

## Review Article

# A Secondary Study on the Role of Generative AI in Enhancing GST Compliance Efficiency among MSMEs in Gujarat

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## A B S T R A C T

The introduction of the Goods and Services Tax (GST) in India aimed to simplify the indirect tax system and improve transparency. However, compliance with GST regulations remains a significant challenge for Micro, Small, and Medium Enterprises (MSMEs), particularly in regions such as Gujarat. This secondary research paper examines the potential of Generative Artificial Intelligence (AI) in enhancing GST compliance efficiency among MSMEs by analyzing existing literature, industry reports, and government publications.

The study identifies key challenges faced by MSMEs, including complex filing procedures, invoice mismatches, Input Tax Credit (ITC) reconciliation issues, and frequent regulatory updates. These challenges often result in increased compliance costs, errors, and operational inefficiencies. The paper explores how Generative AI, as an advanced form of artificial intelligence, can address these issues by automating tax-related processes, improving data accuracy, and providing real-time insights.

Through a comprehensive review of secondary data, the research highlights the capabilities of AI-driven tools in invoice processing, anomaly detection, tax classification, and compliance reporting. Additionally, the study evaluates the benefits of AI adoption, such as reduced manual workload, improved accuracy, faster filing processes, and enhanced decision-making capabilities.

However, the paper also identifies barriers to adoption, including high implementation costs, lack of digital awareness, and data security concerns among MSMEs. The findings suggest that while Generative AI has significant potential to transform GST compliance, its successful implementation requires supportive policies, affordable solutions, and increased technological awareness. This study contributes to the growing body of knowledge on AI-driven business transformation in the MSME sector.

**Keywords:** Generative AI, GST Compliance, MSMEs, Tax Automation, Artificial Intelligence in Taxation, Financial Efficiency, Digital Transformation.

## Introduction

### Background of GST in India

The Goods and Services Tax (GST), implemented in India in 2017, represents one of the most significant tax reforms aimed at unifying the country's indirect tax system. It replaced multiple taxes such as Value Added Tax (VAT), service tax, and excise duty with a single, destination-based tax structure.<sup>1</sup> The primary objective of GST is to simplify taxation, enhance transparency, and promote ease of doing business. By eliminating cascading taxes, GST contributes to improved efficiency in supply chains and better compliance mechanisms. However, despite these advantages, GST compliance remains complex due to multiple return filings, invoice reconciliation requirements, and frequent regulatory updates, especially for small businesses.<sup>2</sup>

### Importance of MSMEs

Micro, Small, and Medium Enterprises (MSMEs) play a vital role in India's economic development, contributing nearly 30% to the country's GDP and generating significant employment opportunities.<sup>3</sup> In Gujarat, MSMEs are particularly important due to the state's strong industrial base, including sectors such as textiles, chemicals, manufacturing, and services. These enterprises act as key drivers of regional economic growth and export performance. However, MSMEs often face challenges such as limited financial resources, lack of technological infrastructure, and dependency on manual processes. These constraints make it difficult for them to efficiently manage GST compliance, leading to higher operational costs and increased risk of errors.<sup>4</sup>

### Role of AI in Business

Artificial Intelligence (AI) has emerged as a powerful tool for transforming business operations by enabling automation, data analysis, and intelligent decision-making. AI technologies can process large volumes of data with high accuracy and speed, reducing human effort and operational inefficiencies. Generative AI, a more advanced form of AI, can generate reports, insights, and recommendations based on historical and real-time data. In the context of taxation, AI can automate processes such as invoice matching, tax calculation, and compliance reporting, thereby improving accuracy and reducing errors.<sup>5</sup> This makes AI a valuable solution for enhancing financial management and regulatory compliance.

### Research Gap

Although existing literature highlights the challenges of GST compliance and the growing role of AI in taxation, there is limited research focusing specifically on the application of Generative AI for MSMEs. Most studies emphasize large enterprises or general AI adoption, leaving a gap in

understanding how MSMEs, particularly in regions like Gujarat, can leverage Generative AI for GST compliance. Therefore, this study aims to address this gap by examining the potential of Generative AI in improving compliance efficiency among MSMEs.

### Problem Statement

The implementation of the Goods and Services Tax (GST) in India was intended to simplify the indirect tax system; however, it has introduced significant compliance complexities, particularly for Micro, Small, and Medium Enterprises (MSMEs). Businesses are required to manage multiple return filings, invoice matching, and Input Tax Credit (ITC) reconciliation, which increases administrative burden.<sup>1</sup> Due to limited technological capabilities, many MSMEs rely on manual processes for data entry and tax calculations, making them highly prone to human errors, such as incorrect tax classification and invoice mismatches.<sup>2</sup>

These inefficiencies not only lead to compliance delays but also increase operational costs, as businesses often depend on external accountants or consultants. Additionally, frequent regulatory updates further complicate compliance management, creating uncertainty and inefficiency in business operations.<sup>3</sup>

Given these challenges, there is a growing need for advanced technological solutions. Artificial Intelligence (AI), particularly Generative AI, offers the potential to automate tax processes, reduce errors, and improve compliance efficiency. However, its adoption among MSMEs remains limited, highlighting the need to explore AI-based solutions for effective GST compliance.

### Objectives of the Study

The primary objective of this study is to examine the potential of Generative Artificial Intelligence (AI) in enhancing GST compliance efficiency among Micro, Small, and Medium Enterprises (MSMEs) in Gujarat. To achieve this, the study focuses on the following specific objectives:

- To identify the key challenges faced by MSMEs in complying with GST regulations, including issues related to filing, reconciliation, and tax classification.
- To analyze the current level of awareness and adoption of AI-based tools for tax and financial management among MSMEs.
- To evaluate the role of Generative AI in improving the accuracy, efficiency, and cost-effectiveness of GST compliance processes.
- To examine the potential benefits of AI-driven automation in reducing manual errors and administrative workload.
- To identify the major barriers and opportunities associated with the adoption of AI technologies for GST compliance.

## Literature Review

### GST Compliance Challenges

The implementation of the Goods and Services Tax (GST) in India has significantly restructured the indirect taxation system; however, it has also introduced several compliance challenges, particularly for Micro, Small, and Medium Enterprises (MSMEs). One of the primary issues is the complexity of GST return filing, which requires businesses to submit multiple returns within strict deadlines. MSMEs often struggle with understanding filing procedures and maintaining accurate documentation, leading to delays and penalties.<sup>1</sup>

Another major challenge is invoice matching and reconciliation. Under GST, businesses must ensure that their purchase and sales invoices match with those of their suppliers to claim Input Tax Credit (ITC). Errors such as mismatched invoices, incorrect GSTIN entries, or missing data can result in denial of ITC, thereby increasing the financial burden on businesses.<sup>2</sup>

Additionally, frequent changes in GST rules and tax rates create uncertainty for MSMEs, making it difficult for them to stay updated and compliant. Many small businesses rely on manual accounting systems, which further increases the likelihood of errors and inefficiencies. Studies indicate that a large proportion of MSMEs face difficulties in managing GST compliance due to limited technological infrastructure and lack of expertise.<sup>3</sup>

### Automation in Taxation

To address the challenges of GST compliance, automation tools have been increasingly adopted in taxation processes. Basic automation systems, such as accounting software and GST return filing platforms, help businesses streamline tax-related activities. These tools can automatically generate invoices, calculate tax liabilities, and prepare returns, reducing the need for manual intervention (Suvit, 2025).

Automation also improves accuracy by minimizing human errors in data entry and calculations. For instance, GST software can automatically reconcile invoices and track Input Tax Credit, ensuring compliance with regulatory requirements. Additionally, automated systems provide reminders for filing deadlines and generate reports for financial analysis.

However, traditional automation tools have limitations as they primarily focus on rule-based processes and lack advanced analytical capabilities. They are unable to provide predictive insights or adapt to complex scenarios, highlighting the need for more intelligent solutions such as Artificial Intelligence (EY, 2025).

### AI in Tax Compliance

Artificial Intelligence (AI) has emerged as a transformative technology in tax compliance by enhancing the capabilities of traditional automation systems. AI-powered tools can

analyze large volumes of financial data, identify patterns, and detect anomalies in real time. This enables businesses to identify discrepancies in invoices, prevent fraud, and ensure accurate tax filings (EY, 2025).

One of the key applications of AI in GST compliance is automated invoice processing and reconciliation. AI systems can match invoices across multiple datasets, reducing the risk of errors and improving efficiency. Additionally, AI can assist in tax classification by automatically determining applicable tax rates based on transaction data.

AI-driven systems also provide predictive analytics, allowing businesses to anticipate compliance risks and take proactive measures. For example, AI can identify unusual transaction patterns that may indicate errors or fraudulent activities. Furthermore, AI tools can track regulatory changes and provide real-time updates, helping businesses remain compliant with evolving tax laws (ClearTax, 2026).

Despite these advantages, the adoption of AI in tax compliance among MSMEs remains limited due to factors such as high implementation costs, lack of awareness, and concerns regarding data security.

### Generative AI in Finance

Generative AI represents an advanced stage of artificial intelligence that goes beyond traditional data analysis by generating insights, reports, and recommendations. In the field of finance and taxation, Generative AI can automate the creation of compliance reports, interpret complex tax regulations, and provide actionable recommendations based on financial data (World Economic Forum, 2025).

One of the key benefits of Generative AI is its ability to process both structured and unstructured data, enabling businesses to gain deeper insights into their financial performance. For example, Generative AI can generate detailed GST reports, summarize compliance status, and highlight potential risks.

Additionally, Generative AI can support decision-making by providing predictive insights and scenario analysis. It can help businesses forecast tax liabilities, optimize financial planning, and improve overall compliance strategies. These capabilities make Generative AI a powerful tool for enhancing efficiency and accuracy in financial management.

### Research Gap Summary

While existing literature highlights the challenges of GST compliance and the benefits of automation and AI in taxation, there is limited research focusing specifically on the application of Generative AI for MSMEs. Most studies emphasize large enterprises or general AI adoption, leaving a gap in understanding how MSMEs, particularly in regions like Gujarat, can effectively leverage Generative AI for GST compliance. Therefore, further research is needed

to explore practical implementation strategies and assess the impact of Generative AI on compliance efficiency in the MSME sector.

## Research Methodology

### Research Design

This study adopts a secondary research design to examine the role of Generative Artificial Intelligence (AI) in enhancing GST compliance efficiency among Micro, Small, and Medium Enterprises (MSMEs). Secondary research is appropriate for this study as it allows the analysis of existing literature, industry insights, and documented evidence without conducting primary data collection. The approach enables a comprehensive understanding of GST compliance challenges and the potential of AI-based solutions by synthesizing information from multiple credible sources.

### Data Sources

The study is based entirely on secondary data collected from reliable and relevant sources. These include academic journals, government reports, industry publications, and online databases. Key sources such as reports from the Ministry of MSME, World Economic Forum, EY, and ClearTax have been used to understand GST compliance issues and the application of AI in taxation. Additionally, articles from financial and technological websites have been reviewed to gain insights into recent developments in Generative AI and its business applications. The use of diverse sources ensures the credibility and depth of the research.

### Data Analysis Method

The study employs thematic analysis and comparative analysis to interpret the collected data. Thematic analysis is used to identify key themes such as GST compliance challenges, automation in taxation, and the role of AI in improving efficiency. These themes are derived from patterns observed across multiple sources. Comparative analysis is used to evaluate the differences between traditional manual compliance methods and AI-driven approaches. This helps in understanding the effectiveness of Generative AI in reducing errors, improving accuracy, and enhancing compliance efficiency.

### Limitations

Despite its strengths, the study has certain limitations. Since it is based solely on secondary data, it does not include primary insights from MSME owners or practitioners. The findings are dependent on the accuracy and relevance of existing literature, which may vary across sources. Additionally, the study does not provide empirical validation of AI implementation in real-world MSME settings. Therefore, future research involving primary data collection is recommended to validate and extend the findings.

## Findings & Discussion

### Key GST Challenges Identified

The analysis of existing literature reveals that GST compliance remains a significant challenge for MSMEs, particularly due to its procedural complexity and frequent regulatory changes. One of the major issues identified is the complexity of return filing, which requires businesses to submit multiple returns within strict deadlines. Many MSMEs lack the expertise and technological infrastructure to manage such requirements efficiently, leading to delays and penalties.

Another critical challenge is invoice matching and reconciliation, which is essential for claiming Input Tax Credit (ITC). Errors such as mismatched invoices, incorrect GSTIN entries, or missing transaction details often result in denial of ITC, increasing the financial burden on businesses. Additionally, manual data entry processes increase the likelihood of human errors, further complicating compliance.

Frequent updates in GST rules and tax rates also create uncertainty, making it difficult for MSMEs to stay compliant. Many small businesses rely on external accountants, which increases operational costs. Overall, these challenges highlight inefficiencies in the current compliance system and emphasize the need for technological solutions to improve accuracy and reduce administrative burden.

### Role of Generative AI

Generative Artificial Intelligence (AI) plays a transformative role in addressing GST compliance challenges by introducing automation, improving accuracy, and enabling real-time insights. One of the most significant contributions of Generative AI is automation. AI-powered systems can automate repetitive tasks such as invoice processing, data extraction, and GST return preparation. This reduces manual intervention and minimizes the chances of errors associated with human data entry.

In terms of accuracy, Generative AI enhances the reliability of compliance processes by analyzing large volumes of financial data and identifying inconsistencies. AI systems can automatically match invoices, validate GSTIN numbers, and classify transactions based on applicable tax rates. This ensures that businesses file accurate returns and reduces the risk of penalties.

Another important feature of Generative AI is its ability to provide real-time insights. AI-driven tools can monitor transactions continuously and generate alerts for potential compliance issues. For example, businesses can receive notifications about mismatched invoices, upcoming filing deadlines, or changes in tax regulations. These insights enable proactive decision-making and help businesses maintain compliance more effectively.

Furthermore, Generative AI can generate detailed reports and summaries, allowing financial managers to understand compliance status and identify risks quickly. By integrating AI into GST systems, MSMEs can shift from reactive compliance practices to proactive compliance management, significantly improving operational efficiency.

### Benefits of AI Adoption

The adoption of AI in GST compliance offers several key benefits for MSMEs. One of the primary advantages is cost reduction. By automating routine tasks such as data entry, reconciliation, and report generation, businesses can reduce their dependency on external accountants and consultants. This leads to lower compliance costs and improved financial management.

Another major benefit is improved efficiency. AI-powered systems can process large volumes of data quickly and accurately, enabling faster GST return filing and reducing delays. Automation also minimizes errors, which reduces the likelihood of penalties and rework.

Additionally, AI enhances decision-making by providing real-time insights and predictive analytics. Businesses can identify potential risks early and take corrective actions, improving overall compliance performance. The integration of AI also allows MSMEs to focus more on strategic activities rather than routine administrative tasks, thereby enhancing productivity and competitiveness.

### Barriers to Adoption

Despite its numerous advantages, the adoption of AI in GST compliance among MSMEs faces several challenges. One of the major barriers is the high cost of implementing AI-based solutions. Many MSMEs operate with limited financial resources, making it difficult for them to invest in advanced technologies.

Another significant barrier is the lack of awareness and digital literacy. Many small business owners are not familiar with AI technologies or their potential benefits, leading to resistance to adoption. Additionally, the absence of training and technical support further limits the effective use of AI tools.

Data security and privacy concerns also act as a barrier. MSMEs may be hesitant to adopt AI systems due to fears of data breaches or misuse of sensitive financial information. Trust in technology and regulatory frameworks plays a crucial role in addressing these concerns.

Overall, while AI offers substantial benefits, overcoming these barriers requires supportive government policies, affordable solutions, and increased awareness among MSMEs.

## Implications

### Managerial Implications

The findings of this study provide important insights for MSME owners, managers, and financial professionals. The adoption of Generative AI can significantly improve GST compliance by reducing manual workload and minimizing errors in tax-related processes. By automating tasks such as invoice reconciliation, tax calculation, and return filing, managers can ensure greater accuracy and timeliness in compliance activities. This allows them to shift their focus from routine administrative work to more strategic decision-making. Additionally, AI-driven insights can help managers identify potential compliance risks and take proactive measures, thereby improving overall financial management and operational efficiency.

### Policy Implications

From a policy perspective, the study highlights the need for government intervention to promote AI adoption among MSMEs. Policymakers should focus on developing supportive frameworks that encourage digital transformation in taxation systems. This can include providing financial incentives, subsidies, or tax benefits for MSMEs adopting AI-based compliance solutions. Furthermore, government agencies can introduce training programs and awareness campaigns to enhance digital literacy and educate business owners about the benefits of AI in GST compliance. Strengthening data security regulations and building trust in digital platforms will also be essential to address concerns related to privacy and cybersecurity. Such initiatives can help create an enabling environment for the widespread adoption of AI technologies.

### Strategic Implications

At a strategic level, the integration of Generative AI into GST compliance systems can enhance the long-term competitiveness of MSMEs. Businesses that adopt AI-driven solutions can achieve greater efficiency, reduce operational costs, and respond more effectively to regulatory changes. AI enables real-time monitoring and predictive analysis, allowing firms to make informed financial decisions and improve overall performance. Moreover, the adoption of advanced technologies positions MSMEs to integrate with broader digital ecosystems, such as e-invoicing platforms and financial analytics tools. As competition increases in the digital economy, leveraging AI will become a key factor in achieving sustainable growth and maintaining a competitive advantage.

## Conclusion

This study examined the role of Generative Artificial Intelligence (AI) in enhancing GST compliance efficiency

among Micro, Small, and Medium Enterprises (MSMEs), particularly in the context of Gujarat. The findings highlight that GST compliance remains a complex and resource-intensive process for MSMEs due to multiple return filings, invoice reconciliation challenges, and frequent regulatory changes. These issues often lead to manual errors, increased costs, and operational inefficiencies.

The study further demonstrates that Generative AI has the potential to transform GST compliance by automating repetitive tasks, improving accuracy in tax calculations, and providing real-time insights for better decision-making. AI-driven systems can significantly reduce human intervention, minimize errors, and enable proactive compliance management. As a result, MSMEs can achieve greater efficiency and focus on strategic business activities.

However, the research also identifies key barriers to AI adoption, including high implementation costs, lack of awareness, and concerns related to data security. Addressing these challenges is essential for ensuring the effective integration of AI technologies into MSME operations.

In conclusion, Generative AI presents a promising solution for improving GST compliance efficiency, but its success depends on supportive policies, affordable technological solutions, and increased digital literacy among MSMEs. Future research can focus on empirical studies involving primary data to evaluate the real-world impact of AI adoption and develop practical frameworks for its implementation in small business environments.

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