

# The Impact of Using Artificial Intelligence for Gold Consumers

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## **Abstract**

Gold has been a significant aspect of the world's economy for centuries. It has been a symbol of wealth, power, and prosperity. Gold is a commodity that has been used in various forms for many years. It is used in jewellery, electronics, and other industrial applications. Metal has always been an important part of the global financial system and Consumer Behavior offer good insights when closely related and used together. Retailers find a natural connection between AI and consumer behaviour. To gather evidence and analyze how consumers are shopping these days is so complex due to the availability of a large amount of data. This is made easy with AI. When AI is mixed with human-produced data and information for analyzing consumer behaviour the actual benefit of AI comes to the picture.

**Keywords:** Metal, Jewelry, Consumer Behavior, Artificial Intelligence

## **1. INTRODUCTION**

Machine with Artificial Intelligence is capable of making strategic decision for leaders based on the data collected. AI targets a specified audience and sends customized messages, fostering a stronger connection with the brand and encouraging loyalty. Artificial Intelligence-driven algorithms have undoubtedly transformed the gold market by providing valuable insights and enhancing efficiency. However, the potential for manipulation and unethical practices cannot be ignored. Striking the right balance between technological advancements and regulatory oversight is crucial to ensure fair and transparent gold pricing in the digital age. AI plays a multifaceted role in the industry, streamlining production, customization, 3D visualization, and photography, as well as enhancing the overall customer experience. It also contributes to market analysis, helps track and forecast data and sales, and aids in planning stock and production. AI-driven personalization tailors gold marketing strategies to individual consumer preferences, increasing the effectiveness of campaigns. AI systems can analyze data in real time, allowing businesses to respond promptly to changing consumer preferences and market dynamics. AI utilizes predictive modeling to forecast future gold consumer trends based on historical data, helping

businesses stay ahead of market shifts. AI enables sophisticated data analytics, allowing businesses to process vast amounts of information quickly and accurately.

In recent times, the emergence of the future of AI is rapidly changing the way we perceive and engage in marketing. Surprisingly, AI is proving to be a valuable asset, offering benefits that will continue to unfold provided we use it wisely. The major benefit is the positive impact it has made on enabling marketers to analyze and understand consumer buying behavior. Marketers are studying the behavior of online users to increase the effectiveness of their marketing plans and strategies. The collection of data such as browsing patterns, searches, and views, has allowed marketers to understand the preferences of the audience better. In recent years AI and Marketing have begun working in close association. Artificial intelligence and machine learning are rapidly becoming an integral part of many industries, including marketing. With constant evolution in technology, AI has certainly changed marketing. Its impact prompts advertisers to seek innovative strategies for product, gold, service, and campaign revolution.

## **2. REVIEW OF LITERATURE**

Kathryn Mallari (2017) in this title “Impact of Artificial intelligence on customer behaviour” explained that AI technology is not equipped for simple or complex tasks. This could be because their exposure to advanced voice assistants, like Google Home or Apple regeneration does have an effect on AI perceived. Hanna Joseph&David T Easow (2019) in this title “The Impact of Constituents Affecting Consumer Buying Behaviour of Gold Jewellery” they found it is extremely exporting oriented and labour intensive. India is deemed to be the hub of the global jewellery market because of its low costs and availability of high-skilled labour. WGC focuses on Digital world - given higher priority for next generation seeking information.

Ashutosh Gaur (2020) in this title “Consumer Behaviour for purchasing gold as an investment avenue” he found consumer do no prefer the risk of losing the principal investment amount. The most preferred source of investment advice for consumers is channels family or friends and internet.

Matthew Pylant (2020) in this title “Artificial Intelligence in Digital Marketing” he found AI in the real world and had the AI and Digital marketing professionals monitor AI to confirm it is working.

Laura Abrardi, Carlo Cambini&Laura Rondi (2021) in this title “Artificial Intelligence, Firms and Consumer Behavior: A survey” they examined provide an overview of the many and multi-faceted economic effects of the recent technological advances in Artificial Intelligence that involve machine learning applications, draw-ing attention to those issues with the most urgent policy implications. We examine the effects of AI in the labor market, focusing on its implications on productivity.

Bhadrappa Haralayya (2022) in this study “The Impact of AI on Consumerism” he examined the effects of AI on consumer behavior and the potential influence AI will have in shaping future market trends. Marketers need to get ready for the changes that will come with the era of artificial intelligence by learning how to use AI into their marketing efforts to better understand and influence customer behavior at each stage of the buying process.

Rushikesh Ghule&Abhijeet Gadhave (2022) in this study titled “Gold Price Prediction using Machine Learning” examined machine learning algorithms to accurately predict gold prices and when to sell and purchase them. This research was done to clarify the gold ETF price predictions using machine learning using Python. It is concluded that machine learning algorithms with Random Forest analysis are very useful in gold price prediction.

Asad Ullah (2023) in this study “Impact of Artificial Intelligence on Customer Experience” he analyzed the impact of artificial intelligence on customer experience with the voice of customer as the mediator. Artificial intelligence is a fast-paced train as it evolves in our working places and homes. Eventually, it is bound to take over the devices we use in our daily lives and become an inevitable part of it. It is our responsibility to ensure that we do not allow it to replace humans.

Bincy Abraham(2023) in this study “A Study on the role of Artificial Intelligence on Consumer Buying Behavior” he examined the rise in application of Artificial Intelligence has opened doors for numerous opportunities that were once beyond imagination. AI-driven solutions should be considered. Because customer satisfaction is the prime concern of the organizations, they invest in artificial intelligence to know customer behavior.

Joydeep Mookerjee (2023) in his title “The Impact of Artificial Intelligence on Finance: Revolutionizing the Financial Industry” he examined that impact of Artificial Intelligence in the finance industry cannot be overstated. From automating manual tasks to improving risk management, enhancing customer experience, enabling algorithmic trading, and boosting fraud detection, AI has transformed the way financial institutions operate.

Sembakalakshmi.S&Aadhi krishnaa.N (2023) in this study“Study on Effect of Price Fluctuations and Consumer Buying Behavior Toward Gold Jewels” they found that as gold prices rise, consumer demand for gold tends to decrease, while lower gold prices tend to increase consumer demand and the level of sensitivity to price changes varies among different consumer segments. Consumer attitudes towards gold were also found to play an important role in determining their purchase behavior. Those who view gold primarily as an investment tend to be more sensitive to price fluctuations than those who view gold primarily as a commodity for adornment or gifting purposes.

### **3. STATEMENT OF THE PROBLEM**

Artificial intelligence (AI) technology has transformed the consumer financial services market and gold market and how consumers interact with the financial services ecosystem. This paradigm shift has been driven by the accelerated maturation of the algorithms; the historic level of investment flooding the financial services and gold market; the competition for market share between incumbents and new entrants; and rapid changes in consumers’ preferences for digital financial products. AI applications have a clear potential to expand opportunities for consumers living at the margin. However, experts have yet to discuss the relevance of AI for consumer financial protection in earnest, including the implications of AI solutions that could better protect consumers. This title is the impact of using Artificial Intelligence for Gold Consumers.

### **4. SCOPE OF THE STUDY**

Artificial Intelligence is undoubtedly transforming our world, with its impact being felt across various industries. From improving healthcare outcomes to revolutionizing transportation, AI's potential is limitless. However, it is crucial to approach AI development ethically and responsibly, ensuring that it is aligned with human values and benefits society. As AI continues to evolve, we must embrace its possibilities while also addressing the challenges it presents, ensuring a future that is driven by intelligence and compassion.

## 5. OBJECTIVES

- To study the impact of factors towards using AI for Gold consumers.
- To find out the benefits of using AI for gold investment
- To identify the problems faced by gold consumers while using AI.

## 6. RESEARCH METHODOLOGY

In this study, descriptive research approach has been adopted. The data have been collected through survey method. The research problem, objective and questionnaire have been formulated accordingly. It has been carried out on the basis of secondary as well as primary data. Primary data will be collected through structured questionnaires distributed among gold consumers and to understand their perception of AI technologies in gold investment. Secondary data will be gathered from journals, industry reports, AI research bodies to support and validate the primary findings.

### SAMPLE SIZE

A sample of 80 respondents is selected through convenience sampling techniques. It includes a mix of individual gold consumers, investors, and industry professionals. The questionnaire had been administered face to face on sample of 80 respondents. With the objectives of identifying the impact of using Artificial Intelligence for Gold Consumers.

### TOOLS FOR ANALYSIS

The collected data is analyzed using Mean Scores, ANOVA, T-Test, Chi-Square used for analyzing the data and reaching the conclusion.

## 7. RESULT AND DISCUSSIONS

### 1. Factors Influencing the Use of AI for Gold

The following table shows the factors influencing the use of AI for Gold. These are ranked with the help of the method.

Table 1

Factors Influencing the Use of AI for Gold

S.No	Factors	Mean Score	Rank
1	Time-Saving	12.6	I
2	Innovative Designs	12.5	II
3	Easy to Pay	12.2	III
4	Convenience	12.1	IV
5	Information Availability	11.8	V
6	Market Analysis	11.8	VI
7	Product Review	11.4	VII
8	Attract Offers	10.6	VIII
9	Price Forecasting	10.5	IX
10	Payment Security	10	X

Source: Computed Data

The above clearly shows that the first rank stands for “Time-Saving” since it has the highest score of 12.6, followed by the second rank for “Innovative Designs” with a score of 12.5. The third rank stands for “Easy to Pay” with a score of 12.2. The fourth rank stands for “Convenience” with a score of 12.1. “Information Availability” was ranked fifth with a score of 11.8, followed by sixth rank is for “Market Analysis” with a mean score of 11.8, “Product Review” got seventh rank with a mean score of 11.4, “Attract Offers” was ranked eighth with a score of 10.6, followed by ninth rank is for “Price Forecasting” with a mean score of 10.5, and least rank is for “Payment Security” with a score of 10 respectively.

## 2. Benefits of Using AI for Gold

The following table shows the benefits of using AI for Gold. These are ranked with the help of the mean score method.

Table 2  
Benefits of Using AI for Gold

S.no	Purpose	Mean Score	Rank
1	Market Analysis	21.75	I
2	Trading Process Automation	21.37	II
3	Information Previously Gathered	15.87	III
4	24x7 Availability	14.62	IV
5	Daily Application	14.12	V
6	Cost Effectiveness	13.87	VI
7	Accuracy	13.62	VII
8	Adaptability	12.87	VIII

Source: Computed Data

The above clearly shows that the first rank stands for “Market Analysis” since it has the highest score of 21.75, followed by the second rank for “Trading Process Automation” with a score of 21.37. The third rank stands for “Information Previously Gathered” with a score of 15.87. The fourth rank stands for “24x7 Availability” with a score of 14.62. “Daily Application” was ranked fifth with a score of 14.12, followed by sixth rank is for “Cost Effectiveness” with a mean score of 13.87, “Accuracy” got seventh rank with a mean score of 13.62, and least rank is for “Adaptability” with a score of 12.87 respectively.

## 3. Challenges Encountered by the Gold Consumers

The following table shows the Challenges encountered by the Gold Consumers. These are ranked with the help of the mean score method.

Table 3  
Challenges Encountered by the Gold Consumers

S.no	Problems	Mean Score	Rank
1	Lack of Education	16.37	I
2	No Bargaining	15.62	II
3	Never Touch	15.5	III
4	Less Reliability & Trust	15.12	IV
5	Net Work Issues	14.5	V
6	Data Quality Dependency	14.37	VI
7	Technical Issue	13.62	VII

8	Model Limitation	12.62	VIII
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Source: Computed Data

The above clearly shows that the first rank stands for “Lack of Education” since it has the highest score of 16.37, followed by the second rank for “No Bargaining” with a score of 15.62. The third rank stands for “Never Touch” with a score of 15.5. The fourth rank stands for “Less Reliability & Trust” with a score of 15.12. “Net Work Issue” was ranked fifth with a score of 14.5, followed by sixth rank is for “Data Quality Dependency” with a mean score of 14.37, “Technical Issue” got seventh rank with a mean score of 13.62, and least rank is for “Model Limitation” with a score of 12.62 respectively.

#### 4. Consumer Attitudes

The following table shows the Consumer Attitude of using AI for Gold. These are applying the ANOVA Test.

Table 4

Consumer Attitudes of Using AI for Gold

Source of Variance	Sum of the Squares (ss)	Degrees of Freedom	Means Sum of the Square	Variation of F
Between Sample	153.3	$5-1 = 4$	$153.3/4 = 38.325$	$38.325/12.15 = 3.15$
Within Sum Samples	182.25	$(20-1) - 4 = 19-4 = 15$	$182.25/15 = 12.15$	
Total	335.55	19		

Table 4 reveals that the ‘F’ value is 3.15. Since the p-value is 3.056, has not achieved the level of statistical significance ( $p < 0.05$ ), there is no significant difference among the respondents of Consumer Attitudes of Using AI for Gold,

To conclude, Since the calculated F-value (3.15) exceeds the critical value (3.056), we reject the null hypothesis. This indicates that there is a statistically significant difference in consumer attitudes across the different groups studied.

#### 5. Gender with Consumer Awareness

The following table shows the Gender with consumer Awareness of using AI for Gold. These are applying the T- Test.

Table 5

Gender with Consumer Awareness of Using AI for Gold

$X_1$	$X_1 = (x_1 - \bar{x}_2)$	$X_1^2$	$X_2$	$X_2 = (x_2 - \bar{x}_2)$	$X_2^2$
12	-3	9	8	0	0
18	3	9	4	-4	16
			16	8	64
			2	-6	36
30		18	30		116



Table 5 to determine whether there is a significant difference in consumer awareness between genders regarding the use of AI for gold-related decisions, a two-sample T-test was conducted. Concluded, Since the calculated t-value (0.607) is less than the critical/table value (2.776), we fail to reject the null hypothesis

## 6. Age with Level of Satisfaction

The following table shows the Age with Level of Satisfaction of using AI for Gold. These are applying the Chi Square-Test.

Table 6

Age with Level of Satisfaction of Using AI for Gold

O	E	(O-E) <sup>2</sup>	$\frac{(O-E)^2}{E}$
20	17.20	7.84	.455
23	21.50	2.25	.104
12	17.92	35.04	1.95
21	19.35	2.72	.140
3	4.98	3.92	.787
5	6.22	1.48	.239
10	5.18	23.23	4.48
4	5.60	1.6	.285
1	1.81	.65	.362
2	2.26	.26	.115
3	1.88	1.25	.667
2	2.03	1.36	.672
			10.266

To examine whether age has a significant association with the level of satisfaction in using AI for gold, a Chi-Square Test of Independence was applied.

Concluded, there is no statistically significant association between age and the level of satisfaction with using AI for gold. This means that satisfaction levels do not vary significantly across different age groups in this context.

## FINDINGS

Integrate advanced encryption and multi-factor authentication to safeguard payment processes and build consumer trust. Utilize AI to develop seamless, user-friendly payment gateways that facilitate quick and hassle-free transactions. Automated systems can reduce the time and effort required for payments, enhancing the overall user experience. Design intuitive interfaces for online platforms that guide users through the payment process effortlessly. Employing AI-driven chatbots can provide real-time assistance, ensuring any issues are promptly resolved. Utilize machine learning algorithms to analyze historical data, market trends, and external economic indicators. These models can forecast price movements with greater accuracy, aiding investors in making informed decisions. Incorporate diverse data sources, such as global economic indicators, geopolitical events, and market sentiment analysis, to enhance forecasting reliability. Use AI to analyze consumer behavior and preferences, allowing for more personalized and relevant offers. This can increase the attractiveness and acceptance of promotional deals. Implement robust feedback systems to gather consumer input on the effectiveness of price

forecasting and promotional offers. Use this data to iteratively improve AI models and marketing strategies.

## 8. SUGGESTIONS

Artificial Intelligent Gold Consumer focusing on these areas, businesses in the gold market can effectively utilize AI to enhance consumer experience, improve operational efficiency, and foster long-term loyalty and trust. Consumers value efficiency and ease of use, emphasizing the need for secure payment processes. AIs predictive capabilities are crucial for gold trading and investment strategies. Mixed satisfaction levels for price forecasting and attracting offers suggest varying consumer importance. Educate consumers on how AI is embedded in gold-demand dynamics (e.g., via electronics), and explain how forecasting tools work.

## 9. CONCLUSION

The integration of Artificial Intelligence (AI) technologies in the gold industry has elicited varied responses from consumers, marked by a blend of appreciation for its benefits and cautious considerations regarding certain aspects. Its implementation in the gold market has notably enhanced consumer experiences in several key areas. Foremost among these is the appreciation for AI time-saving capabilities and convenience. The ability to access market analysis and trading processes anytime, anywhere, underscores AIs adaptability and contributes significantly to optimizing decision-making processes for gold investments.

Consumers find these features not only convenient but also reassuring, enhancing their overall satisfaction with AI-driven solutions in the gold market. Furthermore, the cost-effectiveness of AI tools in terms of operational efficiency and resource optimization is recognized as a crucial factor in enhancing performance and profitability. Despite the evident benefits, concerns persist among consumers, particularly regarding payment security. The apprehension surrounding the safety of financial transactions in AI-driven platforms remains a prominent issue. Addressing these concerns through robust security measures and transparent communication will be essential in building and maintaining consumer trust.

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