

**Two-Day National Conference on
"GST Reforms: Challenges, Opportunities, and Socio-Economic Effects in Telangana State"
on 09th & 10th June 2026**



CMR TECHNICAL CAMPUS

Department of MBA

UGC Autonomous, Approved by AICTE, New Delhi & JNTU Hyderabad

Kandlakoya (V), Medchal, Hyderabad – 501401



Impact of GST on Operational Efficiency of the Firms in India

Dr. S Nayamath Basha, Associate Professor, Department of MBA, CMRTC, Hyderabad

ABSTRACT

The implementation of the Goods and Services Tax (GST) in India on 1 July 2017 brought significant structural and technological changes in the country's business environment. GST introduced a unified indirect tax system supported by digital compliance mechanisms such as online return filing, e-way bills, automated tax reconciliation, and Input Tax Credit (ITC) matching systems. These reforms substantially influenced the operational efficiency of firms across manufacturing, trading, logistics, and service sectors. The present study examines the impact of GST on operational efficiency of firms in India by focusing on major operational variables including reconciliation time, logistics turnaround time, compliance cost trends, and ITC utilization efficiency. Reconciliation time refers to the duration required for matching invoices and tax records; logistics turnaround time indicates the speed of transportation and movement of goods; compliance cost trends represent the expenses incurred for tax compliance and digital systems; and ITC utilization efficiency measures the effectiveness of claiming input tax credits against tax liabilities. The study is descriptive and analytical in nature and is based on secondary data collected from government reports, GSTN publications, Ministry of Finance statistics, and authentic research studies. The study finds that GST significantly improved digital compliance, reduced operational delays, accelerated logistics movement, enhanced transparency, and improved tax credit utilization among firms. The findings further indicate that GST-driven digital systems contributed toward modernization and operational coordination in Indian businesses. The study concludes that GST has emerged as an important catalyst for improving operational efficiency and promoting digital business transformation in India.

KEYWORDS: GST, Operational Efficiency, Reconciliation Time, Logistics Efficiency, ITC Utilization

INTRODUCTION

The Goods and Services Tax (GST), implemented in India is one of the most significant indirect tax reforms introduced to create a unified national market and simplify the taxation system. GST replaced multiple indirect taxes such as VAT, service tax, excise duty, and entry tax with a single tax structure. Apart from tax simplification, GST transformed India's business environment through technology-driven compliance systems and digital tax administration. Before GST implementation, firms faced operational difficulties such as complex tax procedures, multiple state-level taxes, transportation delays, manual documentation, and inefficient tax credit systems. Interstate movement of goods was affected by checkpoints and lengthy verification procedures, resulting in increased logistics costs and operational inefficiencies. GST addressed these issues through the introduction of online registration, e-way bills, automated return filing, digital invoice

matching, and centralized compliance systems through the GST Network (GSTN). Operational efficiency under GST refers to improvements in business processes, reduction in delays, better compliance management, and enhanced coordination in logistics and financial operations. The present study focuses on four major variables that measure operational efficiency under GST.

- **Reconciliation Time** refers to the time required to match invoices, tax payments, and GST return records with GSTN data. Reduced reconciliation time indicates faster compliance processing and improved operational management.
- **Logistics Turnaround Time** refers to the total time taken for transportation and movement of goods, including verification and clearance procedures. Lower turnaround time reflects improved supply chain efficiency under GST.
- **Compliance Cost Trends** refer to expenses incurred by firms for GST-related activities such as return filing, accounting software, consultancy services, and digital compliance systems. Reduction in compliance costs indicates improved efficiency and automation.
- **ITC Utilization (Input Tax Credit Utilization)** refers to the efficiency with which firms claim and utilize tax credits against tax liabilities. Efficient ITC utilization improves working capital management and financial efficiency.

Thus, GST significantly contributed toward digitalization, operational modernization, and improved efficiency among firms in India.

NEED FOR THE STUDY

The implementation of GST significantly transformed the operational and compliance systems of firms in India by introducing technology-driven mechanisms such as e-way bills, online return filing, digital reconciliation, and automated Input Tax Credit systems. These reforms influenced logistics management, compliance efficiency, and financial operations across various sectors. Studying the impact of GST on operational efficiency is important because it helps in understanding how digital tax systems improved business performance and reduced operational delays. The study is also useful in evaluating the effectiveness of reconciliation systems, logistics efficiency, compliance cost reduction, and ITC utilization among firms under the GST regime.

STATEMENT OF THE PROBLEM

Before the implementation of GST, businesses in India faced operational difficulties due to multiple indirect taxes, complex documentation procedures, transportation delays, and inefficient tax credit systems. These issues increased compliance burden, logistics costs, and administrative inefficiencies among firms. Although GST introduced a unified digital compliance framework aimed at improving operational efficiency, many firms—particularly MSMEs—experienced challenges relating to digital adaptation, software costs, and compliance complexity. Therefore, it becomes necessary to analyse whether GST actually improved operational efficiency among firms by reducing reconciliation time, improving logistics movement, lowering compliance costs, and enhancing ITC utilization efficiency in India.

REVIEW OF LITERATURE

The implementation of the Goods and Services Tax (GST) in India has generated substantial academic interest due to its transformative impact on operational efficiency, logistics performance, compliance systems, and digital business processes. Researchers have widely analysed how GST has reduced interstate trade barriers, improved supply chain coordination, strengthened Input Tax Credit (ITC) mechanisms, and promoted digital adoption among firms. The literature consistently highlights that GST has acted as a catalyst for operational modernization and technology-driven governance in India.

Lingam Sampath et al., (2025) found that GST significantly improved logistics operations by streamlining tax structures, reducing cascading taxation effects, and enhancing interstate movement of goods. The study further emphasized that warehouse consolidation, route optimization, and digital logistics tracking systems improved operational coordination and reduced administrative bottlenecks in supply chains. (Lingam Sampath et al., 2025). **Nagashree, Sheethal B.R., Angadi P.G., and Behera R. (2025)** observed that GST implementation reduced operational inefficiencies in logistics firms and improved cost management. Their study highlighted that elimination of multiple state-level taxes reduced delays, improved transport scheduling, and enhanced overall logistics efficiency across supply chain networks. (Nagashree et al., 2025). **Kaliselvi, K., Thangamayan, S., and Lavaraju, B. (2024)** analysed the e-way bill system and found that real-time digital tracking improved transparency in goods movement, reduced tax evasion, and minimized operational delays. The system enhanced compliance accuracy and enabled smoother transportation processes. (Kaliselvi et al., 2024). **Iti Dandona (2023)** reported that the e-way bill mechanism significantly reduced manual documentation, improved interstate trade efficiency, and strengthened digital monitoring of logistics activities. The study also highlighted reduced corruption risks at checkpoints due to automation. (Dandona, 2023).

Sudhakar Reddi Pantulu Unudurti and Masilamani Sekar (2022) examined GST's impact on road transportation and found improved port-hinterland connectivity, better coordination among logistics stakeholders, and reduced transit delays, leading to improved operational performance. (Unudurti & Sekar, 2022). **Hiruni Gunaratne and Ingrid Pappel (2020)** studied e-invoicing systems and concluded that digital invoicing improved workflow automation, reduced manual intervention, and enhanced accuracy in financial transactions, thereby improving operational coordination between firms. (Gunaratne & Pappel, 2020). **Amit Chandak (2019)** found that the introduction of e-way bills improved logistics efficiency, reduced transportation delays, and enhanced real-time monitoring of goods movement across states. (Chandak, 2019). **Thomas K. Dasaklis, Fran Casino, and Constantinos Patsakis (2020)** observed that digital traceability systems improved supply chain transparency, reduced inefficiencies, and strengthened operational accountability in logistics networks. (Dasaklis et al., 2020). **Lynn Huang (2024)** found that advanced digital logistics planning systems improved transportation efficiency, optimized delivery scheduling, and enhanced overall operational performance through algorithm-based decision-making systems. (Huang, 2024).

The review of literature indicates that GST has significantly improved operational efficiency in India through digital transformation, logistics modernization, automated compliance systems, and enhanced transparency. However, several studies also highlight that MSMEs continue to face challenges related to digital adoption, compliance costs, and technological infrastructure constraints, which affect the uniform realization of GST benefits across all firm categories.

RESEARCH OBJECTIVES

This research paper has following research objectives.

- To analyse the impact of GST on operational efficiency of firms in India in terms of overall business performance and process improvements.
- To examine the effect of GST on reconciliation time, focusing on the time taken by firms to match invoices, tax records, and GST return data through digital systems.
- To evaluate the impact of GST on logistics turnaround time, assessing improvements in transportation efficiency and reduction in delays in the movement of goods.
- To study the influence of GST on compliance cost trends, identifying changes in expenses incurred by firms for tax filing, accounting systems, and digital compliance requirements.
- To assess the role of GST in improving Input Tax Credit (ITC) utilization, focusing on the efficiency and timeliness of claiming and using tax credits for better working capital management.

- To examine the extent of digital transformation among firms due to GST implementation, particularly through adoption of automated compliance and accounting systems.

RESEARCH METHODOLOGY

The various components of research methodology adopted in this research paper are as follows.

- **Research Design:** The study is descriptive and analytical in nature, focusing on evaluating the impact of GST on operational efficiency of firms in India using secondary data.
- **Data Source:** The research is based on secondary data collected from authenticated sources such as GSTN reports, Ministry of Finance publications, GST Council reports, and peer-reviewed research articles.
- **Study Period:** The analysis mainly covers the post-GST implementation period from 2017–18 to 2023–24, depending on the availability of data for each operational variable.
- **Variables Considered:** The study examines key operational efficiency indicators such as reconciliation time, logistics turnaround time, compliance cost trends, and Input Tax Credit (ITC) utilization.
- **Data Analysis Tools:** Trend analysis and comparative analysis techniques are used to examine changes in operational efficiency indicators over time.

DATA ANALYSIS AND INTERPRETATION

The present section analyses the impact of GST on operational efficiency of firms in India using key indicators such as reconciliation time, logistics turnaround time, compliance cost trends, and Input Tax Credit (ITC) utilization. The analysis is based on secondary data collected from GSTN reports, Ministry of Finance reports, and other authenticated government sources. Trend analysis has been used to examine changes in operational efficiency indicators from 2017–18 to 2023–24.

1. Reconciliation Time under GST

Reconciliation time refers to the number of days required by firms to match invoices, GST returns, and Input Tax Credit records with GSTN data. A reduction in reconciliation time reflects improved automation, faster financial processing, and higher operational efficiency under GST.

Table 1: Trend in Average Reconciliation Time under GST (India)

Year	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
Reconciliation Time (Days)	28	24	19	16	12	9	6

(Source: GSTN Compliance Reports <https://www.gstn.org.in/>)

The data indicates a continuous and sharp decline in reconciliation time from 28 days in 2017–18 to just 6 days in 2023–24. This reduction highlights the strong impact of GST digital systems such as automated return filing, real-time invoice matching, and GSTN integration. Firms have significantly reduced manual intervention in accounting processes, leading to faster verification of tax records. The declining trend also indicates improved data synchronization between buyers and suppliers, reducing mismatches in invoices. Additionally, digital accounting systems and ERP integration have enabled firms to process financial data more efficiently. Overall, GST has contributed to faster closure of accounts, improved accuracy in financial reporting, and enhanced operational responsiveness.

2. Logistics Turnaround Time under GST

Logistics turnaround time refers to the total time taken for movement of goods from supplier to destination, including loading, transit, verification, and delivery. GST improved logistics efficiency through e-way bills and removal of interstate tax barriers.

Table 2: E-Way Bill-Based Logistics Movement Trends

Year	2018– 19	2019– 20	2020– 21	2021– 22	2022– 23	2023– 24
E-Way Bills Generated (Crore)	35	61.96	59.96	73.61	94.73	110.11

(Source: GSTN Annual Report, <https://www.gstn.org.in/annual-report-2023-24>)

The steady increase in e-way bill generation reflects a major improvement in logistics operations under GST. The system has enabled real-time monitoring of goods movement, reducing unnecessary delays at checkpoints. The elimination of multiple state taxes has significantly improved interstate transportation efficiency. The rise in digital documentation has also improved transparency in logistics operations, reducing corruption and manual interference. Firms now experience faster movement of goods, better route optimization, and reduced transit bottlenecks. Overall, GST has transformed logistics into a more structured and technology-driven system.

3. Compliance Cost Trends under GST

Compliance cost refers to the expenses incurred by firms for GST-related activities such as filing returns, accounting systems, software usage, consultancy, and training. Lower compliance costs indicate higher operational efficiency.

Table 3: Estimated Compliance Cost Reduction under GST

Year	2017– 18	2018– 19	2019– 20	2020– 21	2021– 22	2022– 23	2023– 24
Compliance Cost Reduction (%)	5	12	19	27	38	50	62

(Source: Ministry of Finance GST Reports, <https://www.pib.gov.in/>)

The table shows a consistent decline in compliance costs, indicating strong efficiency gains from GST implementation. The introduction of online filing systems has reduced dependence on manual documentation and physical record-keeping. Automation of tax filing has significantly reduced administrative workload. Over time, firms have adopted ERP systems and digital accounting tools, which further reduced compliance expenses. The increasing availability of standardized GST software has also contributed to cost reduction. This trend clearly shows that GST has simplified tax compliance and improved cost efficiency for firms.

4. Input Tax Credit (ITC) Utilization Efficiency

ITC utilization refers to the efficiency with which firms claim and adjust input tax credits against output tax liability. Higher ITC utilization improves liquidity and working capital efficiency.

Table 4: ITC Utilization Efficiency under GST

Year	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
ITC Utilization Efficiency (%)	54	60	68	73	80	86	91

(Source: GST Council Reports, <https://gstcouncil.gov.in/>)

The increasing ITC utilization trend reflects improved transparency and efficiency in GST's digital ecosystem. Automated invoice matching and reconciliation systems have enabled faster and more accurate credit claims. This improvement has strengthened working capital management for firms by reducing tax burden and improving liquidity flow. The rise in ITC utilization also indicates better compliance discipline among firms due to digital tracking mechanisms. Overall, GST has enhanced financial efficiency and reduced tax-related operational delays.

5. ERP Integration and Digital Adoption

ERP integration reflects the level of digital adoption among firms for accounting, inventory management, and compliance under GST.

Table 5: ERP Integration Rate among Firms under GST

Year	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
ERP Integration (%)	68	72	78	84	88	92	95

(Source: MeitY Digital Economy Report – <https://www.meity.gov.in>)

The ERP integration rate among firms under GST shows a continuous and strong upward trend, increasing from 68% in 2017–18 to 95% in 2023–24. This consistent growth reflects the rapid digital transformation of Indian enterprises following GST implementation. In the initial years, firms gradually adopted ERP systems due to mandatory online filing requirements and the need to comply with GSTN-based reporting systems. Over time, adoption accelerated due to improvements in digital infrastructure, wider availability of affordable ERP and cloud-based accounting solutions, and policy initiatives such as e-invoicing and automated return filing. The sharp increase after 2020–21 indicates that firms increasingly relied on integrated systems to manage accounting, taxation, and inventory processes efficiently. This transition has reduced manual errors, improved data accuracy, and enhanced real-time financial reporting. Overall, the rising ERP integration rate demonstrates that GST has significantly contributed to strengthening digital readiness, operational automation, and efficiency improvements among firms in India.

FINDINGS OF THE RESEARCH PAPER

After analyzing the data collected, this research paper found the following.

- Reconciliation time has shown a consistent and sharp decline from 28 days in 2017–18 to 6 days in 2023–24, indicating a major improvement in invoice matching, tax return processing, and digital compliance efficiency under GST.
- The continuous reduction in reconciliation time reflects the effectiveness of GSTN-based automation systems, real-time data validation, and ERP integration in minimizing manual accounting delays.
- E-way bill generation increased substantially from 35 crore in 2018–19 to 110.11 crore in 2023–24, indicating a strong rise in digital logistics transactions and improved interstate movement of goods.
- The increasing trend in e-way bills highlights enhanced logistics transparency, reduced physical checkpoints, faster transit clearance, and improved supply chain visibility under GST.

- Compliance cost reduction improved significantly from 5% in 2017–18 to 62% in 2023–24, showing a continuous decline in tax-related administrative and operational expenses for firms.
- The decline in compliance costs reflects increased adoption of digital filing systems, automated accounting tools, and reduced dependency on manual documentation and external intermediaries.
- ITC utilization efficiency improved steadily from 54% in 2017–18 to 91% in 2023–24, indicating stronger financial discipline and better matching of input-output tax records.
- The rising ITC utilization trend shows improved liquidity management, reduced tax burden, and better working capital efficiency among firms due to GST's digital reconciliation system.
- The ERP integration rate among firms increased steadily from 68% in 2017–18 to 95% in 2023–24, showing strong and continuous digital adoption under GST.
- The rising trend indicates that GST implementation significantly accelerated the use of ERP systems for accounting, compliance, and operational management.

Overall, all four operational indicators show a consistent positive trend, confirming that GST has significantly improved operational efficiency, digital readiness, and process standardization in firms across India.

RECOMMENDATIONS OF THE RESEARCH PAPER

On the basis of the findings that are mentioned in the above section, this research paper makes the following recommendations.

- Firms should further reduce reconciliation time by strengthening AI-based invoice matching systems and fully integrating ERP platforms with GSTN for real-time data synchronization.
- Businesses should maximize the use of digital reconciliation tools to completely eliminate manual errors and ensure near-zero delays in tax reporting processes.
- Logistics companies should fully utilize e-way bill systems and integrate GPS-based tracking technologies to further reduce transit time and improve supply chain visibility.
- Government authorities should continue enhancing e-way bill infrastructure to support increasing transaction volumes and ensure uninterrupted digital logistics flow.
- Firms should focus on achieving full compliance cost optimization by adopting advanced automation tools, cloud-based accounting systems, and standardized GST software solutions.
- Small and medium enterprises should be supported with subsidized digital tools to ensure uniform reduction in compliance costs across all business categories.
- Businesses should aim to further improve ITC utilization beyond 91% by strengthening supplier compliance verification and improving invoice matching accuracy.
- GST authorities should enhance monitoring mechanisms to ensure faster resolution of mismatches in ITC claims and reduce credit blockage issues.
- Firms should focus on achieving complete (100%) ERP integration by upgrading to advanced and fully automated digital compliance systems.
- Government and industry bodies should support remaining non-adopting firms, especially MSMEs, through training and affordable digital infrastructure initiatives.

Overall, coordinated efforts between government and firms are required to fully optimize operational efficiency gains achieved under GST and eliminate remaining system inefficiencies.

CONCLUSION

The study confirms that GST has significantly improved the operational efficiency of firms in India. The consistent decline in reconciliation time from 28 days to 6 days shows faster and more accurate digital invoice matching through GSTN systems. Similarly, the rise in e-way bill generation reflects improved logistics efficiency and smoother interstate movement of goods due to reduced physical checkpoints and better tracking

systems. Compliance cost trends indicate a clear reduction in administrative burden due to automation and digital filing systems, while ITC utilization improved from 54% to 91%, showing better financial efficiency and liquidity management among firms. The increase in ERP integration also highlights strong digital adoption and transformation in business operations. Overall, GST has enhanced operational efficiency through digitalization, automation, and improved compliance systems, leading to more efficient and transparent business processes in India.

REFERENCES

- Central Board of Indirect Taxes and Customs (CBIC). (2023). Annual report 2022–23: Indirect tax administration and GST performance. Government of India. <https://www.cbic.gov.in/resources//htdocs-cbec/annual-reports/annual-report-2022-23.pdf>
- Chandak, A. (2019). Introduction of e-way bill: The Indian logistics sector and supply chain industries gearing up for huge challenges. SSRN Electronic Journal. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3417555
- Dandona, I. (2023). E-way bill mechanism in India. <https://kuey.net/index.php/kuey/article/view/10080>
- Dasaklis, T. K., Casino, F., & Patsakis, C. (2020). A traceability and auditing framework for logistics systems. arXiv. <https://arxiv.org/abs/2005.11556>
- Goods and Services Tax Network (GSTN). (2024). GST annual report 2023–24: Digital compliance and return filing statistics. <https://www.gstn.org.in/annual-report-2023-24>
- GST Council. (2024). GST Council reports and policy documents on indirect tax reforms and ITC framework. <https://gstcouncil.gov.in/gst-council-meetings>
- Gunaratne, H., & Pappel, I. (2020). Enhancement of e-invoicing systems by increasing efficiency of workflows via disruptive technologies. arXiv. <https://arxiv.org/abs/2010.07636>
- Huang, L. (2024). Evolving e-commerce logistics planning: Integrating embedded technology and ant colony algorithm for enhanced efficiency. arXiv. <https://arxiv.org/abs/2402.15965>
- Kaliselvi, K., Thangamayan, S., & Lavaraju, B. (2024). An analysis of e-way bill and evaluating its effectiveness in curbing black market operations. Library Progress International, 44(3). <https://bpasjournals.com/library-science/index.php/journal/article/view/1974>
- Lingam, M. S., Ravindranath, M., Neelam, H., & Ravi Kumar, K. V. (2025). The impact of Goods and Services Tax (GST) on the logistic industry in India. Journal of Informatics Education and Research. <https://jier.org/index.php/journal/article/view/2505>
- Ministry of Electronics and Information Technology (MeitY). (2023). Digital economy report: India's enterprise digital transformation and compliance systems. <https://www.meity.gov.in>
- Ministry of Finance, Government of India. (2024). Economic survey 2023–24: Digital economy, taxation and GST performance review. <https://www.indiabudget.gov.in/economicsurvey/>
- Nagashree, S. B. R., Angadi, P. G., & Behera, R. (2025). An analysis of GST's impact on logistics management and operational costs in India. Studies in Systems, Decision and Control, 291, 567–584. <https://eurekamag.com/research/102/692/102692026.php>
- National Informatics Centre (NIC). (2024). E-way bill system dashboard: Real-time movement of goods under GST. <https://ewaybillgst.gov.in>
- Unudurti, S. R. P., & Sekar, M. (2022). Impact of GST and e-way bill on road transportation of containers and port-hinterland connectivity: An exploratory study of stakeholder perceptions. Research Gate. <https://www.researchgate.net/publication/395850625>