials and production defects.
- One of the main advantages of AI is to create high value for user or consumer data by which companies can quickly adapt to consumers' needs and preferences, thereby increasing their loyalty to the company, which in turn leads to increasing its revenues.

#### C. Artificial Intelligence Impacts

AI has greatly affected the labor market, which has aroused the interest of researchers, and led to the construction of theories and studies on its impact on the market. Reference [15] argues that AI enhances human knowledge and capabilities and promotes digital transformation, which helps in the development of industry and global competition, and contributes to the detection of fraud. The use of AI in the labor market enhances economic development, increases productivity and revenues, and reduces expenses. It also helps develop workers' skills and broadens their awareness of data analysis, which enhances their understanding of the importance of this technology at work.

According to the World Economic Forum's Future Jobs Report 2023, on assessing the impact of technological change on jobs and skills over the next five years, the report concluded that approximately 23% of total jobs globally will change in the next five years [13]. By 2025, AI is expected to automate 75 million jobs globally, with 133 million new jobs in place. According to [12], new AI-based jobs will be in demand in several fields such as data analysis, application markets, IoT, machine learning, cloud and quantum computing, electronic commerce, virtual and augmented reality, coding techniques, 3D printing, blockchain, along with fixed, ground, aerial, and underwater robots.

However, [13] states that AI is expected to lay off 83 million jobs in 45 countries, involving 673 million workers, representing a net decrease of 14 million jobs in the current employment. Some of the affected negatively sectors are industry, agriculture, utility services, and traditional jobs [1]. Also, the expansion in AI technology will lead to significant shocks in the markets, due to the accelerating techniques, smart technologies, and proliferation of robots [16]. Moreover, some problems would arise due to AI, as digital development can increase social distancing, which may affect

social life, in addition to increasing pollution, energy consumption, and waste [17].

#### D. Applications of AI in Life Sectors

The adoption and application of AI can eliminate many challenges that people face today and improve their experiences and professional practices [18].

Artificial intelligence has targeted several vital sectors such as building new cities, and many initiatives were made that transformed the Arab Gulf region into a distinct icon in the world of AI. Some of these strategies are the smart cities such as Dubai and Abu Dhabi in the UAE, Irfan and Duqm in Oman, Riyadh in Saudi Arabia, and others are under construction. These cities are characterized by improving the lives of residents through the use of smart technologies such as parking, security screening, waste control, environmental preservation, and command and control centers [7].

In the health sector, diagnosis and monitoring are improved by using cutting-edge technologies such as artificial neural networks and smart applications on mobile phones to monitor vital disorders and the virtual work of doctors and patients. Genetic techniques are also used to detect and control genetic diseases. The artificial brain has also been invented in some European countries to help people with strokes communicate and create an artificial brain that mimics the human brain very efficiently [19, 20].

In the field of education, teachers have been encouraged to develop innovative educational content that takes advantage of AI technologies, develop interactive lessons and evaluation exercises, and provide continuous support to teachers in applying technology and AI in teaching, including experience-sharing sessions [21]. Even in libraries, adopting AI technologies can improve their operational efficiency, improve service effectiveness, and reduce operational costs [22].

In the field of space and cybersecurity, AI has been integrated by applying accurate experiments, smart programs, and visuals, reducing the percentage of costly errors and pending cases, maintaining the confidentiality of judicial data, and accelerating their procedures [23]. In the transport sector, AI has been used in monitoring roads and manufacturing self-driving cars. Indeed, serving transport and communications via AI technologies such as the flying taxi and metro are becoming a reality in Dubai [24].

#### V. METHODOLOGY

The study used a quantitative descriptive research approach using a cross-sectional design because of the nature of the phenomenon it studies, the research purpose, and research questions it addresses. A survey-based questionnaire was used to collect data from the targeted sample due to its effectiveness in terms of time, number, cost, and anonymity of respondents. A total number of 162 participants in the UAE and Oman regardless of their educational qualifications and jobs. The participants were randomly selected.

##### A. Research Instrument

The researchers used a questionnaire to collect data from the participants, which they built using similar questionnaires from previous studies and modified to suit the current research questions, population, and setting. The questionnaire consists of three sections: the first was about personal data, the second consisted of 20 statements that measured the positive and

negative impacts of AI on the labor market, and the third section consisted of 10 statements that measured the extent of AI impact on the jobs that have been classified in the fields of information technology, science, medicine, engineering, law, translation, languages, and distance learning. The questionnaire validity was measured by a group of experts to evaluate its formulation and clarity, and it was reviewed and modified based on their observations. The questionnaire reliability was measured by Cronbach's Alpha value which was (0.93), indicating high internal consistency, and excellent stability in the questionnaire.

##### B. Data Collection and Analysis

Data were collected during the first academic semester (2023/2024). Once the participants submitted their answers, the data were downloaded into a spreadsheet and transferred into SPSS to carry out the required reliability test and statistical analysis. To answer the study questions, the data were analyzed using descriptive statistics, including frequencies, percentages, ranks, mean scores, and standard deviations.

#### VI. RESULTS AND DISCUSSION

The breakdown of the personal information of the participants (N. 162) is displayed in Table 1. As seen more than 60% of the participants are females, their qualifications varied from high school to Ph.D., and the majority were either employed or looking for a job. Overall, these figures show the diversification in the sample in terms of gender, qualification, and type of work. This diversity can be useful in analyzing the impact of artificial intelligence on the labor market from different perspectives.

TABLE I. PARTICIPANTS' DEMOGRAPHICS

Category	Subcategory	Number	Percentage
Gender	Male	60	37.0
	Female	102	63.0
Educational Qualification	High School	37	22.8
	Bachelor	58	35.8
	Diploma	38	23.5
	Master	23	14.2
	Ph.D.	6	3.7
Profession	Freelancer	32	19.8
	Employee	55	34.0
	Looking for a job	75	46.3

##### A. RQ1: To what extent do people perceive the positive impact of artificial intelligence on the labor market?

The results of the descriptive statistics test as displayed in Table 2 below show that the mean scores of the responses ranged from 3.59 - 4.04, and the standard deviations from .894 -1.96, while the total mean score is 3.85. As seen the mean scores are considered high, which indicates that the participants perceive the positive impacts of AI on the labor market as high. The highest mean scores were for the second, tenth, and ninth statements followed by the first and sixth statements with the same mean score. These statements reflect the direct effects of AI on the labor market, organizations, and personnel. This indicates the participants' awareness of AI positives. The results are consistent with what previous authors mentioned on the positives of AI on the labor market in terms of productivity, competitiveness, and creation of new jobs [12, 13, 15].

TABLE II. DESCRIPTIVE STATISTICS OF AI POSITIVE IMPACTS

#	Statement	Mean Score	St. D.
1	AI simulates human behavior	3.90	.969
2	The labor market has been positively affected by AI	4.04	.894
3	Strong competition by corporations and enterprises helps achieve development due to AI	3.59	1.096
4	AI legalizes the labor market according to rules compatible with the country's regulations	3.67	1.027
5	The overall growth of enterprises and companies and thus new jobs have increased under AI	3.87	.966
6	AI facilitated the existence of foreign labor markets in the country which increases the productive efficiency of local enterprises	3.90	1.035
7	Programming languages helped activate AI software that helped perform a lot of work quickly	3.88	.968
8	AI in the labor market increased the productivity of some jobs without resorting to hiring human resources	3.74	1.066
9	AI current applications have assisted staff in various fields to work quickly, with efficient techniques and an easy system	3.95	1.020
10	AI helps improve operational process efficiency through better data analysis and decision-making, which helps save time and effort and increase profits	3.96	1.054
	Total	3.85	1.010

**B. RQ2: To what extent do people perceive the negative impact of artificial intelligence on the labor market?**

The results of the descriptive statistics test as displayed in Table 3 below show that the mean scores of the responses ranged from 3.49- 3.95, and the standard deviations from 1.020 -1.272, while the total mean score is 3.75. As seen the mean scores are considered high, which indicates that the participants also perceive the negative impacts of AI on the labor market as high, yet the positives are higher. The highest mean scores were for the ninth, third, eighth, and second statements, which relate to losing jobs as a result of AI. Interestingly, the participants are also aware of AI impact on people and social life causing diseases and threats to families' lives. The results are consistent with what previous authors mentioned on the negatives of AI on the labor market in terms of job loss, accelerating techniques, and smart technologies, as well as social life [13, 16, 21].

TABLE III. DESCRIPTIVE STATISTICS OF AI NEGATIVE IMPACTS

#	Statement	Mean Score	St. D.
1	AI is an obstacle to the diversity of human resources in the labor market	3.70	1.114
2	There is a huge scarcity of jobs due to the dominance of AI in the labor market	3.78	1.107
3	Many machines have replaced human-supporting jobs, and thus AI has become a major threat to the increasing accumulation of job seekers.	3.90	1.093
4	The appearance of AI-based household appliances that substitute nannies or migrant workers	3.49	1.272
5	AI threatens some specializations and job professions due to the presence of advanced, fast, and more productive smart technologies	3.77	1.154
6	The burden on experts and professionals has increased with the rapid growth of AI due to their need to keep updated which results in wasting astounding amounts	3.73	1.120

#	Statement	Mean Score	St. D.
7	AI programs have led to many problems due to invading social life, and their development has become a threat to the lives of families	3.77	1.123
8	Cases of addiction to programs and technologies have increased, leading to diseases that were not present in previous years	3.85	1.112
9	AI can automate many jobs, which can significantly disrupt labor markets and the nature of many jobs	3.95	1.020
10	I am afraid of being replaced in my job by AI in the future	3.61	1.197
	Total	3.75	1.131

**C. RQ3: To what extent do people's perceptions of the impact of AI on the labor market vary across different gender, educational qualification, and profession?**

The results of the descriptive statistical (means and standard deviations) for each subcategory in Table 4 below.

Table: MEANS AND STANDARD DEVIATIONS FOR EACH SUBCATEGORY

Category	Subcategory	Mean	Standard Deviation
Gender	Male	4.2	0.9
	Female	3.6	1.1
Educational Qualification	High School	3.5	1.2
	Bachelor	4.1	1.0
	Diploma	4.4	0.8
	Master	4.5	0.7
	Ph.D.	3.8	1.1
Profession	Freelancer	4.0	1.1
	Employee	3.7	1.0
	Looking for a job	3.3	1.2

The results of three-way ANOVA as displayed in Table 5 below indicate significant differences in how various groups perceive the impact of AI on the labor market:

TABLE IV. ANOVA RESULTS FOR THE IMPACT OF AI ON THE LABOUR MARKET ACROSS DIFFERENT CATEGORIES

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F	Sig.
Gender	5.12	1	5.12	4.56	0.035
Qualification	32.34	4	8.09	7.21	0.001
Profession	12.56	2	6.28	5.34	0.006

**Gender Differences:** Males have a mean perception score of 4.2 (SD = 0.9) and females 3.6 (SD = 1.1). The significant F-value of 4.56 ( $p = 0.035$ ) indicates that gender affects how AI's impact on the labor market is perceived. Factors include:

- Different industries may affect males and females differently.
- Gender norms might shape perceptions of AI's risks and benefits.
- Gender differences in access to AI-related training may influence perceptions.

**Educational Qualification Differences:** Mean perception scores are 3.5 (SD = 1.2) for high school diploma holders, 4.1 (SD = 1.0) for bachelor's degree holders, and 4.4 (SD = 0.8) for those with master's degrees or higher. The significant F-value of 7.21 ( $p = 0.001$ ) indicates varying perceptions based on education:

- Higher education often correlates with better understanding of AI's impact.

- Higher educational attainment might lead to greater confidence in adapting to AI changes.
- STEM qualifications might lead to viewing AI as an opportunity, while non-technical fields may see it as a challenge.

Professional Differences: Freelancers score 4.0 (SD = 1.1), employees 3.7 (SD = 1.0), and job seekers 3.3 (SD = 1.2). The significant F-value of 5.34 ( $p = 0.006$ ) reflects differing perceptions based on profession:

- Freelancers: See AI as both a threat and an opportunity, affecting their work and productivity.
- Employees: Concerned about job security, but those in less automatable sectors may view AI as beneficial.
- Job Seekers: Might feel more acutely impacted by AI, especially in fields with reduced skill demand, and may need to acquire new skills.

*D. RQ4: What are the trends of society to cope with the impacts of artificial intelligence on jobs and labor?*

The results of the descriptive statistics test as displayed in Table 4 below show that the mean scores of the responses were high as they ranged from 3.48- 3.84, and the standard deviations from 1.027 -1.237, while the total mean score was 3.64, also considered high. The highest mean score was for the ninth statement which reflects a positive trend towards technology and AI in the labor market. Following came the sixth statement, indicating dissatisfaction with technology and its benefits, and raising fears of depending on it, which reduces interest in the desired results and lack of interest in research and real human innovation. Overall, the results indicate that the participants believe AI can provide certain benefits for humanity and that there is a positive trend towards technology and AI applications in general. This enhances the participants' view of the positive impact of AI in the first question.

TABLE V. DESCRIPTIVE STATISTICS OF SOCIETY TRENDS TO COPE WITH AI IMPACTS

#	Statement	Mean Score	St. D.
1	I believe that AI will create global cities with modern technologies	3.71	1.107
2	I believe that robots will invade the job market	3.54	1.143
3	I think that some companies employ a few programmers, innovators, and designers while depending on AI	3.68	1.032
4	There will be a major disruption in the job environment and a number of jobs will be eliminated at my workplace	3.56	1.092
5	I must study specializations that serve AI in order to keep pace with global and societal development	3.65	1.160
6	I believe that AI has made searching for information very fast, which caused a decrease in knowledge and an increase in ignorance of research and innovation	3.76	1.091
7	AI has become a danger that threatens professions and skills, accumulates human resources, and causes loss of most human jobs	3.65	1.213
8	I believe that the job market is better without AI than with its presence	3.48	1.102
9	AI has served the labor market by creating many programs that have helped speed up and clarify work in all fields	3.84	1.027

#	Statement	Mean Score	St. D.
10	Income will likely decrease due to the development of machinery and the lack of manpower use, so it would be better to look for a dual job	3.51	1.237
	Total	3.64	1.120

## VII. CONCLUSION

This study explored perceptions of AI's positive and negative impacts on the labor market among individuals in the UAE and Oman, revealing that while both positive and negative effects are acknowledged, the positive impacts are slightly more pronounced, as indicated by higher mean scores. The findings also highlight significant differences in perceptions across gender, educational qualifications, and professional status, with males, those with higher educational qualifications, and freelancers viewing AI more favorably. Despite these variations, societal acceptance of AI is generally high, suggesting a broad trend toward embracing AI technologies. This acceptance indicates that AI's benefits could outweigh its negatives, provided its application is managed effectively and equitably, with targeted strategies to address the concerns of more vulnerable groups, ensuring that the advantages of AI are shared across society.

## VIII. RECOMMENDATIONS

1. Establish laws to ensure ethical AI application, particularly in healthcare, education, and law, to prevent misuse and mitigate negative impacts.
2. Focus AI efforts on high-impact sectors, tailoring applications to specific needs while managing risks.
3. Enhance productivity through automation, but implement cautiously to avoid significant job displacement, especially in vulnerable roles.
4. Provide tailored AI training for different groups, ensuring all demographic segments can thrive in an AI-driven market.
5. Promote continuous learning and skill enhancement, especially in AI-related fields, to prepare workers for future market demands and close skill gaps.
6. Conduct further studies on AI's impact across diverse groups and sectors to validate and expand current findings.
7. Launch campaigns to raise awareness about AI's benefits and challenges, aligning societal expectations with its impact.
8. Integrate AI ethics into educational and professional programs to ensure responsible AI use across industries.

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