

Leveraging Artificial Intelligence to Minimize Operating Costs in the Commerce Sector

Reeta Chawla*

Assistant Professor, Sheshshyee College of Professional Studies, Nagda, Madhya Pradesh, India.

*Corresponding Author: reetachawla891@gmail.com

ABSTRACT

Artificial Intelligence (AI) is playing a pivotal role in transforming the economic and technological landscape of India. With its rapid integration across diverse sectors, AI is becoming a cornerstone of innovation and progress. In the commerce sector, in particular, AI is emerging as a game-changer by streamlining operations, reducing costs, and enhancing decision-making processes. Business owners and entrepreneurs are increasingly leveraging AI tools to automate routine tasks, analyze market trends, manage inventory, and optimize customer experiences. These applications not only improve operational efficiency but also lead to significant cost savings. Research and industry insights suggest that effective use of AI over a span of just 6 to 8 months within a financial year can reduce operating costs by approximately 15% to 40%, thereby increasing profit margins substantially. Due to these qualities of Artificial Intelligence, today Indian companies like TCS, Infosys, Reliance Jio, ICICI etc. are using it very efficiently. And by using Artificial Intelligence in the right way, these companies can not only reduce their operating costs but can also get golden opportunities for profit in the future.

Keywords: Artificial Intelligence, Operating Cost, Leveraging, Technology.

Introduction

Artificial Intelligence (AI) is the ability of a computer or a machine to think, learn, and make decisions like a human being or creating machines or software that can perform tasks that normally require human intelligence.

Operating costs are the regular costs needed to keep a business running. These include rent, salaries, utility bills, maintenance, and raw materials. These costs do not include expenses like purchasing new machines or buildings (which are capital expenses).

Effect of Artificial Intelligence on Operating Cost

- AI can reduce labour costs by automating routine tasks, thereby reducing the need for a large human workforce.
- AI can reduce time-based costs and waste through faster operations and fewer errors. It can also work continuously without breaks, operating 24/7.
- In manufacturing, AI can predict machine failures before they occur, reducing unexpected downtime and repair costs.
- AI helps in energy management, inventory control, and supply chain optimization. This leads to lower utility bills, reduced storage costs, and less waste.
- While implementing AI may involve high upfront costs, it often significantly reduces operational expenses over time.

AI is no longer a futuristic concept or mere buzzword—it is a practical, results-driven tool that is revolutionizing how commerce operates in the modern era. By enabling faster, smarter, and more data-driven decisions, AI opens new avenues for sustainable growth and competitive advantage. However,

while embracing AI technologies, it is essential to ensure responsible use, uphold ethical standards, and maintain human oversight. Striking the right balance between automation and human input is key to building trust and achieving long-term business success.

How AI Reduces Operating Costs

- **Reduced Waste**

AI-powered inventory management and supply chain optimization can help reduce food waste and other types of waste.

- **Optimized Inventory**

AI can help optimize inventory levels, reducing the need for costly storage and warehouse space.

Reduced Costs in Logistics and Delivery:

AI can optimize delivery routes and schedules, reducing transportation costs and delivery times.

Improved Customer Satisfaction

AI-powered customer service and personalized product recommendations can lead to increased customer satisfaction and loyalty, potentially reducing customer churn and associated costs.

Automated Processes

AI can automate various tasks, reducing the need for human intervention and associated labour costs.

Specific Examples of AI-driven Cost Savings

- **Food Waste Reduction**

Reliance Retail is using AI cameras to optimize produce handling and reduce food waste throughout the supply chain.

- **Optimized Inventory**

AI-driven demand forecasting and inventory management systems can help optimize inventory levels, reducing the risk of stockouts and excess inventory.

- **Reduced Logistics Costs**

AI-powered delivery optimization can help reduce fuel consumption, delivery times, and overall transportation costs.

- **Improved Customer Service**

AI-powered chatbots can provide 24/7 customer support, reducing the need for human agents and associated labour costs.

Research Objectives

- To study the impact of artificial intelligence on operating cost.
- To understand the new concept called artificial intelligence by which a company can get many benefits.
- To know how Artificial Intelligence can actually help a company reduce its operational costs.

Literature Review

A case study of Reliance retail, which highlights the uses of artificial intelligence which reduced operating cost.

Reliance Retail uses AI to optimize various operational areas, potentially leading to cost reductions. Specific examples include using AI for inventory management, demand forecasting, supply chain optimization, and customer support. For instance, AI-driven demand forecasting can help optimize inventory levels, reducing the risk of stockouts or excess inventory, both of which can lead to increased costs.

Reliance Retail's AI Initiatives:

- **Jio Brain**
Reliance has developed Jio Brain, a comprehensive AI platform, to integrate AI across all its businesses, including retail.
- **Inventory Management**
AI is used to optimize inventory levels, ensuring the right products are available at the right time and reducing waste.
- **Demand Forecasting**
AI is used to predict future demand, allowing for better inventory planning and reducing the risk of overstocking or stockouts.
- **Supply Chain Optimization**
AI is used to optimize logistics and delivery, reducing delivery times and fuel consumption.
- **Customer Support**
AI-powered chatbots and sentiment analysis are used to provide better customer service and reduce operational costs.
- **Product Recommendations**
AI is used to personalize product recommendations, potentially increasing sales and customer satisfaction.

Research Methodology

- **Types of Research**
Descriptive and analytical research.
- **Types of Data**
For my research paper I used only secondary data to draw a conclusion. **secondary data sources:** - journals, published article, website, report, case study of Reliance retail.

Limitation of the Study

- This is study based on case study of Reliance retail.
- Conclusion drawn on the basis of second data.
- Research paper's results based on descriptive research.
- Study based on research question instead of formal hypothesis.

Findings

The study identified five key AI initiatives being implemented to enhance operational efficiency and reduce costs:

- **AI-Based Supply Chain Optimization**
Companies are utilizing AI tools to analyse sales and customer data in order to accurately forecast demand and optimize distribution. This initiative significantly reduces inventory holding costs and minimizes the risk of stockouts.
Effect of AI:- Reduced excess inventory by approx. 20-25% , Lowering caring costs.
- **Smart Inventory Systems**
AI-powered inventory systems monitor sales trends and seasonal demand to maintain optimal stock levels. This helps in minimizing overstocking, reducing wastage, and ultimately lowering operational costs.
Effect of AI:- Improved inventory turnover by 15-20% reducing warehousing expenses.
- **WhatsApp-Based Smart Bot (SBO)**
AI-driven chatbots integrated into messaging platforms provide multilingual, personalized communication. These bots enhance customer engagement and retention while reducing the cost of marketing and customer support communication.

Effect of AI: - Achieved 87% message read rate Increase in customer retention, 18.7% rise in monthly basket size.

- **Robotic Automation**

The adoption of robotics in logistics and warehousing automates repetitive tasks, improving operational efficiency. This significantly reduces labour costs and streamlines fulfilment processes.

Effect of AI :- Boosted operational efficiency by up to 30% cut manpower costs by an estimated 20%.

- **AI-Driven Customer Insights**

Machine learning algorithms are employed to analyse customer behaviour and preferences. These insights improve conversion rates and reduce the manpower required for customer service, leading to enhanced service quality at a lower cost.

Effect of AI:- Increased conversion rates by 10-15% reduced human support workload by 25-30%

Analyses from the Company's Data

Area	Effect	Improvement (%)
Customer Retention	Increases in Retention	51.30%
Shopping Frequency	Increases in Customer Visits	12.80%
Lapsed Customers	Reduction I Dropp-off	-65.80%
Monthly Basket Size	Increase in Customer spend	18.70%
Workforce Optimization	Reduction in workforce	-11%
Order Fulfilment Accuracy	Accuracy Improvement in DC Operation	99.99%

Conclusion

This study highlights the transformative role of Artificial Intelligence (AI) in modern business operations, particularly in reducing operating costs. AI initiatives such as supply chain optimization, smart inventory systems, robotic automation, and AI-powered customer engagement tools demonstrate measurable impacts on cost efficiency and resource optimization.

Through this research, it is evident that AI is not just a technological advancement but a strategic tool that companies can leverage to automate processes, enhance customer experiences, and make informed decisions. These capabilities ultimately lead to reduced labour costs, minimized inventory wastage, and improved operational performance.

Furthermore, the study deepens the understanding of AI as a multifaceted concept that offers numerous benefits—from boosting productivity to enhancing decision-making accuracy. As businesses continue to embrace digital transformation, the adoption of AI will be essential for sustaining competitiveness and achieving long-term cost efficiency.

Challenges

When a company uses artificial intelligence (AI) to reduce operating costs, it can face several challenges. These include:

- Implementing AI solutions often requires significant upfront costs for software, hardware, infrastructure, and skilled talent.
- There may be a shortage of employees with the technical expertise to develop, implement, and manage AI systems.
- AI systems need large amounts of high-quality data. Poor data can lead to inaccurate predictions and decisions.
- Employees may resist AI adoption due to fear of job loss, lack of understanding, or changes in work processes.
- Integrating AI tools with legacy systems can be complex and costly, and may require restructuring processes.

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