The Impact of AI Application on the Stock Market:

A Study Case of Oman's Muscat Securities Exchange

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I. INTRODUCTION

Over the past five years, artificial intelligence has gained a lot of attention from the public. As a result, businesses all over the world are attempting to develop strategies for dealing with AI and understanding the potential advantages and disadvantages of its implementation. Although it is challenging for policymakers to evaluate what AI systems could be able to do in the future because there is no framework to determine which kinds of AI systems are even desirable, governments are trying to state some political and legal regulations to moderate AI today (Wang, 2019). Artificial intelligence (AI) techniques, such as fuzzy logic, genetic algorithms, probabilistic belief networks, support vector machines, and artificial networks, have been developed in recent years for modelling expertise, decision support, and complex automation tasks (Chopra & Sharma, 2021). Despite the widespread use of these techniques, little is known about the general aspects of artificial intelligence (AI) that influence its application in the stock market and what improvements could be made to enhance AI's performance there to gather a better understanding of what AI is capable to provide for the finance sector.

The goals of the research will then be covered in the literature review. In the methodology, the population, sample size, and technique will be covered after the design, procedures, and tools of the study are discussed. then a breakdown of the questionnaire's design, the pilot test, and the methods used for gathering and analysing data. Analyse the information gathered from the survey and the interview responses after that. The following are the conclusions and suggestions.

Researchers have been concentrating on applying artificial intelligence (AI) to financial investments in the stock market since the early 1990s, when computational methods in finance were introduced. This approach aims to eliminate human emotion-based decision-making and momentary irrationality while enabling AI to recognize patterns that humans overlook. About 90% of hedge fund trades are still carried out by a hardcoded procedure, despite growing research on artificial intelligence (AI) techniques used in the stock market and the fact that computers handle most hedge fund trades automatically. This indicates that there is still more room for advancement in the growing field of AI applications (Ferreira et al., 2021). In order to better understand how artificial intelligence (AI) is applied in the market and investigate the factors influencing its application, the Muscat Securities Exchange—which was established by Royal Decree No. 53/88, issued in 1988 with the goal of regulating the Omani securities market in order to support and complete the financial sector in Oman (MSX, 2023)—will be used as the study case for this research.

In the dynamic and intricate financial environment of the Muscat Securities Exchange, a single incorrect move can cost an individual hundreds of thousands of riyals. And since artificial intelligence (AI) entered the picture as a tool for decision-making assistants, the financial industry—particularly the stock market—has seen and continues to undergo a radical transformation. To evaluate the value of using AI tools in the Muscat Securities Exchange and to suggest ways to improve AI performance in the stock market, investors must first understand the factors influencing the effective application of AI in the market. The study aims to address these factors as well as analyse the AI decision-making process. Although it has become increasingly difficult to predict price changes, optimization strategies like Nash equilibrium and algorithms like the Kalman filter can be useful. However, machine learning (ML) techniques can evaluate the predictive power of AI in the stock markets, as ML algorithms are used to try and identify patterns in data, ensure that investment risk is low, or predict the future of the investment (Mokhtari et al., 2021). As a result, AI may be the best option for this problem.

II. LITERATURE REVIEW

Stock markets are a place where investments can grow capital, and in recent decades, even individual investors have become more interested in the stock markets due to advancements in communication technology. With traders and shareholders attempting to forecast future trends in the stock market. Predicting price changes has become a difficult problem, but algorithms like the Kalman filter and optimization techniques like Nash equilibrium can help. For this problem, however, AI may be the best option because

machine learning (ML) techniques can assess the predictive power of AI in the stock markets because ML algorithms are used to try to identify patterns in data, ensure that investment risk is low, or predict the future of the investment (Mokhtari et al., 2021). This is why an in-depth study is necessary to ascertain how AI affects the stock market. By identifying AI factors and analyzing its decision-making process in MSX, it will demonstrate the potential benefits of AI in the stock market as well as some improvements that could be made to improve AI performance. The most important AI factors influencing its use in the stock market are listed below.

Algorithmic Trading and Predictive Analytics

Many AI algorithms were implemented as soon as AI was employed in the stock market sector in an effort to take advantage of the technology's benefits. One of the most intricate AI systems that has taken the lead in the stock market is algorithmic trading. Algorithms such as the trading algorithm use predictive analytics to find patterns, trends, possible market opportunities, and potential hazards by leveraging large datasets faster than a human could. The trading market underwent a significant transformation as a result of the effectiveness of these tools in predicting stock movement, which also changed the traditional landscape of stock market participation and traders' trading strategies (Peña, 2020).

Sentiment Analysis and Market Sentiment

Sentiment analysis is an AI-driven tool that uses natural language processing to teach computer programs to comprehend text in ways that are comparable to those of humans. With the latest advancements, this analysis can now examine social media posts in addition to digital articles and financial reports from businesses. Traders, investors, and anyone else involved in the stock market will gain a better understanding of public perceptions and be able to predict future market conditions, which will enable them to make better decisions, by comprehending and evaluating the data from these various sources (Colianni et al., 2015).

Risk Management and Detection of Fraud

In addition to improving decision-making for traders and investors in the stock market, artificial intelligence (AI) tools and applications are also assisting trading market employees tasked with adhering to trading procedures to ensure that no laws or regulations pertaining to trading or the stock market in general are broken. These tools and applications preserve market integrity by spotting unusual behaviours and patterns that indicate fraud activity occurring in the stock market and managing these risks by assigning workers to further inshore and enhance stock market security (Aziz & Andriasyah, 2023).

As these cutting-edge technologies take over most industries, including the trading market, which is implementing new practices to improve the overall decision-making process and to a better result, a new era will dawn. Risk management, sentiment analysis, and algorithmic trading are a few AI elements that have an impact on the stock market application. Because of the convenience that these AI tools offer, Muscat Securities Exchange will see a significant surge in the interest of new traders and investors

in the market as it begins to implement these AI tools and Applications that use machine learning models.

The AI Decision Making Process in The Stock Market.

Since making money is the primary goal of stock market trading, traders will use any means at their disposal to forecast the state of the market going forward. As a result, traders have begun utilizing artificial intelligence (AI) algorithms when making decisions, so it is imperative to comprehend the steps that AI takes. It is crucial to note that machine learning (ML) contributes to AI decision-making since AI ignores emotions and instead makes fast, highly accurate decisions based only on practical considerations like price fluctuations, macroeconomic data, and newly listed companies. The AI system would first examine the patterns to create an algorithm that can accurately forecast movements in the stock index (Chowdhury, 2019).

Evolution of AI in the Stock market

Back in the day, the stock exchanges had bustling trading floors crowded with brokers and traders. They had to use hand signals to let people know what they needed to exchange goods or make a purchase. To put it mildly, the place wasn't well ordered. But the trading market has completely changed since the discovery of computers and internal systems. It not only took the place of the conventional trading system but also enabled individual investors to enter the market. The stock exchange has changed and evolved once more as a result of the new AI technology, with participants now using AI tools to indicate market conditions (Nyakurukwa & Seetharam, 2023).

When artificial intelligence (AI) was first applied in the exchange market, these developments marked a major advancement in the field. AI has come a long way from rule-based trading systems that relied on predefined algorithms to the current state of affairs, where machine learning is being integrated with AI algorithms to analyse large datasets and forecast market conditions, thereby improving decision-making (Ferreira et al., 2021).

AI Decision Making Process

AI applications can process large market datasets containing historical and new patterns, possible trading opportunities, and trends by utilizing machine learning techniques and AL algorithms. This leads to an increase in accuracy, more effective trading strategies, and improved forecasting abilities. When it comes to pattern recognition, AI algorithms can search through a vast amount of historical data, including charts and candlestick patterns, to find recurring patterns that could indicate a gain or loss in the market in the future. AI systems can identify patterns such as triangle formations, head and shoulders, and double tops, and by doing so, they can advise traders on whether to buy or sell, enabling them to make well-informed decisions (Nti et al., 2020).

Trend identification is another excellent illustration of how artificial intelligence makes decisions in the stock market. The direction and strength of the marketing trends can be determined by analysing the price data using both ML algorithms and AI models. that will enable traders to profit from market trends by following them, whether they are upward or downward to maximize their profits, traders can

then plan a strategy for entering or exiting positions (Bag et al., 2021).

Traders can use a plethora of AI tools, applications, and algorithms available today to maximize their profits in the market, but failing to use the appropriate tool at the appropriate time could result in losses. Since AI focuses on data mining and decision-making after analysing historical datasets, it could be used to find patterns, trends, possible trading opportunities, and threats in the market to further aid in lowering the level of volatility.

The Significance of Using AI in The Stock Market

With a UK-based research firm observing that AI-driven decisions account for 45% of Wall Street revenue and that Asians use a smart tool called "Trade Schedule" to determine when to buy and sell specific stocks, the importance of using AI in the stock market today is becoming increasingly evident. Another AI-based tool called "Aidiya" is also utilized in Hong Kong to establish a hedge fund independently of human assistance (Chowdhury, 2019). Apart from all the benefits that AI tools offer the stock market, such as time savings, stock analysis and monitoring, pattern recognition, decision support, problem solving, and being a very useful tool for financial data processing and IT-related issues, AI will eventually become the primary tool for all inverters because of AI increasing ability to predict the market (Sangeetha et al., 2021).

AI has transformed how investors and traders make decisions and manage their portfolios. Using AI algorithms and machine learning techniques, traders can process large amounts of data quickly and efficiently, resulting in more informed investment decisions, improved accuracy, lower transaction costs, and increased profitability in the stock market. One of the benefits of AI in the stock market is its ability to analyse large amounts of data in a short period of time. AL algorithms are capable of monitoring a wide range of data sources such as financial statements, social media sentiments, news reports, and market trends, spotting patterns and extracting meaningful insights to provide traders with market changes such as unexpected events and stock price fluctuations, allowing them to adjust their investments accordingly (Kumar et al., 2021).

The impact of AI applications on the stock market is enormous and broad, affecting every aspect of the trading process as well as the decision-making process by providing analysis tools that analyze large datasets quickly and accurately. predicting market conditions and the best time to buy and sell stocks. Because AI provides excellent conditions for traders and investors to invest in the stock market, it is more likely that new participants will begin trading in the coming years, resulting in increased market competitiveness (Bordalo et al., 2020).

Ways to Enhance the AI Performance in The Stock Market

Although AI is helping the stock market by more accurately predicting stock prices and analysing data more quickly, there is still room for improvement in terms of privacy. Once information reaches AI, it will be impossible to remove it or any financial records, and AI can then share it with whoever requests it (Zheng & Jin, 2017). However, by strengthening and addressing AI's current limitations, we

can prevent this issue. Even with AI's advances in data quality and accessibility, there is still a significant deficiency in historical data, which would enhance the accuracy of AI predictions. The AI accuracy levels will rise in line with the stock market's continued adaptation to the algorithms used by AI to assess market conditions. Moreover, governments and financial institutions ought to collaborate to create moral standards and best practices that will improve the efficacy of AI applications in the stock market (Chen et al., 2018).

While AI offers numerous benefits to the stock market, it also carries a number of risks. A good example is the cyber security risks that could occur as a result of data breaches that compromise secure financial records. Also, a lack of explanation is an example of an AI disadvantage; due to the complexity of some AI algorithms, the decision-making processes that it suggests are very difficult to accomplish due to the difficulty of comprehending the information that it provides. Sometimes the market appears to be complete, and in these complex times, it is difficult for AI to read and analyse the market, providing no value to market traders and investors (Cao, 2022).

While AI provides numerous benefits to the stock market, it also carries a number of risks. A good example is the cyber security risks that could occur as a result of data breaches that could compromise secure financial records. Also, because of the complexity of some AI algorithms, the decision-making processes that it suggests are very difficult to accomplish due to the difficulty of comprehending the information that it is providing. Sometimes the market appears to be complete, and in these complex times, it is difficult for AI to read and analyse the market, providing no value to traders and investors (Mokhtari et al., 2021). With the increasing complexity of the decision-making process, some AI algorithms introduce a new feature in the AI to help users understand the decision-making process suggestion. As stock market participants are aware, the market has waves that change constantly. AI finds the market difficult to read and analyse at times due to its complexity. Developing tools that can understand the complex waves of the market can solve this problem by providing more advanced ML modules to provide a better understanding of the complex market.

III.   Methodology
a.   Research Design and The Research Methods

A mixed-methods approach was used for this study, incorporating both qualitative and quantitative techniques. where a qualitative approach was used to better understand the AI decision-making process and its significance in the stock market through an interview with experts who have over ten years of experience in the industry. A survey was given to employees, traders, and policymakers in the MSX as part of the quantitative approach to gathering data on a larger scale of factors of AI that affect its application on the stock market as well as a better understanding of the process in which an AI has to decision making allowing for analysis and generalizability of conclusions. A Google form was made available for distribution. Through the descriptive side of the study, which will include statistical analysis to help further evaluate the importance of AI and how to improve it in the stock market, researchers were to better understand the significance of AI

in the stock market as well as the factors that affect its application on the stock market. This study is both descriptive and exploratory in nature. with the exploratory side concentrating on the literature review, which will be carried out using case studies and articles about the application of artificial intelligence (AI) in the stock market and its significance and impact therein.

b. Research Instruments

The research employed both primary and secondary data, with the primary data being information gathered from the Muscat Securities Exchange via a questionnaire distributed to all market exchange participants, including traders, workers, and investors, in order to answer primarily the first objective of the research. The questions are designed to elicit the most information possible, and the answers to each objective are then used to reach a conclusion. The interview was the second tool used to collect primary data. It will provide a greater opportunity for a clear and detailed explanation to be provided to clarify the relationship between variables. Second data was gathered by reviewing the literature and liking the primary information gathered through interviews, surveys, and literature reviews.

c. Population, Sampling Size and Sampling Technique

The population under study consists of employees of the Muscat Securities Exchange, such as traders, investors, and analysts. Two primary themes will be covered in the questions they will be asked: the MSX's AI decision-making process and the AI elements that affect the MSX's use of AI. Due to the diversity of the population, the study will make use of the random sampling technique. Using a nonprobability sampling technique, a sample size of 132 participants will be selected to account for the wide range of perspectives and experiences found in MSX.

d. Description of Pilot Test

The pilot test allows the researcher to practice his research methodology by testing the feasibility, timing, and cost of the study prior to the study's execution (Middleton, 2022).

- Research Validity Testing

The clearness and accuracy of the evidence related to the research results whose source is the analysis of the data throughout the survey questions that search the variables are intended to be the validity (Bolarinwa, 2015). The correlation of data and questions with the research objective and questions could be used to demonstrate the validity of the research tools. The validity test is carried out by asking clear and correct questions and making an obvious connection with the research objectives. To ensure its validity, the questionnaire was shown not only to the research supervisor, but also to one of the MSX's expert traders to verify its validity and relevance to the research, as well as the ability to ensure that the questions are clear to the study's population.

- Research Reliability Testing

The research's dependability should begin with ensuring that there are no errors in participation. To ensure the accuracy of the answers, participants must be authorized to answer the survey questions. The questionnaire was distributed to groups on Facebook, Telegram, and WhatsApp so that Omani traders and those who trade on the MSX could discuss the market and share the link to answer the survey.

As he has over ten years of trading in MSX, the interview will be conducted with the same expert who provided his opinion on the questionnaire. However, because the expert did not want his answers recorded, the interview was conducted by writing them down.

Description of Questionnaire Design

The set of questions in the questionnaire were initially designed to meet the research objectives. Following module advisor approval, some further improvements were made to provide participants with a clear understanding. Because it was a digital survey, Google Form was used to write the questions due to its simple and clear style. It was distributed via Telegram, WhatsApp, and Facebook.

Description of Interview Design

The interview questions were created to help participants answer the study's objectives. After the questions were written, the module advisor reviewed them to help improve some of them. The questions were written on tangible paper and handed to the interviewer to ask them as the answers will also be written with a pen and paper. The interview was conducted by a face-to-face meeting with a couple of open-ended questions aimed to understanding the expert's opinion.

Data Collection Technique

Both primary and secondary data collection methods will be used in this study. The primary data will be gathered via a questionnaire given to traders, investors, employees, and analysts in the Muscat Securities Market. Also, by conducting a interview with one of the expert traders in the MSX will give the research a closer look on the market. The survey will offer comprehensive insights into the variables impacting AI implementation and MSX decision-making procedures. To improve understanding of the role AI plays in the stock market and to offer suggestions for improving AI performance, secondary data will be collected from reputable websites, books, journals, and articles.

Data Analysis Technique

The data was gathered using various platforms such as Telegram, Whatsapp, and Facebook because they all have trading groups that are associated with trading on the MSX. In addition to summarizing the features of the dataset and ultimately illuminating the complex dynamics between AI applications on the stock market, the research will employ a variety of data analysis techniques, including frequency distribution, correlation and regression analytics, and descriptive statistics, to further identify patterns and relationships within the data.

Data Analysis

Analysing the quantitative and qualitative will be in this step. Using tables and graphs to showcase the collected data. The questionnaire contains 26 questions, each of which is analysed to help answer the research questions. While the interview questions are only 5.

1. Frequency Distribution

Table 1

Experiences in Muscat Securities Exchange

As the table shows, the highest percentage of 36.4% is 5-9 years, indicating that participants can survive in the market and are using trading to provide for their families because they have gained a lot of experience. 34.8%

Experiences in Muscat Securities Exchange	Percentage	Frequency
1 or less year	16.7%	22
2-4 years	36.4%	48
5-9 years	34.8%	46
10+	12.1%	16

and 13.3%, respectively, are those in their early twenties looking for an extra source of income and using trading to supplement their income. Finally, participants with more

Options	Percentage	Frequency
Strongly Disagree	12.1%	16
Disagree	10.6%	14
Neutral	25.8%	34
Agree	30.3%	40
Strongly Agree	21.2%	28

than 10 years (12.1%) of experience are thought to avoid using AI algorithms due to their extensive market knowledge, believing they do not require it.

Table 2
Data Sources impact AI-driven Decisions

Options	Percentage	Frequency
Strongly Disagree	12.1%	16
Disagree	18.2%	24
Neutral	24.2%	32
Agree	31.8%	42
Strongly Agree	13.6%	18

The pie shows the highest percentage. 31.8% agreed with the statement, with 12.1% strongly agreeing, indicating that they had used the AI algorithm, and that AI would not make the best decisions without a good data source. 24.2% are agnostic, which means they have never used AI-driven decisions. Participants who disagree or strongly disagree account for 30.3% of the total, believing that AI does not require sources to make predictions.

Table 3
AI Creating Challenges

Options	Percentage	Frequency
Strongly Disagree	12.1%	16
Disagree	12.9%	17
Neutral	24.2%	32
Agree	36.4%	48
Strongly Agree	14.4%	19

The chart shows that 36.4% percent of participants agree that AI has some challenges in the MSX, with 14.4% strongly agreeing to that statement, implying that they have encountered some difficulties when using AI tools and algorithms. 24.2% of participants are neutral and have never used AI tools. 12.1% and 12.9% of participants strongly disagree and disagree, respectively, indicating that they have never encountered any difficulties when using any AI modules.

Table 4
AI Algorithms changing Decision-making Processes

Options	Percentage	Frequency
Strongly Disagree	28%	37
Disagree	15.2%	20

Neutral	19.7%	26
Agree	21.2%	28
Strongly Agree	15.9%	21

The pie chart shows that 28% of participants strongly disagree because they do not change their opinion based on the AI recommendation, implying that they are market experts who can read the market without using AI. This also applies to 15.2% who disagree with the statement. 21.% and 15.9% agree and strongly agree, indicating that they rely heavily on AI algorithms to make trading decisions. 19.7% are neutral, which means they do not use AI in their decision-making process or do not use AI at all.

Table 4
AI Toos Affecting Old Trading Strategies

According to the graph, the highest percentage of participants agreeing to show that they believe in the strength and effectiveness of AI tools is 30.3%. 21.2% of participants strongly agreed that they were aware of some changes that had already impacted traditional trading strategies. The neutral percentage is 25.8%, and they are unlikely to participate in the trading market on a regular basis, making it difficult for them to be aware of any changes. 12.1% and 10.6%, respectively, strongly disagree and disagree, implying that they believe AI tools are insufficiently powerful and ineffective for use in trading.

Table 15
Benefits of AI Tools

Options	Percentage	Frequency
Strongly Disagree	20.5%	27
Disagree	15.9%	21
Neutral	22.7%	30
Agree	23.5%	31
Strongly Agree	17.4%	23

The pie chart shows that 20.5% and 15.9% of participants strongly disagree and disagree, respectively, that AI will not be used in their trading processes, whereas 23.5% and 17.4% of participants agree and strongly agree that AI will be heavily used in their trading processes. In their trading processes, neutral participants (22.7%) are likely to use both traditional and AI strategies, and they do not see any benefits from AI.

Table 6
Shifting to AI Tools in Decision-making process

Options	Percentage	Frequency
Strongly Disagree	7.6%	10
Disagree	15.2%	20
Neutral	31.1%	41
Agree	37.1%	49
Strongly Agree	9.1%	12

According to the pie chart, the highest percentage The shifting that is happening in MSX is being witnessed by 37.1% of agreed choice participants, while 9.1% of strongly agree participants are sifting themselves to AI tools in the decision making process. The neutral percentage is 31.1%, indicating participants who do not observe the MSX and do not thoroughly analyse market changes because they are not sifting and using the same decision-making methods.

Participants who disagree 15.2% and strongly disagree 7.6% are likely trading in socks with no historical data or historical data saved in tangible records.

Table 7
How to Enhance AI Applications

Options	Percentage	Frequency
Increased real-time data integration	40.8%	54
Enhanced predictive modelling	57.7%	100
Improved anomaly detection algorithms	42.3%	56

The graph shows that the highest percentage is enhanced predictive modelling, which is 57.7%. This demonstrates that participants want to improve predictability because it is the main thing that traders do by predicting the future market. Second comes improved anomaly detective algorithms, which received 42.3% of the vote due to participants wanting to know what was causing it in order to maximize their profits. Finally, real-time data integration was increased by 40.8% so that participants could minimize their losses.

2. Descriptive statistics

Descriptive statistics are a setof techniques employed to identify and clarify the key characteristics of a dataset, including its main trend, variability, and distribution. These methods provide an overview of the data as well as aid in the discovery of patterns and relationships (Andrews et al., 2020).

	age	*experience in MSX*
age	1	
experience in MSX	0.203411647	1

Statistical analysis on Age & Gender

Table 8
Statistical Analysis

Statistical Measures	Age	Gender
Mean	2.06818182	1.84848485
Standard Error	0.08749818	0.0622324
Median	2	2
Mode	1	2
Standard Deviation	1.00527754	0.71499585
Sample Variance	1.01058293	0.51121906
Kurtosis	-1.046354	-1.0116903
Skewness	0.41107583	0.23113811
Range	3	2
Minimum	1	1
Maximum	4	3

Sum	273	244

Age

As shown in the table above the mean age is (2.06) meaning that the average range of the traders and investors in MSX is their ages go between the years of 30-39 which is the perfect age to start trading as in these ages a person can be financially stable as the MSX is a risky investing place where he can put his money and not be concerned it won't come back as the risk is high and as known trading needs time so the trader should not be in the need of that money. The age range is ideal for trading because the youth are more concerned with earning money and figuring out life (Bhatt, 2013). The data set's median value is 2, representing the frequency distribution's midpoint. In terms of mode, the most common number in the data set was 1, indicating the most popular answer.

Gender

The model revealed that the most common number in the data set was 2, indicating that females outnumbered men and preferred not to say. Despite the fact that studies have shown that men dominate the MSX, survey responses were different, which could be due to females using social media more to discuss market conditions, whereas men go to the MSX to trade and discuss things. The mean, or average of the data set, was (1.8), indicating that it was closer to females than men. The mode was also the same, with a 2 as the female.

3. Correlation Analysis

The study of a connection or relationship between variables that exist or do not exist in order to determine the magnitude of an action of the relationship, also known as bivariate. Correlation analysis assists businesses in determining which variables to investigate further, allowing for rapid hypothesis testing (Gogtay & Thatter, 2017).

Table 9
Correlation table

As someone gets older, he gains more experience in his field because there is a relationship between age and experience, and the table above shows a 0.2 positive relationship between these two variables.

4. Regression Analyses

Regression analysis is a statistical technique for examining the relationship between two or more variables. It provides a detailed insight into how the services or product can be improved further (Sykes, 1993).

Table 10
Regression Statistics

Regression Statistics	
Multiple R	0.203411647
R Square	0.041376298
Adjusted R Square	0.034002269
Standard Error	0.988038873
Observations	132

The above table shows that there is a small relationship and regression between MSX experience and the age of the participants, with a small percentage as the R Square is equal to 0.041376298 indicating that the correlation is low but there is a relationship. As a result, experts in the MSX are more likely to be older, while the youth are more likely to be market newcomers.

Interview

Abrief interview with an expert trader on the MSX The goal of the interview was to get a better look at the insight and expert opinion on the AI tools he recently started using to make better trading decisions. The following five major questions were posed:

Summary of the answers

The quality of the data does not influence AI decision-making processes, but it does influence traditional decision-making processes. If the data is of poor quality, so will the decision. Because external factors in general affect the operations of most businesses, some MSX stocks may fall, and others may rise as a result of worsening and country conflicts. The risk management system is currently the most effective tool for avoiding large capital losses if not for it. It aids in the avoidance of large losses. There will never be a world where AI recommendations are completely trusted because sometimes decisions should be made based on people's emotions rather than data analysis. People are boycotting many imported items today and focusing solely on buying local products. Due to the emotional nature of these events, they could only be read by humans. Many young traders, including myself, will join if there is a platform that has been tested and proven successful in explaining AI algorithms and assisting in trading using AI.

IV. CONCLUSION

In conclusion, artificial intelligence (AI) is a powerful tool that, when used correctly, can improve how people perform in their current roles as well as the stock market. This can be accomplished by learning about the factors that influence AI's application and decision-making processes in the stock market. a better understanding of the role of artificial intelligence (AI) in the stock market, as well as suggestions for improving AI performance there, such as limiting laws that protect AI users' data privacy (Aheng & Jin, 2017). The impact of AI applications on the Muscat Securities Exchange was clarified after survey distribution and the conducting of the interview. As AI has become one of the most important tools that traders and investors use daily, the survey assisted in better understanding MSX and its development. While some investors and traders prefer traditional trading methods, the new wave of traders is beginning to rely more on AI tools and algorithms because AI makes collecting, analysing, and decision-making much easier due to tools that help in analysing historical data and transforming it into valuable insights that traders can use to optimize their profits. with the

interview providing insight into MSX and what the future will look like in it with AI tools developing and improving significantly on a daily basis.

According to the study, some of the factors of AI that affect its application on the stock market are algorithmic trading and predictive analytics, sentiment analysis and market sentiment, risk management, and fraud detection. The AI decision-making process begins with collecting data from various digital sources and reading all historical data; after that, AI tools go through the data to look for patterns and trading opportunities to then provide informative insights into that data, changing the data to value information that aids in decision-making. AI has improved trading by providing rich information in a timely and efficient manner.

The survey assisted in better understanding MSX and its development, as AI has become one of the most important tools that traders and investors use on a daily basis. As there are and will continue to be some investors and traders who prefer the traditional way of trading, the new wave of traders is beginning to rely more on these AI tools and algorithms as AI makes collecting, analysing, and decision making much easier due to tools that help in analysing historical data and transforming it into valuable insights that traders can use to optimize their profits.

A new era will dawn as these cutting-edge technologies take over most industries, including the trading market, which is implementing new practices to improve the overall decision-making process and result. A few AI elements that have an impact on stock market application are risk management, sentiment analysis, and algorithmic trading. Muscat Securities Exchange will see a significant increase in the interest of new traders and investors in the market as it begins to implement these AI tools and Applications that use machine learning models due to the convenience that these AI tools provide.

Artificial intelligence plays a crucial role in stock market trend identification, enabling traders to profit from market trends by following upward or downward trends. Using AI tools and applications, traders can analyse historical data to identify patterns, trends, trading opportunities, and threats, thereby reducing volatility and maximizing profits. However, proper use can lead to losses.

AI offers numerous benefits to the stock market, but also carries risks like cyber security and complexity in decision-making processes. AI algorithms can struggle to understand complex market waves, making it difficult for traders and investors to make informed decisions. To address these challenges, advanced machine learning modules can be developed to understand the market's waves and provide better insights into the complex market.

V. RECOMMENDATIONS

AI is improving the stock market by accurately predicting stock prices and analysing data, but there is room for improvement in terms of privacy. AI can share information with anyone, making it impossible to remove or remove financial records. Strengthening AI's limitations and addressing historical data deficiency can improve AI predictions. Governments and financial institutions should collaborate to create moral standards and best practices to improve AI applications in the stock market. AI also carries risks, such as cyber security risks and difficulty in decision-making processes due to its complexity. In complex times, AI may struggle to understand and analyse the market, providing no value to traders and investors. Developing tools that can understand the complex market waves can help.

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