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ARTIFICIAL INTELLIGENCE IN IMPROVING THE ACCURACY AND EFFICIENCY OF FINANCIAL DATA ENTRY AND TRANSACTION PROCESSING

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ABSTRACT

Financial data entry and transaction processing are tasks in accounting, banking and financial management. Usually, people do these tasks by hand or with software systems. Doing it manually often causes mistakes, delays and problems especially when dealing with a lot of financial transactions.

With Artificial Intelligence getting organizations can now automate financial data entry and transaction processing. AI systems use methods, like machine learning, optical character recognition and automation to pull check and process financial data accurately.

This study looks at how Artificial Intelligence makes financial data entry and transaction processing more accurate and efficient. The research shows the advantages of AI in cutting down on mistakes speeding up data processing and helping make better financial decisions with financial data.

KEYWORDS: *Artificial Intelligence, Financial Data Entry, Transaction Processing, Machine Learning, Automation, Financial Technology.*

INTRODUCTION

In today's companies managing information is really important for making good decisions and keeping track of money. Every day companies deal with a lot of things like invoices, payments and receipts. It is very important to make sure this information is entered correctly so that the company's financial records are accurate.

The old way of doing financial data entry is to do it by hand or use computer programs. This takes a lot of time. People often make mistakes. If there are mistakes in the records it can lead to wrong reports problems with rules and money losses.

Artificial Intelligence is a way to make financial work better. Artificial Intelligence systems can automatically get information from invoices and financial papers. Technologies like machine learning and robotic process automation can do work faster and more correctly than the old way.

By using Artificial Intelligence in systems companies can do less manual work, process things more quickly and make sure their financial information is more reliable. So Artificial Intelligence is becoming an useful tool, in managing money and digital accounting systems for companies.

1. PROBLEM STATEMENT

Many organizations still depend on manual financial data entry and traditional transaction processing systems. These methods create several operational challenges, including:

- High risk of human errors in financial records
- Slow transaction processing
- High operational costs
- Difficulty handling large volumes of financial data

Financial transactions are often complex and involve multiple sources of data such as invoices, receipts, bank statements, and accounting records. Manual systems struggle to process this information efficiently.

Therefore, organizations require intelligent systems that can automatically capture, process, and validate financial data. Artificial Intelligence technologies provide solutions that improve both the accuracy and efficiency of financial transaction processing.

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2. RESEARCH OBJECTIVES AND QUESTIONS

2.1 Research Objectives

- To understand the role of Artificial Intelligence in financial data entry and transaction processing.
- To analyse the impact of AI automation on operational efficiency in financial processes.
- To identify the challenges involved in implementing AI-based financial systems.

2.2 Research Questions

RQ1: How does Artificial Intelligence improve the accuracy of financial data entry?
RQ2: What impact does AI automation have on transaction processing efficiency?
RQ3: What challenges do organizations face when implementing AI-based financial systems?

3. LITERATURE REVIEW

Financial data entry and transaction processing have long been dependent on manual systems and traditional accounting software. While these methods have supported financial operations for years, they are often associated with delays, human errors, and limitations in handling large and complex datasets. With the advancement of Artificial Intelligence, researchers have increasingly examined how intelligent systems can transform these traditional processes.

According to Bahoo et al. (2024), AI is playing a significant role in reshaping financial systems by enabling automation, improving analytical capabilities, and enhancing decision-making. Their study highlights that AI is not just a support tool but a strategic asset for modern financial management.

A major area of focus in the literature is the use of machine learning and deep learning for financial document processing. Li et al. (2023) demonstrated that deep learning models can extract invoice data with higher accuracy compared to conventional OCR systems. Similarly, Zhang et al. (2021) found that AI-based recognition systems significantly reduce processing time while maintaining high levels of accuracy. These findings suggest that AI can effectively handle unstructured financial data, which is a major limitation of traditional systems.

In addition to document processing, Robotic Process Automation (RPA) has emerged as an important tool in accounting and finance. Kokina and Blanchette (2019) provided early evidence that RPA can automate repetitive tasks such as data entry, invoice processing, and reconciliation. This reduces manual workload and allows employees to focus on more analytical and strategic activities. Supporting this view, Jędrzejka (2019) emphasized that RPA improves process efficiency and minimizes operational errors.

Another important theme in the literature is the role of AI in fraud detection and risk management. Fedyk et al. (2022) found that AI systems can detect unusual transaction patterns and identify potential fraud more effectively than traditional auditing techniques. Similarly, EY (2022) reported that AI-driven analytics enhance financial transparency and help organizations maintain better control over financial operations. KPMG (2021) also highlighted that AI can improve compliance and reduce financial risks by continuously monitoring transactions.

The integration of Natural Language Processing (NLP) in financial systems has also gained attention. NLP enables AI systems to understand and process textual data from invoices, contracts, and financial statements. Studies show that NLP improves the ability of AI systems to interpret complex financial documents and extract relevant information accurately, further enhancing automation in financial workflows.

Moreover, research has highlighted the importance of AI in improving operational efficiency and scalability. According to McKinsey & Company (2022), organizations that adopt AI in financial operations experience faster processing times, reduced operational costs, and improved scalability. AI systems can handle large volumes of transactions without compromising accuracy, making them suitable for modern high-volume financial environments.

Despite these advantages, several studies point out the challenges associated with AI adoption. Černevičienė and Kabašinskas (2024) identified issues such as high implementation costs, lack of quality data, and shortage of skilled professionals as major barriers. Additionally, concerns related to data security, system integration, and ethical considerations have also been discussed in the literature.

Furthermore, some researchers argue that while AI improves efficiency, it does not completely eliminate the need for human involvement. Instead, it changes the role of finance professionals from routine data entry to more analytical and decision-oriented tasks. This shift highlights the importance of upskilling employees to work effectively with AI systems.

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Overall, the existing literature clearly indicates that Artificial Intelligence has a strong potential to enhance the accuracy, efficiency, and reliability of financial data entry and transaction processing. However, the success of AI implementation depends on factors such as technological readiness, data quality, and organizational capability.

4. CONCEPTUAL FRAMEWORK

The conceptual framework for AI-enabled financial data entry consists of several key components that work together to improve financial transaction processing.

Key Components

- Financial Documents – Includes invoices, receipts, bank statements, and financial records.
- AI Data Extraction Tools – Technologies such as OCR and machine learning extract data automatically.
- Data Validation Algorithms – AI verifies data accuracy and detects inconsistencies.
- Transaction Processing System – AI integrates extracted data into accounting systems.
- Financial Reporting and Analysis – Processed financial data supports decision-making.

Components of AI-Based Financial Transaction Processing

Component	Operational Impact	Risk Involved	Management Focus
Financial Documents	Provides Input Data	Incomplete Records	Data Standardization
AI Extraction Tools	Automates Data Entry	System Errors	Technology Optimization
Data Validation	Improves Accuracy	Incorrect Algorithms	Continuous Monitoring
Transaction Processing	Speeds Financial Operations	Processing Errors	System Integration
Financial Reporting	Supports Decision Making	Data Inconsistency	Reporting Controls

5.RESEARCH METHODOLOGY

This study looks at how Artificial Intelligence's used in financial data entry and transaction processing.
It uses information from peoples work like academic papers, research articles and reports from the financial technology industry to see what Artificial Intelligence does in accounting and managing money.

The study looks at the way of doing financial data entry and compares it to the new way that uses Artificial Intelligence to see if it is more accurate, faster and better, at getting work done and how Artificial Intelligence affects these things in financial data entry and transaction processing.

6.DISCUSSION

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The study looks at the way of doing financial data entry and compares it to the new way that uses Artificial Intelligence to see if it is more accurate, faster and better, at getting work done and how Artificial Intelligence affects these things in financial data entry and transaction processing.

Comparative Impact of Traditional vs AI Financial Processing

Processing Method	Accuracy Level	Data Handling	Operational Impact
Manual Data Entry	Low	Small Datasets	Slow Processing
Traditional Software	Moderate	Structured Data	Moderate Efficiency
AI-Based Processing	High	Large & Complex Datasets	High Operational Efficiency

7. MANAGERIAL IMPLICATIONS

The use of Artificial Intelligence in operations is really helpful for managers and organizations.
Artificial Intelligence helps managers to do things automatically like putting invoices in the system and checking payments.
This means employees have time to think about big financial plans and look at numbers.
Managers should use Artificial Intelligence tools with the systems they already have for accounting and planning. This will help them have control, over money and work more efficiently. Organizations also need to teach employees about Artificial Intelligence and help them manage data so that Artificial Intelligence works well.

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8. LIMITATIONS AND FUTURE RESEARCH

Limitations

- The study relies mainly on conceptual analysis and secondary data.
- Empirical testing using real financial datasets is not included.
- Industry-specific case studies are limited.

Future Research Directions

- Empirical studies using real organizational financial data.
- Case studies on AI implementation in banking and accounting firms.
- Integration of AI with blockchain and digital finance technologies.

9.CONCLUSION

Artificial Intelligence is changing how data entry and transaction processing are done. It makes them more accurate and efficient. AI helps organizations automate tasks. This reduces mistakes made by people. Allows for quick processing of many financial transactions.

Organizations use machine learning and automation to improve reporting and performance. They also use data validation systems for this purpose.

Investing in AI technology. Experts can be costly. However, the benefits make it a good solution for managing finances today.
As digital changes keep happening Artificial Intelligence will become more important. It will help organizations make their financial processes more efficient and reliable. Artificial Intelligence will play a role, in financial systems. It will help build financial processes.

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