International Journal of Science and Research Archive
eISSN: 2582-8185
Cross Ref DOI: 10.30574/ijsra
Journal homepage: https://ijsra.net/

(REVIEW ARTICLE)

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Real world examples of AI adoption: Practical case studies

Shikha Khullar [1,*], Poonam Devi [2] and Priyanka [3]

[1] *Associate Professor, Department of Computer Science and Engineering, Poornima University, Jaipur, Rajasthan, India.*
[2] *Assistant Professor Siri for institute of management studies, Indraprastha university of Delhi, India.*
[3] *Research Scholar, Geeta University, Panipat, India.*

International Journal of Science and Research Archive, 2025, 16(03), 580–591

Publication history: Received on 25 July 2025; revised on 10 September 2025; accepted on 12 September 2025

Article DOI: https://doi.org/10.30574/ijsra.2025.16.3.2590

Abstract

Artificial intelligence (AI) functions as a revolutionary force across several industries which causes transformative alterations in operational decisions and system functionality. Research used genuine sector examples from healthcare together with banking and production and retail and transportation sectors to describe detailed AI practical applications in these fields. The research study effectively explained to readers how AI technology functions in these five industries to address complicated mid-to-long-term issues. The research examined AI-diagnosed patients at Mayo Clinic while also studying how JPMorgan deploys AI for fraud examination and investigated Siemens product efficiency along with Amazon's customer service and Uber's dynamic pricing strategy. The applications which support AI systems allow the technology to improve accuracy while increasing productivity and delivering better customer satisfaction. The research findings indicate that AI implementation requires proper preparation together with high-quality data accessed through the appropriate relationships between industrial actors and technology handlers. The advancement in technology functions harmoniously with AI dominance and sector field expansion through competitive and innovative promotion.

Keywords: AI Adoption; Case Studies; Healthcare; Manufacturing; Finance; Fraud Detection; Personalized Suggestions; Predictive Maintenance; And Dynamic Pricing

1. Introduction

Advanced information technology enables businesses to simplify operations while enhancing choice mechanisms and enhancing guest interactions within their markets. AI establishes new operational frameworks in which companies operate throughout healthcare systems and financial institutions. The book explores how people employ AI through actual case studies in this chapter. Artificial intelligence (AI) represents an advanced well-established technology which modernizes business procedures while improving the way users interact as well as enhancing management decisions. Companies realize AI has succeeded in becoming vital because it enables them to remain competitive and increase productivity by processing large datasets and uncovering patterns in it. Computational systems operate between multiple vertical fields that include manufacturing, retail and healthcare and finance to address specific industrial issues while improving operational efficiency.

Practical applications were studied with current research, and today, there are many industries that successfully implement AI. Each case is certainly not just a description of the AI tools used, the ways in which they are executed, and the results that can be achieved, but the organizational roadblocks as well. This paper analysis the effect of the AI innovation in delivering changes on the planet through a twofold evaluation of the limitations of the AI innovation, but also as giving structural outlines on how associations can execute or coordinate AI arrangements concerning focal issues, in every one of the assessment sections. The report explores AI implementation challenges through analysis

* Corresponding author: Shikha Khullar

ranging from data privacy issues to developing expert-organized coalitions for professionals to generate accurate solutions from quality data.

Every common day routine is machine learning solutions wrapped in streaming recommendation system, facial recognition on your cellphones, planning apps like GOOGLE MAPS, chatbots who use A.I for customer care and digital contact suggestion from social media platforms.

Absolutely! This has changed the way modern devices work as many common applications now rely on artificial intelligence. An understanding of how precursors to AI is essential is revealed by considering these important areas of functioning

- **Custom Recommendations:** Spotify and Netflix use artificial intelligence algorithms to monitor what their customers listen to and view. The recommendations come from an efficient way of user interface which compact satisfy the user needs and together with-it increased engagement levels.

AI technology improves customer experience in the entertainment industry. User information with user personal preferences help streaming services recommendations that contributes to enhance activity levels of users.

These processes through which artificial intelligence provides users with recommendations amplifies their satisfaction quotient and raises their engagement.

- **Increased discovery:** AI-based suggestions show fresh content that a user would not otherwise search for, enabling them to discover content they genuinely enjoy.
- **Improved content relevance:** AI systems read user behavior data while digesting accurate information about what the users want and enjoy via review of viewing patterns and time spent on subjects and the most popular interactions. For instance, recommendations show users content that appears tailor-made to their tastes so the recommendation engine encourages broader user platform duration.
- **Enhanced user experience:** Personalized recommendations delivering personalized content result in a higher user satisfaction as such suggestions offer products that matches one's personal preferences. An example of the importance of user satisfaction on the platform is when user-oriented recommendations align with user preferences, as it demonstrates that the platform provides greater understanding and utility to the user.
- **Less content overload:** AI processes user data and runs recommendations that connect individuals with relevant content that can help others find essential information.
- Some of the important methods based on AI-based material suggestion are illustrated in the following list.
- **Collaborative filtering:** This method examines user behaviours from people like them to make its recommendations.
- **Content-based filtering:** Investigators use this assessment technique to dig into traits and attributes to create their recommendations.
- **Integration methodologies:** Different approaches must combine, essentially to provide accurate recommendations that comply with customer requirements.

This not only dramatically improved their customer service departments, but also provided more engaging content to be viewed, as the sites began using artificial intelligence for its content recommendation systems on streaming platforms.

- **Facial recognition:** Allows users to unlock mobile phones and perform transactions with peace of mind, as well as to use them for personal infotech recovery, by using facial recognition on mobile devices. Security systems alongside law enforcement officials use this technology in their respective operations.
- **Synthetic face recognition technology -** a synthetic synthetic face recognition technology through the artificial intelligence company news the development of consumer electronics applications while improving security work. Here is what you need to know about the use and impacts of this technology:

1.1. Applications in Smartphones

- **Device Unlocking**: Users may quickly and securely access their phones by using facial recognition technology rather of passwords and fingerprints. Because the technology uses sophisticated algorithms to create accurate 3D facial renderings, users find it tough to fake.
- **Authentication for Transactions**: The banking applications ensure security of mobile payment transactions using face recognition technology because it verifies genuine users while preventing fraudulent activities.

- **Data Protection**: Face recognition technology operates as a security measure to safeguard important data that includes personal documents and images. There exists a way to restrict system access to specific permitted users only.

1.1.1. Applications in Security Systems

- **Surveillance**: People of interest receive better surveillance in public areas through the combination of face detection with risk identification capabilities enabled by facial recognition technology.
- **Access Control**: Through facial recognition technology physical security in corporate and protected facilities can improve access control to authorized persons.
- **Emergency Response**: The law enforcement can use facial recognition technology to conduct quick

The implementation of facial recognition technology through artificial intelligence represents a significant progress in both customer electronic devices and security systems.

A detailed description regarding Metoprolol utilization together with its subsequent outcomes is provided.

- **Privacy Concerns**: Users of this system encounter substantial threats to their personal privacy when facial recognition technology is utilized. The implementation of surveillance technology through face recognition systems without user permission creates a space for government agencies and corporate entities to carry out improper actions.
- **Bias and Accuracy**: Privacy risks emerge from face recognition systems because their software generates more errors when processing members of particular demographic categories. The technology demands ethical and equal data management solutions to fulfill its requirements.
- **Regulatory Landscape**: Facial recognition technology receives regulation through ethical and privacy legislation that different nations and regions establish. The use of facial recognition technology requires users to adhere to complex legal guidelines during their operations.
- **Public Acceptance**: People and their societies demonstrate different ranges of acceptance for facial recognition technology. People need to understand data collection methods and storage practices alongside their purposes so they will make broad-spread support possible.

The advantages of facial recognition technology through convenience and security deserve careful assessment for resolving moral and legal as well as societal problems related to its implementation.

- **Smart Navigation**: The application of AI technology by Google Maps allows users to predict their travel duration using present-time and past trip records so the system can recommend suitable navigation paths and provide up-to-date traffic updates. Time management along with transportation efficiency becomes possible because of this system which helps users prevent travel interruptions.

Urban and suburban travel has completely evolved through the implementation of navigation software such as Apple Maps and Waze and Google Maps. Users can access real-time traffic facts and route recommendations as well as obtain accurate arrival predictions using Artificial Intelligence (AI) and Machine Learning (ML) algorithm processing of current and stored data.

The technology has improved travel efficiency and generated multiple delay-avoiding methods for consumers.

- **Real-time Traffic Updates**: The delivery of time-sensitive traffic information by smart navigation applications requires data collection through sensors and GPS systems as well as user input. Users gain the ability to change their travel routes and find empty areas through the provided data.
- **Optimal Route Suggestion**: The recommender software uses traffic patterns combined with road conditions together with multiple variables to identify the most efficient destination path. The implementation of this system reduces both travel time and fuel consumption and environmental pollutants.
- **Arrival Time Estimation**: Navigation applications build very accurate arrival time predictions through the integration of past performance data with present data. The solution enables users to formulate better travel schedules through decreased stress and delayed prevention.
- **Dynamic Routing**: The system instantly changes routes when traffic conditions trigger a change. The application will suggest an alternate path to minimize delays when a road becomes inaccessible or traffic jams occur.

- **Personalized Routing**: Users may observe their navigation applications learning about their patterns and preferences through time so the apps recommend personalized routes from typical routes.
- **Integration with Public Transit**: Users who utilize intelligent navigation applications receive current bus and rail time information through built-in public transit schedules. Using this feature lets users make better future travel arrangements with improved itinerary clarity.
- **Alerts and Notifications**: Users of smart navigation applications gain real-time alerts through which they can make better route decisions when facing traffic problems and road closures and various trip-affecting events.

Several key advantages come with using smart navigation applications.

- **Reduced Travel Time**: Audience devices analyze current traffic conditions and road closure information and accident updates provided by real-time data systems. The apps use their analyzed data to match users with the quickest available routes that ensure no delays. Users can minimize their journey duration by selecting the most effective route that adjusts to present traffic conditions thanks to this method.
- **Improved Safety**: Through smart navigation applications drivers improve safety conditions on the road because the systems help users avoid congested zones and minimize travel duration.
- **Increased Productivity**: People can achieve maximum time efficiency during their travels through the effective utilization of smart navigation applications that help organize their journeys better.
- **Environmental Benefits**: The implementation of smart navigation applications establishes an environmentally friendly transport system since they decrease emissions and fuel consumption.

Modern navigation apps through their modern features have brought a major change in city travel procedures. The applications supply users with current information combined with route recommendations along with tailored advice to provide travel experiences that are safer as well as more efficient and satisfactory. The technology provides simple trip preparation features and helps individuals steer clear of issues which results in vastly streamlined journeys.

1.2. Customer Service Chatbots

AI-powered chatbots enter customer support operations more frequently to handle questions and issues as well as distribute information throughout all hours. As customer support systems accumulate experience from interactions they become better at providing improved user experiences.

You present an outstanding case for using chatbots in customer support systems. AI-powered chatbots keep increasing their presence in customer support because they provide multiple advantages to the system. Among these benefits are

- **24/7 Availability**: Chatbots supply constant customer service through all hours to supply immediate assistance for answering clients' needs.
- **Personalization**: The outcome of chatbots relies on both user choice information and data points to create personalized service encounters. Users develop increased engagement together with enhanced happiness when discussions within the user interface appear natural.
- **Speedy Resolution of Issues:** Chatsbots solve issues quickly and allow human customer support agents to focus on complex issues.
- **Data Analysis:** The work is much more convenient for operators — chatbots focus only on complex customer challenges, allowing a rapid resolution.
- **Scalability:** Businesses with many customers can also avoid their business processes becoming bottlenecked, as chatbots can process multiple customers' demands simultaneously.
- **Cost Effective:** By operations chatbot discounts have to maintain human customer support staff a lot less expensive.

Limitations of using chatbots in customer operations These include

- **Limited Contextual Understanding:** The struggle whereby the client's inquiry, denoted by contextual meaning and subtle verbalization and failing to understand remains a challenge for the chatting bots to maneuverer.
- **Technical Problems:** Customers complaints due to chatbot system failures and high demand on quality of customer service.
- **Security Issue:** When developing chatbots, security measures that are not sufficient become critical vulnerabilities leading to exposure of customer data.

- **Lack of Creativity:** Chatbots can only think of solutions based on their programmed factors which limits their imagination for new and different ways to solve a customer query.

There are multiple approaches a company can take to get around these challenges namely

- **Hybrid Chatbots:** Chatbot assistance will always be effective only when there is some level of human customer support to provide a personalized helped experience through an integrated interface.
- **Better Chatbot:** Update training of questions (from the customer) within business systems and feed them into the chatbot training.
- **Regularly Reviewing Performance:** Chatbots need to be evaluated regularly for performance to find the holes that need fixing.

Customer care chatbots thus ensure, by increasing productivity of every operation, amazing personalized interaction between business and customer.

The article mentions your newsfeed and friend suggestion features, and the detection of inappropriate content on Facebook, which use AI algorithms in doing so, the system has also adopted several goals that strive to maintain security requirements while conceiving interesting graphical user interfaces simultaneously.

Various social media platforms have AI-based technologies in different domains that let them provide 24/7 security to its users and facilitate improved users' experience. Some of the key features that the platforms commonly maintain are:

1.3. Friend Suggestions

- **Mutual Connections:** A program can use shared friends and friend logs to identify relationships that exist when suggesting friends.
- **Please Specify:** Users with similar events taking place (e.g. how closely one matches an event) and proximity to one another can be proposed as friend connections.
- **Similar tastes:** Matched users get recommended acquaintances with similar group and common likes and interests.

1.4. Curated News Feeds

- **Personalization Algorithms:** Artificial intelligence (AI) algorithms work based on the exploring behavior of users in form of likes, shares, along with comments.
- **Engagement:** User feeds on Facebook are filtered by how much engagement other users offer specific entries.
- **Content Variety:** The algorithm preserves users using diverse types of content like news, tales, video tutorials, and standing updates.

1.5. Content Moderation

- **Inappropriate Content Detection:** Machine learning algorithms analyze text and visual images to detect hate speech and violence with adult content in the content.
- **User Reporting:** AI algorithms applied to user reports allow for faster report review processes, automatically assign favorite reviews to the most commented content.
- **Combating Misinformation:** These reliability assessment systems help prevent the spread of false material.

1.6. Safety Features

- **Privacy Controls:** AI is mixing up privacy setting data and user behavior patterns to provide users with curated recommendations on privacy guidelines for their own accounts.
- **Behavior Alerts:** AI detection systems enforce alerts to platforms in instances where violations of the code of conduct occur via user activity. That also triggers safety protocols for notifications.
- **Mental Health Resources:** AI technology, available on select platforms, can also automatically guide users to appropriate resources for help when concerning messages are detected.

1.7. Advertising and Targeting

- **User profiling:** AI technologies on Internet platforms build comprehensive profiles from both demographic and user behavioral data to provide customers with optimal service.

- **A/B Test For Ads:** The success of marketing efforts is improved through immediate artificial intelligence analysis of user reactions because it promotes user participation, in addition to performance, in multiple promotions.

1.8. Chatbots and Customer Support

- **Automated Responses:** Customers receive immediate responses to their inquiries using artificial intelligence bots, leading to increased levels of satisfaction.
- **Engaging Through Messaging:** Many ad platforms have chatbots that create a more personalized experience improving how a business engages with a potential customer.

AI keeps on developing wellbeing alongside finance and instruction while dominating the predetermined regions of enhancement. With the help of AI technology business can find things quickly from large data and these help them in creating new products through process. AI technology is ever improving towards better daily life quality.

Research on AI development generates fundamental inquiries regarding data ethics along with privacy issues so laws must define appropriate AI uses. Society will obtain its best results from AI when the balance between innovation and ethical considerations is optimized.

2. Literature Review

Research findings regarding business AI integration maintain heavy interest among technical experts as well as legal authorities and academic experts. Various research has investigated the applications and benefits and drawbacks of AI while it reshapes numerous industrial sectors. Multiple studies explain vital industry developments and AI transformation effects on decision processes and consumer satisfaction in healthcare, education, finance, manufacturing, retail, transportation services.

2.1. AI in Healthcare Fields

Among all healthcare applications of AI diagnostics stands out as one of the most successful implementations. The analysis of medical imaging receives support from AI which shortens the necessary duration for receiving accurate diagnoses. Deep learning has become particularly useful for analyzing medical images such as X-rays and MRI and CT scans as well as pathology slides. The algorithms possess the ability to spot complicated patterns and unusual findings which human vision cannot detect easily. Team AI processes enormous amounts of data considerably faster than usual methods so medical diagnoses happen speedier than usual techniques. Fast-paced actions during emergencies are essential for patient triage because they create substantial differences in the medical operational procedures. The identification of medical anomalies with accompanying diagnostic suggestions in large medical image datasets is possible through machine learning (ML) and deep learning (DL) algorithms trained by Holmes et al. (2019). The Mayo Clinic integrates AI for medical diagnosis through which the system has decreased errors and generated better healthcare results. Research has determined that AI systems possess the capability to retrieve and analyze large amounts of patient data stored within electronic health records (EHRs) and laboratory results as well as past medical histories. Through its applications machines help doctors achieve both accurate disease diagnosis and personified treatment methods. A prediction-based approach using machine learning algorithms analyzes past patient data hence enabling teams to intervene in advance against different risks. The system evaluates patients at risk for particular medical conditions after which it generates prevention strategies. Due to its capabilities NLP extracts important insights from clinical documents and research papers that serve as a foundation for clinical decisions. (Topol, 2019).

The implementation of predictive analytics functions as an important area of healthcare intelligent systems by helping medical teams determine which patients need attention before complications occur (Rajkomar et al., 2018). The examined research demonstrates the potential of AI methods but addresses significant concerns about data privacy as well as ethical issues for private medical records (Zeide, 2017).

2.2. AI in Finance

AI adoption among financial institutions remains swift because it brings value to risk management along with fraud detection operations. Traditional fraud detection systems based on rules frequently fail to identify advanced forms of criminal activities while creating numerous incorrect alarm reports which make customers unhappy. The analysis of big transactional data at speed becomes more efficient through machine learning algorithms. The systems recognize abnormal patterns alongside irregular behavioral changes and atypical data points which serve as fraud indicators. These algorithms observe past data to improve accuracy with each passing day hence their capability to discover fraudulent conduct at a swifter rate with enhanced precision. Analysis of extensive historical transactional data through these algorithms allows financial organizations and corporations to view fraudulent activity by spotting irregular patterns. These models have the ability to identify transaction patterns that deviate from user-established norms. Live fraud situations including unauthorized payments and account seize cases become detectable through this system. Machine learning models study past behavioral and pattern data to determine which transactions have shown fraudulent indications when analyzing historical transaction data. Better assessment and decision-making results become achievable through this approach. (Sarker et al., 2020).

Frequent acts of fraud detection become possible through the AI-powered system implemented by JPMorgan Chase. AI systems use anomaly detection methods to analyze large amount of transaction data thus determining fraudulent activity effectively while producing fewer incorrect alerts. AI implementation in finance operation cuts expenses while improving both operational and decision-making precision (Carter and Rogers, 2020).

The research demonstrates two main problems with AI algorithms: the importance of reliable data quality alongside difficulties in maintaining transparent and fair operations especially during financial decisions applications (Bottou et al., 2018).

2.3. Artificial Intelligence in Manufacturing

Predictive maintenance backed by AI functions as a vital manufacturing tool which delivers companies two essential benefits through equipment failure elimination resulting in reduced downtime. Artificial intelligence (AI) within predictive maintenance systems analyzes the data from machine sensors which identifies wear indicators and then predicts the forthcoming failure time (Lee et al., 2020). The AI-enabled systems from Siemens help companies prevent equipment damages through real-time monitoring as well as extending usage cycles.

Operation costs decrease by using predictive maintenance which sets optimal maintenance schedules to eliminate unexpected system stoppages (Jardine et al., 2006). The application of artificial intelligence enables both maximum efficiency standards in manufacturing operations and optimal optimization of supply chain processes. Manufacturing implementations of AI depend on financial investments directed to two fundamental infrastructure components including data management and sensor systems.

You're entirely correct. Some expenditures and implementation obstacles exist within manufacturing AI deployment but productivity and supply chain improvement are enormous potential benefits. The cost evaluation for manufacturing AI implementations follows four essential factors to consider.

- **Data Management Systems**: AI becomes most effective through strong data management systems that manufacturers must implement. The technology which handles data gathering and storage as well as processing and analysis is included. Large business data production requires either data warehouse solutions or cloud-based management systems for effective data management.
- **Sensor Systems**: The implementation of IoT sensors requires financial investment to support real-time data delivery for AI algorithms. AI systems achieve operational manufacturing enhancement through sensor-provided critical measurements about inventory levels and equipment status and environmental factors.
- **Integration with Existing Systems**: The integration of AI solutions within existing ERP and MES programs along with other business software requires frequent attention. The achievement of smooth interoperability requires additional funding coupled with additional work.
- **Talent and Expertise**: An organization needs data scientists alongside AI experts and engineers for creating and deploying and maintaining AI solutions. The investment into human capital development produces significant results because it addresses gaps between knowledge needs and supply in specific industrial sectors.
- **Change Management**: An organization's culture needs regular shifts in order to adapt AI in manufacturing processes. The implementation of change management solutions may require new business expenditures to achieve staff acceptance and understanding of AI advantages.

2.4. AI in Retail

The implementation of AI by retailers has led to higher business revenue while delivering improved satisfaction to their customers. The most famous AI retail application produces customized recommendation models. AI systems evaluate customer activities starting from their web activity and purchasing habits when they present custom-made product suggestions. According to Gomez-Uribe and Hunt (2016) Amazon earns 35% of its revenue from its recommendation engine that operates as one of the best AI-powered retail systems.

The integration of artificial intelligence by retailers has achieved operating success through both revenue growth and increased customer satisfaction. AI enables retailers to provide customized product recommendations which represent a well-known application of AI in retail operations. AI systems at retailers employ behavior analysis of customer activities to generate specific product recommendations for better customer satisfaction.

This type of analysis involves leveraging various data points, such as

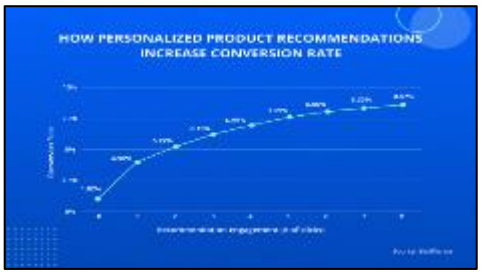
- **Browsing history**: Retailers understand which products consumers have displayed interest in since they have observed both items they examined and placed in their shopping carts.
- **Purchase history**: Analysis of previous client transactions shows details regarding how often customers buy items together with when they do so and what total amounts, they purchase.
- **Search queries**: Next Generation Technology evaluates how people speak during their product search activities online.
- **Social media engagement**: The organization monitors each social media interaction between its consumers and their content.
- **Review and feedback**: Customer satisfaction assessments based on item reviews allow the business to determine product strengths and weaknesses for enhancement.

Various data sources processed by AI systems generate detailed understanding of customer behaviors and interests for delivering complete consumer profiles. Retailers can implement personalized product recommendations by utilizing this information to boost sales income as well as build better customer satisfaction and loyalty.

Individualized product suggestions lead to various advantages for customers.

- **Increased sales**: The delivery of suitable products according to customer needs drives retailers toward increasing their revenue flow and total sales numbers.
- **Improved customer satisfaction**: Customer satisfaction and faithfulness to brands increases but at the same time shopping experiences evolve positively for customers.
- **Enhanced customer engagement**: A company giving timely and relevant product recommendations to clients enhances consumer engagement and keeps their customers interested in the business.
- **Better inventory management**: Elaborating on the periodic data allows retailers to distribute stock equally between stores thus avoiding both stockouts and unsupportable inventory accumulation.

The retail sector uses AI effectively for personalized product suggestions that benefit shopping clients along with commercial entities. The analysis of individual consumer behavior through AI lets businesses produce recommending options to grow sales while upholding customer satisfaction for enhanced loyalty.



2.5. AI in Transportation

AI has also turned the transportation industry upside down with the optimizations it has introduced into ride-hailing service operations. Uber's pricing framework uses artificial intelligence to balance supply and demand factors such as passenger demand and the number of drivers on the road, and environmental factors such as weather and road condition. Platforms also able to implement dynamic pricing solutions perform better; there are shorter wait times for customers and higher supply of drivers when demand peaks (Chen et al., 2020).

Examination of variable pricing as a response to supply-demand concern generated criticism of equity and equity in access largely occurring only in peak periods of demand (Hall et al., 2015). These systems use artificial intelligence as well, however they rely on it mostly for autonomous vehicles and planning routes. Dynamic pricing is a market-driven pricing mechanism that effectively balances real-time operations by adjusting supply and demand. This mechanism engenders discussion on fairness and transparency at peak demand levels.

2.6. Challenges and concerns

- **Lack of transparency:** Because of dynamic pricing, it becomes hard for customers to know the exact reason for price hikes.
- **Price gouging:** Companies using dynamic pricing during high demand periods will always raise the prices more than necessary to generate maximum profit from every user, and it is an opportunity for predatory pricing.
- **Price inequities:** Dynamic pricing enables some companies to determine different prices for their products for separate consumers now generating price discrepancies amongst the consumer groups.
- **Consumer frustration:** A dynamic system of calculation of prices frustrates customers who have found essential products to be too expensive, as well as people who see themselves as being treated badly.

Here are a few examples of dynamic pricing in practice

- **Airlines:** Dynamic pricing models that airlines use to adjust ticket prices based on customer demand patterns. The price is significantly lower during low-demand periods but it is significantly higher during high-demand times.
- **Hotels:** Dynamic pricing for hotels is when real time rates and marketplace demand dictate their pricing. Demand for tourism and special events make it challenging for hotels to absorb costs of operation.
- **Event tickets:** Dynamic pricing is adopted by many public events from concerts to sporting events. Design contact centers have the ability to boost ticket prices during busy concerts or events.

Dynamic pricing — best practices for implementation

- **Transparency:** All businesses should disclose their pricing structures externally and provide their clients with all the correct information about the determinants of price.
- **The principle of fairness:** Every business is expected to maintain fair-pricing policy in our efforts to protect the customers from unfair practice.
- **Communication:** Businesses should come up with options to allow all customers to change their orders depending on their budgets and offered price transparency for changes in the cost.
- **Preventing price gouging:** Government organizations must be given the power of dynamic pricing control to end the price gouging of goods and services and prevent the monopoly of corporate action to protect anything from their greed and market domination.

The public suffers with pricing and transparency issues but dynamic pricing control both market inventory and consumer efficiently. Correct implementation of best practices in dynamic pricing enables businesses to offer mutual advantages to customers under proper customer protection protocols.

2.7. Challenges and Ethical Considerations

Every advancement in AI technology faces multiple substantial obstacles although it delivers positive results. The healthcare sector along with finance receive the most significant impact from their sensitive data but data privacy remains the primary concern for multiple industries. AI-using businesses need to follow GDPR alongside other privacy standards which require exact methods for data protection (Goodman and Flaxman, 2017).

System controllers need to present understandable information while maintaining full awareness of their operations in essential sectors especially healthcare and finance. The study underlines human understanding of AI decision-making by showing that fair and understandable algorithms lead to increased confidence (Selbst et al., 2019).

Research has established the successful application of artificial intelligence across different fields for improving medical diagnostics and enhancing retail services and transportatio AI systems require an organized method which integrates data quality requirements with ethical guidelines and expert-industry exchanges between field specialists to achieve efficient implementation.

3. Research Methodology

The research evaluates artificial intelligence (AI) practical uses and industrial effects through qualitative case study methods. Important elements of the methodology include case selection, data gathering, data analysis, and confirmation of results. The study will present a thorough evaluation of AI implementations that address critical problems in both Healthcare and Finance as well as Manufacturing and Retail and Transportation areas.

3.1. Selection of Cases

- The criteria listed below served as the foundation for selecting case studies
- Relevance: Revolutionary AI applications must be present in the chosen cases which demonstrate substantial technological changes.
- Diversity: Multiple industries such as manufacturing and retail and healthcare with finance and transportation represent the case studies.
- Success Stories: Every example chosen shows quantifiable achievement and favourable results from the use of AI, such increased productivity, precision, or client satisfaction. The following instances are part of this study:

- AI for medical diagnosis at the Mayo Clinic
- The fraud detection system of JPMorgan Chase
- Predictive maintenance from Siemens
- Amazon's tailored suggestions
- The dynamic pricing structure of Uber

3.2. Data Collection

- A variety of secondary sources were used to collect the data, including:
- Academic Journals: Current research findings and theoretical frameworks were gleaned from peer-reviewed papers and publications that concentrated on AI applications in the chosen industries.
- Reports from the Industry: In-depth reports on AI deployments, trends, and case studies were provided by respectable consulting companies and industry associations, which improved comprehension of real-world applications.
- Press releases and news articles: The case studies' firms' official statements, news articles, and current events gave context and up-to-date information on their AI ambitions.
- Expert Opinions and Interviews: Insights from practitioners and industry experts were used whenever possible to obtain firsthand recollections of the difficulties encountered during implementation.

3.3. Data Analysis

- A thematic analysis method was used to examine the information gathered from several sources. This included
- Finding Themes: For every case study, important themes pertaining to the use of AI, difficulties faced, technologies employed, and results obtained were determined.
- Comparative study: To identify parallels and discrepancies in AI adoption tactics, success indicators, and lessons discovered, a comparative study was carried out among the chosen case studies.
- Combining Results: The goal of the analysis was to combine results into a coherent story that demonstrates how AI is revolutionizing many industries.

3.4. Validation of findings

- To ensure the reliability and validity of the findings, the following procedures were used
- Triangulation: Multiple data sources were employed to confirm findings, which increased the trustworthiness of the case study conclusions.
- Peer Review: Draft findings were shared with industry professionals for comment and validation, ensuring that the interpretations and conclusions are sound and relevant to real-world practices.
- Limitations: Limitations in data availability, case representativeness, and potential biases in secondary data sources were noted in order to offer a clear context for the findings.

4. Results

Through implementing dynamic pricing Uber has optimized its operation. Increased driver availability emerges from this system through which it brings additional operators to roads to attend customers quickly. Surge pricing has proved effective for distributing available vehicles between high demand periods by generating specific pricing models which benefit riders and drivers.

5. Conclusion

The research studies demonstrate how AI powers industrial revolution. With AI integration in health care facilities diagnosis accuracy and patient care delivery rates improved while their speed increased significantly. In finance, it improved fraud detection. Industrial use of predictive maintenance has enhanced manufacturing operations while retail organizations achieve different domain benefits through personalized customer interactions. Uber integrated AI systems to optimize dynamic pricing matters of supply and demand in their service.

These real-world examples demonstrate clearly that a single information service for AI does not exist. Respective industries need to understand their specific challenges while working with high-standard data through combined efforts between AI experts and industry professionals for successful AI implementation. The use of well-organized strategies in AI implementation will generate significant improvements to productivity alongside better customer happiness and financial gain.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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