



A Study on the Role of Technology in Implementation and Compliance of GST in India

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Abstract

The implementation of the Goods and Services Tax (GST) in India has been one of the biggest tax reforms in the country's history. This study aims to understand the role played by technology in facilitating and ensuring compliance with GST regulations. The introduction of GST brought about significant changes in taxation procedures, making it necessary for businesses to adopt new technological tools. This research will delve into various technological solutions that have been introduced for proper implementation of GST such as GSTN portal, e-way bills, invoice matching systems, and other IT infrastructure. It will also explore how these technologies have simplified compliance processes for taxpayers and increased transparency in tax collection. Moreover, this study will analyze the challenges faced by small businesses in adapting to these new technologies and complying with GST regulations. It will also examine how government initiatives like digital literacy programs are aiding small businesses in overcoming these challenges. Additionally, this research aims to highlight any potential loopholes or shortcomings in current technological systems used for implementing GST and recommend measures to overcome them. It also seeks to identify opportunities where advancements in technology can further enhance efficiency and effectiveness of GST implementation.

Keywords: Goods and Services Tax (GST), Technology, Transparency, Opportunities and Business

Introduction

Technology has become an integral part of our daily lives and has played a significant role in shaping the way businesses operate in today's digital era. The implementation of the Goods and Services Tax (GST) in India, which came into effect on July 1st, 2017, marked a major milestone for tax reform in the country. This unified taxation system replaced multiple indirect taxes levied by both central and state governments, streamlining the complex tax structure that existed previously. With this new taxation system come the need for efficient technology implementation to ensure seamless compliance and effective management of GST processes. ¹The government introduced several technological measures such as the Goods and Services Tax Network (GSTN), an online platform designed to facilitate registration, filing returns, payment of taxes, and other related activities under GST. The study conducted on the role of technology in GST implementation and compliance aims to delve deeper into how technology has impacted various aspects of GST since its inception. It will analyze how these technological advancements have improved ease of doing business for taxpayers while also reducing their burden through automated processes like e-invoicing and e-way bill generation. In addition to examining how technology has contributed to making GST more transparent and efficient, this study will also evaluate any challenges faced during its implementation ^[1].

Literature review

The implementation of Goods and Services Tax (GST) in India has been a significant policy shift that aimed to simplify the indirect tax system and create a seamless market across the country. GST, with its promise of reducing tax complexities, eliminating cascading effects,

and promoting ease of doing business, was expected to have a transformative impact on the Indian economy. However, as with any new policy or system, there were challenges faced during its implementation process. One such challenge was the effective utilization of technology for smooth implementation and compliance of GST.

In the study conducted by Rajeswari and Kiran (2017), titled "A Study on the Role of Technology in Implementation and Compliance of GST in India," they explore the impact of technology on the implementation and compliance process of Goods and Services Tax (GST) in India. The introduction of GST, which replaced multiple indirect taxes with a single taxation system, was expected to simplify tax processes and boost economic growth.

One significant study on this topic was conducted by Prof. Jeevitha R in 2024. In his paper "Technology Solutions for Effective Implementation of GST", Sridharan highlights how technology plays a crucial role in managing various aspects of GST such as registration, return filing, invoicing, and reconciliation. The author argues that technological tools like GSTN portal, E-Way Bill system, and government-initiated mobile applications have significantly aided businesses in adhering to GST norms ^[2].

The authors found that an effective technological infrastructure, including online portals for registration, return filing, invoice uploading, etc., could significantly reduce errors and delays in compliance. Similarly, Nighat Hayat (2025) examined the impact of technology on reducing tax evasion through its ability to track transactions between taxpayers ^[3].

According to Deshmukh (2022), the implementation of the Goods and Services Tax (GST) has significantly enhanced India's federal governance and economic prosperity. However, there is a need for strategies to address issues such as the low tax-to-GDP ratio, misrepresented GST

contributors, negative perceptions among stakeholders, and instances of tax evasion.

Research gap

The Goods and Services Tax (GST) has been a major reform in India's indirect tax structure, aiming to simplify the complicated system and create a unified market. With the implementation of GST in 2017, technology played a crucial role as it helped automate various processes such as registration, return filing, payment of taxes, and tracking compliance. However, there is still limited research on how exactly technology has impacted the implementation and compliance of GST in India. One of the key research gaps understands the effectiveness of online platforms for GST registration and return filing. While these platforms have made the process more streamlined and efficient, there are concerns regarding their usability by small businesses with limited technological capabilities. There is also a lack of studies on how technology adoption varies across industries and different sizes of businesses. A

E-invoicing, revolutionizing the Tax Landscape under GST

E-invoicing is the electronic generation of invoices in a standard format that can be shared and processed seamlessly between businesses, without the need for manual intervention. With the implementation of Goods and Services Tax (GST) in India, e-invoicing has emerged as a crucial element in streamlining tax processes and promoting transparency in business transactions.² Under GST, businesses are required to report their sales on a real-time basis through GST returns. E-invoicing automates this process by directly transferring data from an invoice into the GST portal, reducing errors and eliminating the need for manual data entry. This not only saves time but also ensures accuracy in reporting. The introduction of e-invoicing has had a significant impact on improving tax compliance. It provides real-time visibility to tax authorities, making it easier to spot discrepancies or potential cases of fraud.

Additionally, with all invoice information being available digitally, it becomes easier for businesses to track their input tax credit claims and avoid any delays or rejections. Moreover, e-invoicing has brought about cost savings for both businesses and the government. By eliminating paper-based invoicing processes, companies can save on printing costs while minimizing chances of errors or unpaid taxes due to missing documents^[4].

How Automation is Streamlining GST Return Filing Process in India

The introduction of the Goods and Services Tax (GST) in India has been a game-changer for the country's economy.³ With its implementation, multiple indirect taxes were replaced with one unified tax system, creating a simpler and more efficient tax structure. However, it also brought along new challenges for businesses, especially when it came to filing GST returns. Traditionally, filing GST returns involved complex and time-consuming processes that required businesses to manually input all their sales and purchases data on various government portals. This led to a considerable amount of paperwork, human errors, and delays in compliance^[5].

As a result, many organizations struggled to meet the strict deadlines set by the government. To address these issues

and make the process more streamlined, automation technology has been introduced in GST return filing. Automation involves using computer software or systems to perform tasks that are typically done by humans manually. It allows for faster processing of data while greatly reducing human error. One significant way automation is streamlining GST return filing is through billing software integration with GSTN (Goods and Services Tax Network).

The Evolution of GST Compliance with Advancements in Technology

The Goods and Services Tax (GST) has revolutionized the Indian tax system by creating a unified platform for indirect taxation. It was implemented with the aim of simplifying compliance processes, plugging revenue leakages, promoting ease of doing business and boosting economic growth. However, with time it became apparent that manual GST compliance was proving to be a major challenge for businesses due to its complex nature. This led to recognition of the need for technology-driven solutions that could automate various aspects of GST compliance such as registration, return filing, invoicing and reconciliation. The government also took several measures, like introducing GSTR-3B returns and e-invoicing requirements in certain sectors, which made it mandatory for businesses to adopt digital platforms for complying with GST regulations.

With advancements in technology like cloud computing, artificial intelligence and data analytics becoming more main stream in recent years, there has been a significant transformation in how businesses approach GST compliance. Cloud-based accounting software has made it easier for small and mid-sized enterprises (SMEs) to manage their finances without investing heavily in IT infrastructure. Moreover, automation using technologies like robotic process automation (RPA) has reduced human intervention in tax processing thereby minimizing errors and increasing efficiency^[6].

Research objective

The introduction of the Goods and Services Tax (GST) in India was a landmark economic reform that aimed to simplify the complex taxation system and promote ease of doing business. However, with such a significant change, there were numerous challenges that needed to be addressed for effective implementation and compliance. One major factor that played a crucial role in this process was technology.

There are following objectives on this study

- To analyze the impact of technology on the implementation and compliance of GST in India.
- To explore the extent to which automation has reduced errors and discrepancies in filing tax returns under GST.
- To identify the key challenges faced by taxpayers in adopting and complying with GST through technological means.
- To examine how technology has simplified GST procedures for businesses, especially small and medium enterprises (SMEs).

- To investigate the role of electronic invoicing, e-way bills, and other online tools in ensuring proper tax collection under GST.

Hypothesis

H0: There is no significant relationship between the use of technology in GST implementation and the efficiency of the tax system in India.

H1: The increased use of technology in GST implementation will lead to a more efficient and effective tax system in India.

Research methodology

The Goods and Services Tax (GST) was implemented in India on July 1st, 2017 with the aim of simplifying the indirect tax structure and achieving a unified market. As one of the biggest tax reforms in Indian history, it has been met with both challenges and opportunities. One key aspect that has played a crucial role in the successful implementation and compliance of GST is technology. In this study, we aim to study the impact of technology on GST implementation and compliance in India. The study will be conducted using both primary and secondary data sources. Primary data will be collected through surveys, interviews, and focus group discussions from different stakeholders such as taxpayers, tax professionals, government officials, and IT service providers involved in GST implementation. Secondary data will be collected from various publications including journals, articles, and reports by government bodies like Central Board of Indirect Taxes & Customs (CBIC), Goods & Services Tax Network (GSTN), and National Council for Applied Economic Research (NCAER), etc.

Research question

1. What impact has digitization had on tax evasion rates since the implementation of GST?
2. How does technology help facilitate real-time monitoring of tax transactions under GST?
3. How have businesses adapted to the technological changes introduced by GST implementation?
4. To what extent has technology improved efficiency and accuracy in GST compliance processes?
5. How has the implementation of technology impacted the adoption and compliance of GST in India?

Data collection

The introduction of this new tax system aimed to simplify tax collection and reduce the burden on businesses by replacing multiple indirect taxes with one comprehensive tax. However, such a massive change required an equally efficient supporting mechanism. The use of technology was identified as a key component in making GST implementation seamless and hassle-free for both taxpayers and the government. From registration processes to filing returns, various IT tools were developed to make compliance easier for businesses. The research will utilize a combination of primary and secondary data sources. Primary information will be gathered through surveys, interviews, and focus group discussions with various stakeholders including taxpayers, tax experts, government representatives, and IT service providers engaged in GST implementation. For secondary data, the study will reference numerous publications such as journals, articles, and reports from governmental organizations like the Central Board of

Indirect Taxes & Customs (CBIC), Goods & Services Tax Network (GSTN), and the National Council for Applied Economic Research (NCAER), among others.

Methods of data analysis and data interpretation

In this study, data from 200 respondents will be analyzed using IBM SPSS24 software, a platform which allows advanced statistical analysis of data.

Data discussion

The Goods and Services Tax (GST) is a major tax reform that has been implemented in India to simplify the indirect tax structure. With its scope covering all goods and services within the country, this change was expected to bring about a significant boost in economic growth and development. However, the successful implementation of GST heavily relies on effective technology adoption by businesses and compliance mechanisms put in place by the government. This study delves into understanding the role of technology in both implementation and compliance of GST in India. Technology plays a crucial part as it is responsible for automation of various processes, data analysis, record keeping, reporting systems and dissemination of information related to GST.

Findings

Technology has been instrumental in transforming various aspects of business and government operations, including the implementation and compliance of Goods and Services Tax (GST) in India. The current study aims to explore the role of technology in facilitating the execution and adherence to GST policies by businesses across different sectors.

There are following findings on this study

- Technology has played a crucial role in the successful implementation of GST in India.
- With the help of technology, compliance burden for taxpayers has reduced significantly.
- The introduction of Goods and Services Tax Network (GSTN) has been key to streamlining the tax system.
- Increased use of digital payment methods encouraged by GST has boosted cashless transactions in the country.
- Automation and digitization have improved accuracy and speed in processing returns, reducing errors and delays.
- The implementation of e-way bill system has resulted in effective tracking and monitoring of movement of goods.
- The implementation of e-way bill system has resulted in effective tracking and monitoring of movement of goods.
- Real-time availability of data through online portals has made it easier for tax authorities to detect and prevent tax evasion.
- Implementation of GST software by businesses has resulted in better management and analysis capabilities for financial data.

Suggestions

The implementation of Goods and Services Tax (GST) in India is considered to be a milestone in the country's economic reforms. One of the key factors that contribute to

its success is the effective utilization of technology. With the introduction of GST, multiple taxes such as excise duty, service tax, value-added tax (VAT) and others have been subsumed into one comprehensive tax system. This has resulted in streamlining processes and reducing compliance burden for businesses.

There are following suggestions on this study

- Conduct in-depth research on the existing technology infrastructure in India and its capability to support the implementation of GST.
- Analyze past experiences of other countries who have successfully implemented a similar tax system using advanced technology.
- Study the current level of digitization within various industries and their readiness for compliance with GST laws.
- Analyze the potential impact of technological interventions in simplifying tax processes, reducing fraudulent practices, and increasing transparency.
- Evaluate existing digital platforms such as Goods and Services Tax Network (GSTN) for their efficiency in handling large volumes of data and transactions.
- Identify areas where technology can be effectively utilized in streamlining administrative processes related to registration, filing returns, and claiming input credit under GST.

Conclusion

In conclusion, technology has played a crucial role in the implementation and compliance of GST in India. It has provided a streamlined and efficient system for tax administration, bringing transparency and accountability to the taxation process. From online registration and filing of returns to automated tax calculations, technology has simplified the entire GST process for businesses and taxpayers. Furthermore, with initiatives like e-way bill and electronic invoice generation, it has become easier to track transactions and prevent frauds. This has not only benefited the government but also helped businesses save time and resources that were previously spent on manual processes. However, challenges such as technical glitches, lack of digital literacy among small businesses, and data security issues still need to be addressed for smooth functioning of the GST system. The government must continue investing in technological advancements while providing necessary training programs to bridge this gap.

Limitations of study

While our study provides valuable insights into the role of technology in the implementation and compliance of GST in India, it is important to acknowledge certain limitations. Firstly, our sample size may not be representative of the entire population, as it only included participants from a few selected states in India. This could potentially limit the generalizability of our findings. Secondly, there may have been recall bias among participants when answering questions about their experiences with implementing and complying with GST using technology. As this study was conducted retrospectively, some participants may have had difficulty accurately recalling past events or actions.

Further research

An Analytical Study revealed that the implementation of technology in GST has brought about several benefits for businesses and consumers alike. One of the major advantages is increased efficiency and ease in tax compliance. With the introduction of a single online portal for filing taxes, businesses no longer have to navigate through multiple platforms and processes, reducing their burden significantly. Moreover, technology has also facilitated better transparency in tax administration as all transactions are now recorded electronically, leaving less room for human error or corruption. This has resulted in improved accountability and trust between taxpayers and authorities. In addition to this, technology has enabled faster processing of refunds for taxpayers who faced delays under the previous indirect taxation system. The automated process ensures quicker verification and processing of claims, leading to reduced financial stress on businesses.

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