

From Digitalisation to Artificial Intelligence: Assessing India's GST Readiness for Predictive Tax Governance

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ABSTRACT

The execution of GST in India in 2017 has emerged as a significant structural transformation in India's tax governance by embedding digital infrastructure at the root of tax administration. With time, GST has emerged as a combined and integrated indirect tax in the digital tax ecosystem, merging online registration, e-return filing, online invoicing, and e-way bill generation. This reform has created huge volumes of transactional information, making India among the most significant digital tax administrations across the globe. Though digitalization has boosted compliance administration and transparency, the most relevant question that remains in the frame is whether India's GST system is administratively and constitutionally equipped and ready enough for Artificial Intelligence-backed predictive tax governance.

This study examines the GST model of India using a combined conceptual and empirical examination to assess its readiness for predictive analytics. The study employs a comparative evaluation with three strategically selected nations – Estonia, known for its well-developed digital architecture; Australia, recognized for well-administered compliance risk engines; and Brazil, noted for its digital invoicing in real time within a federal framework. This evaluation can provide valuable insights for researchers and policymakers. The study also undertakes a SWOT analysis to highlight India's major strengths, weaknesses, opportunities and threats.

GST revenue trend analysis from 2017 to 2024 is also employed to assess structural ability. Better compliance and expansion over time. Increasing and uniform progression highlights boosting formalization and better reporting mechanisms, which act as prime foundations for predictive modeling and AI- driven tax governance.

Keywords : Goods and Services Tax , Cascading effect , Predictive Tax Governance , SWOT Analysis , Comparative Tax Framework, Revenue Trend Analysis , Artificial Tax In taxation, etc.

1. INTRODUCTION

1.1 Emergence of GST in India

Goods and Services Tax was introduced in India on 1 July 2017, marking a transformation in India's indirect taxation system. The comprehensive web of indirect taxes levied by the Central and State Governments, like Excise duty, Service tax, VAT, octroi, and entry tax, was replaced by GST. GST was introduced not only to restructure the taxation regime but also to reform the nation economically by

boosting Cooperative federalism, fostering tax compliance, and formalizing the economy of India. The 101st Constitutional Amendment provided the foundational and legal basis for the GST, which offered Concurrent taxation authority to the Centre and States. The GST Council was set up as a joint forum for decision- making regarding rate rationalization and policy changes.

Another institutional evolution other than GST was the introduction of the Goods and Services Tax Network (GSTN), a digital platform for registration, filing returns, paying tax, matching invoices, and monitoring compliance. GST emerged with digital reporting when indirect taxes revolved heavily around manual filings and governmental judgments and prudence. The transition to a consumption-based tax has totally changed the distribution pattern of tax revenue among states, fostering transparency and minimizing double taxation. With time, GST has not only increased the tax base but has also increased the digital recording and improved audit trails. GST not only led to fiscal consolidation but also to digital governance (Singh & Singh, 2024).

1.2 The Digital Basis of AI Regulation

Digitalization under GST has transformed the system of governance from paper-based compliance to instant and electronic monitoring GST digital compliance system comprises:

- Online registration
- E-way mechanism for the movement of goods
- Electronic revenue tracker
- Tax credit matching

The GSTN records detailed transaction–level data from various states, sectors, and tax-paying groups. Predictive analysis can be done efficiently with the help of these structured and frequently generated datasets.

Artificial Intelligence systems rely on the following variables –

- Good volume of data set
- Reliable & Consistent historical record
- Structured & Systematic reporting formats
- Algorithm-driven risk detection mechanisms

GST has all such features. But digitalization alone can prove readiness for AI. Several other requirements, like incorporating machine learning algorithms, high-quality structured data, an interoperable data mechanism, advanced analytical infrastructure, and adequate institutional capacity, are required to shift from digital governance to predictive governance. This can not only help in detecting tax evasion patterns but also in identifying abnormalities and deviations, and in analyzing behavioral risk determinants.

Digitalization comprises data generation only; on the other hand, AI-enabled governance involves data intelligence and predictive intervention (Sharma & Garg, 2025).

1.3 The Framework of Predictive Tax Governance

The use of artificial intelligence, machine learning, and advanced analytics to predict non-compliance, estimate revenue patterns, and improve enforcement strategies is known as predictive tax governance. The conventional method involves adopting measures and conducting an audit after non–compliance is detected. However, Predictive governance comprises

- Finding out the risky taxpayers before fraud detection
- Mark dubious and fishy invoices
- Anticipate sector-wise tax responsiveness

- Employ an audit selection model based on risk
- Adoption of automated compliance prompts and alerts

Nations like Estonia & Australia have incorporated predictive analytics in their tax administration mechanisms, providing auto-suggested returns, automatic compliance checking (Nkosi & Jahed 2025).

With respect to India, predictive governance would involve-

- Instant invoice detection
- Sector-wise predictive tax revenue models
- Automatic categorization of compliance risks
- AI-powered invoice variation spotting

The inclination and willingness for such a shift totally depend on various factors like sustainable revenue, structural robustness or competence, data accuracy, and accountability framework.

2. LITERATURE REVIEW

Digital tax governance and enhanced state capacity

Digitalizing the tax system brings not only a technical upgrade but also institutional transformation by reducing administrative costs, boosting transparency, and fostering instant transaction tracking. By replacing manual monitoring with automated verification and incorporating compliance rules directly into technology, dependence on manual monitoring and selective and judgment-based enforcement is reduced. Scholarly works highlight the utmost need for institutional shifts from manual verification to automated tracking brought up by digital platforms (Bassey et al, 2022). Also, Roy & Khan (2021) illustrated the significance of digital taxation in transforming the regulatory integration and compliance framework by integrating reporting directly into technology.

OECD (2019) highlighted the significance of digital tax mechanisms in producing standardized and reliable data and fostering risk regulation and compliance mechanisms. With respect to India, GST illustrates the largest digital tax infrastructure at the global level.

Public finance and big data governance

Data governance for efficient tax administration comprises a better quality framework, data protection measures, and permission and authorization management. Incorporation of AI in finance depends on a proper data governance structure. The transition of organizations from collecting data to improved and automated analytics can be determined using data maturity models (Bernardo et al., 2024). Moreover, Yukhno (2022) pinpointed the reason behind the success of public-sector big data initiatives and the role of effective governance, institutionalized privacy, and internalized consistent standards.

AI in tax administration

Recent scholarly works examine the adoption of artificial intelligence in detecting and monitoring tax fraud and compliance failure. Artificial Intelligence (AI) in e-filing has influenced the compliance mechanisms positively, making tax administration and reporting effective and efficient. Also, tax education and administration are significant for proper and efficient tax implementation. Audrey (2024) highlighted the role of artificial intelligence models and data mining techniques in fostering abnormality detection, network mapping, and prognostic compliance mapping. OECD (2021) also presented the advantages of anticipatory analytics in proper tax administration in developed nations. It not only reports the efficient benefits but also highlights the privacy and transparency issues.

Digital preparedness and Institutional competence

Digital preparedness alone cannot lead to full AI incorporation into the taxation regime. Institutional ca-

capacity, productive capacity, and change adoption are of utmost significance. Skilled manpower, efficient regulatory framework, and responsive governance model boost digital transformation (OECD, 2020). Jain et al (2024) analyzed the integration of the Digital Economic Framework among MSMEs and also reported the impact of organizational preparedness on its adoption and proper implementation. Kumar (2024) highlighted the growth in digital transactions and their influence on GST revenue in India. Wide adoption of online payments boosts transparency and compliance, thus minimizing revenue leakages and corruption.

GST Digital Infrastructure and India's Tax System

While digitalization has emerged as a major mechanism behind the growth and advancement of the business environment in India, there are still certain issues and concerns that need to be dealt with to attain an efficient and streamlined taxation system. Haines (2017) illustrated GSTN as the technological base of India's GST taxation regime. Digital platforms have not only simplified the registration process, invoice uploading procedures, and return filing but have also fostered transparency and efficiency by reducing direct interaction between taxpayers and officials, thus curbing opportunities. Government-led initiatives like MCA21 and GSTN have simplified the registration process, compliance mechanism, and taxation. However, barriers like limited digital access, cybersecurity risks, and administrative resistance hinder widespread adoption of technology among businesses, which highlights the urge for a more comprehensive and dynamic approach to achieve a fully digital taxation ecosystem Sarla, 2025).

3. RESEARCH GAP

3.1 Limited literature focusing on AI readiness in GST

Most of the studies focus on GST and its influence through various perspectives, like economically, political, compliance burden, and sectoral effects. Limited studies are present that try to examine the significance of GST in AI-based predictive governance. Hence, the technological areas remain unexplored.

3.2 Absence of Studies on Quantitative AI Readiness Indicators

Though GST revenue data are widely available, there is a lack of studies analyzing the maturity of the GST system using trend analysis, such as a simple growth rate. Sustainable revenue patterns and stable growth enhance a compliance approach and accurate data, which are of utmost importance for incorporating a machine learning system.

3.3 Absence of SWOT Analysis & Comparative Framework on the GST regime

There are limited studies merging Revenue trend analysis, SWOT analysis, and cross-country comparison. Such a comprehensive examination will deeply analyze the shift of the GST framework from digital compliance to predictive governance.

4. OBJECTIVES OF THE STUDY

The following are some of the crucial objectives of the study –

1. To examine the annual GST revenue pattern and calculate simple growth rates
2. To analyze revenue stability and its role in predictive governance readiness
3. To evaluate the strengths, weaknesses, opportunities, and threats of the Indian GST ecosystem through a systematic SWOT analysis
4. To contrast and compare the GST digital readiness and capability with Estonia, Australia, & Brazil
5. To assess the policy reforms required for India for executing AI-enabled tax administration

5. SCOPE OF THE STUDY

The study stretches from the financial year 2017-18 to the financial year 2023-24. It mainly targets –

- Annual total GST Revenue data
- Institutional and technological ecosystem
- Comparative analysis of the digital governance model
- Strategic readiness assessment

6. RESEARCH METHODOLOGY

6.1 Research Design

The study employs a descriptive and analytical research design to examine the extent to which the Goods and Services tax (GST) system is prepared for the shift to artificial intelligence-driven predictive tax administration. The analytical part of this study helps to analyze the performance pattern, institutional capabilities, and policy frameworks that could help in integrating AI in tax administration.

6.2 Data Sources

The study relies on secondary data collected from various reliable institutional and policy sources related to GST, digital administration, and the scope of artificial intelligence in public finance. Some of the major secondary sources are –

- Annual Reports of the Ministry of Finance
- Publications and Statistical data from the GST Council
- Official Releases from the Goods & Services Tax Network (GSTN)
- Reports from World Bank, OECD & IMF
- Academic Journals, Policy papers & Government White Papers

These sources offer reliable and accurate information for examining digital tax mechanisms and AI readiness in India's GST ecosystem.

6.3 Revenue Trend Analysis

Revenue Trend Analysis is employed to analyze the performance and development of GST over time. The study utilizes the annual GST revenue data from the financial year 2017-18 to the financial year 2023-24 to examine the progression, uniformity, and volatility in tax collection. Annual percentage change in GST revenue is calculated using a simple growth rate to measure the effectiveness of the digital monitoring framework. The formula applied is –

Growth Rate: $(\text{Current Year Revenue} - \text{Past Year Revenue}) / \text{Previous Year Revenue} * 100$

This examination explains whether digital infrastructure and compliance monitoring mechanisms have generated uniform and stable revenue.

6.4 SWOT Analysis

A structured and systematic SWOT assessment is conducted to highlight the key strengths weakness of India's GST ecosystem and the future opportunities and threats that can influence GST's predictive readiness. This systematic framework can help in assessing the significance of digital infrastructure in AI-driven tax governance.

6.5 Cross Country Comparative Examination

Cross-country evaluation is conducted to comprehend the digital technologies and Artificial Intelligence technologies adopted by nations like Estonia, Australia, and Brazil in their tax administration. By comparing India's GST model with the GST regimes of these nations, this study highlights gaps,

opportunities, and policy suggestions for boosting and enhancing India's readiness for AI-powered predictive tax governance.

7. GST REVENUE TREND ANALYSIS

7.1 Annual GST Revenue and Growth (FY 2017-18 to FY 2023-24)

The table given below highlights the GST revenue collected in India along with the growth or contraction percentage. Between financial years 2017-18 and 2018-19, a growth of 63.7% is witnessed, showing gradual stabilization. Growth moderated in 2019-20, and contraction of -6.9% was seen in 2020-21, caused by economic COVID 19 economic disruption. However, the following year experienced structured progression, recording double digital growth rate, highlighting better tax administration, enhanced digital reporting, and improved compliance mechanisms within the GST ecosystem.

Financial Year	GST Revenue (in Lakh Crores of rupees)	Growth Rate (%)
2017-2018	7.19	-
2018-2019	11 .77	63.7%
2019-2020	12 .22	3.8%
2020-2021	11.37	-6.9%
2021-2022	14.76	29.8%
2022-2023	18.10	22.6%
2023-2024	20.18	11.5%

Table 1: GST Revenue and Growth Rate

Given below illustrates the trend in GST revenue collected from the financial year 2017-18 to the financial year 2023-24. The chart shows a clear upward progression in revenue collected between the given periods, instead of a short-term fall during the pandemic year 2020-21. It also illustrates a swift rise in collected revenue after the pandemic, i.e., in the post -pandemic period. The continuous growth in revenue offers a consistent dataset suitable for predictive modeling and analytical applications in an AI-driven tax administration system. The following table can be used to illustrate the growth of GST revenue using a line chart.

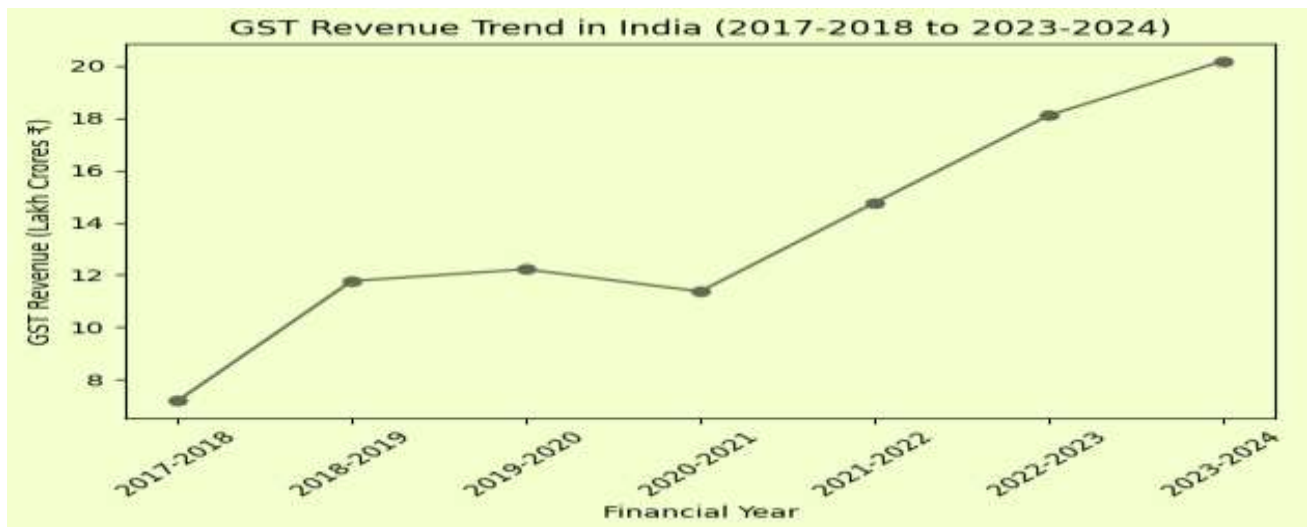


Figure 1: GST Revenue Trend

7.2 Interpretation of Trends

Phase 1: Stabilization (2017- 19)

The beginning period following the implementation of GST shows a phase of consistency and early progression in revenue. Growth of 63.7% was witnessed in the second year, showing a gradual increase in taxpayers. There was a shift from a comprehensive indirect tax framework to a unified GST system. Factors that played a significant role in this progression are:

- The Indian economy became more formalized, making previously unregistered businesses get registered under the tax network.
- Compliance system became more improved and enhanced, powered by compulsory invoice reporting and electronic return filing
- The GST council was set up as a joint forum, and policies were adjusted, and rates were rationalized, which played a significant role in reducing initial complexities and risks

Though growth was moderated in subsequent years and major businesses were integrated into the GST regime, marking a rise of only 3.8%, which not only indicates weak performance but also the natural shift from swift progression to system stabilization. With the end of this phase, the tax system and revenue trend became stabilized and consistent.

Phase 2: Shock and Contraction Phase

This phase relates to economic disturbances led by the COVID-19 pandemic, resulting in a decline in GST revenue. This phase is marked with a growth rate of -6.9%, which highlights a drastic fall in economic activities during the financial year 2020-2021. This fall can be because of the following reasons –

- Manufacturing was totally disrupted due to the nationwide lockdown
- Production & distribution network was halted
- Demands of households fall as essential spending was prioritized.
- To support small businesses, temporary tax relief measures like extension of the date limit & easy compliance procedure were introduced by the government.

Phase 3: Recovery and Consolidation (2021-24)

This phase highlights a period of revival and strengthening, marking a uniform double-digit growth in

GST revenue. Growth rates of 29.8%, 22.6%, and 11.5% show a strong revival after the COVID-19 pandemic. Various improvements played a significant role in the recovery phase –

- Improved compliance procedures, like e-invoicing and return matching systems, played their part in increasing GST revenue.
- More business houses registered under GST, thus increasing the taxpayer base.
- Economic revitalization and business resumption after the pandemic boosted consumption and production levels.

Though the growth rate fell from 29.8% to 11.5%, this specific trend generally characterizes a mature tax system. This fall in growth rate typically signifies the shift of GST revenue from recovery-based expansion to more sustained and steady growth and economic progression.

Most importantly, the stable pattern of GST revenue boosts the reliability of time series data, which is of utmost importance for predictive analytics and AI applications in tax governance. AI-driven forecasting models rely on uniform patterns to analyze trends and provide reliable and accurate forecasts. The stable and consistent GST revenue growth offers a primary base for data-based tax forecasting, policy formulation & evaluation, and fiscal planning.

8. CROSS- COUNTRY EVALUATION

8.1 Comparative Evaluation of GST / VAT Model of India, Estonia, Australia & Brazil

To assess the readiness of India's GST regime for AI-driven predictive analytics, it's necessary to analyze the situations and capabilities of digitally efficient tax administrations. Nations like Estonia, Australia, and Brazil are selected to compare the GST/ VAT ecosystem of these nations with that of India, as these nations have enhanced tax infrastructure and a data-based compliance system. Comparing India's GST model with these regimes offers valuable insights regarding digital tax governance.

The following table shows the key differences between the GST regimes of nations like India, Estonia, Australia, and Brazil –

PARAMETERS	INDIA	ESTONIA	AUSTRALIA	BRAZIL
Taxation System	Goods and Services Tax (GST)	Value Added Tax (GST)	Goods & Services Tax (GST)	Complex VAT
Year of Reform	GST was introduced in 2017	Introduced in 1992	GST was introduced in 2000	Introduced in 1960
Demographic Reach	Approx. 1.4 billion people	Approx. 1.3 million people	Approx. 26 million people	Approx. 203 million
Structure Complexity	Highly intricate with multiple slabs	Simple VAT framework with a few rates	Simple Framework with standard rate	Highly complex with multiple rates

Level of Digitalization	Advanced with GST portal, e-invoicing, etc.	Extremely advanced	Advanced and Digital Tax Administration	Advanced digital invoicing system
Application of AI	Fraud detection & Compliance risk	Better blend of automation & predictive analytics	Advanced analytics	Tracking Invoice and evasion detection
Instant Reporting	Partial real-time reporting	Highly integrated electronic reporting	Limited real-time reporting.	Extensive real-time reporting
Ease of Tax Compliance	High compliance burden	Easy compliance process	Highly easy compliance procedure	Compliance burden exists because of the difficult tax administration.
Readiness for AI-driven Predictive Tax Governance	Developing but upgrading rapidly	Very high readiness	Highly prepared	Average Preparedness

Table 2: Comparative Analysis of GST/ VAT Systems: India, Estonia, Australia & Brazil

8.2 Interpretation of the comparative chart

GST model of India

GST was introduced in India in July, 2017, marking the largest transformation in the indirect taxation system of India. GST has led to the strengthening of digital infrastructure through the GST portal, e-invoicing, and the e-way bill system. Multiple tax slabs and complex compliance burdens still exist. A transition is made by the government toward the application of artificial intelligence and data analytics to identify fraud and administer the compliance process. However, the intention is to evolve fully towards predictive tax governance. As compared to other nations, India's regime offers relevant opportunities for AI- based governance, but there is still a high need for improvement in data quality, a stable framework, and clear regulations for better implementation.

VAT model of Estonia

Estonia shows one of the most progressive and sophisticated digital tax administrations. Its integrated digital governance mechanism and national digital identity support its VAT framework. Pre-filled, instant data exchange, and automatic tax filing help taxpayers to file returns in a few minutes. Authorities can easily identify fraud and irregularities with the help of Artificial Intelligence & automatic compliance mechanisms. Though the small population of Estonia helped a lot in its better execution, its VAT model shows its efficient infrastructure and integrated data system. India can learn from Estonia by making the compliance procedure easy and strengthening its digital infrastructure.

GST model of Australia

Australia adopted a simple GST regime with a standard tax rate. A mature online tax framework and developed data analytics help in reducing compliance complexity and risks. AI not only helps in analyzing the taxpayer pattern but also in detecting fraud and errors. A stable and simple taxation system helps the administration in focusing on better execution and enforcement. Australia's taxation system illustrates the significance of better digital infrastructure and administrative capacity in efficient and predictive tax administration.

Simplifying the tax structure and enhancing analytical competence can help India in effective and efficient AI-driven compliance monitoring.

VAT Regime of Brazil

The taxation system in Brazil is well known for its complexity, having multiple tax rates functioning at the federal and state levels. Although the regime is complex, it has the most advanced invoicing system with concurrent analysis and comprehensive information mining. Its advanced digital infrastructure helps in analyzing fraud and tax evasion more efficiently. Brazil's VAT regime illustrates the advanced digital reporting system and its significance in boosting transparency and enforcement. To achieve its objective of predictive tax governance, India can work on its instant data reporting and improve its analytical tools.

9. SWOT ANALYSIS

Goods and Services Tax in India is the most significant transformation in the indirect taxation regime of India. Since its implementation in July, 2017, GST has created a large volume of digital transactions and has paved the way for new mechanisms for better tax compliance and administration through its Goods & services tax Network (GSTN). It's very necessary to understand its key strengths, weaknesses, threats, and future opportunities to evaluate its mechanisms from a strategic viewpoint. SWOT (Strengths, Weaknesses, Threats & Opportunities) offers a structured analysis to assess the present strengths & weakness, identify potential risks, and explore rising technological and policy opportunities that can affect its efficiency and effectiveness. The given assessment can highlight key internal & external variables that influence its implementation & execution.

STRENGTHS

The GST ecosystem of India illustrates major strengths that play a major role in boosting tax governance. Its efficient digital infrastructure helps in analyzing a huge volume of transaction data. Structured Database was created by the regime while covering a huge taxpayer base. Its instant reporting system and invoice verification help not only in improving transparency but also in reducing tax evasion, thus contributing to huge revenue generation and effective monitoring.

WEAKNESS

In spite of its better execution and success, the GST regime of India has certain limitations. During peak filing time, the Goods & Services Tax portal faces major capacity and technical problems. This hampers compliance efficiency and users' experience. Analytics and administration face problems in their effectiveness due to poor and inconsistent data quality. There is a high need for awareness and skill development in data science and data analytics for better utilization of huge transaction datasets.

OPPORTUNITIES

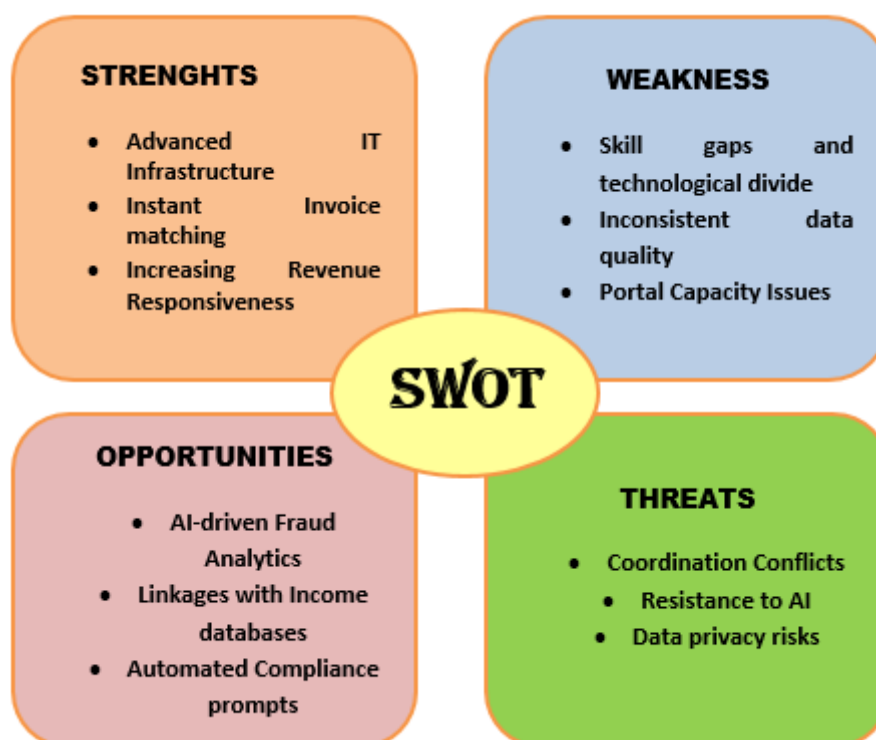
Huge opportunities are offered by the GST ecosystem of India for technological and institutional advancement. The incorporation of Artificial Intelligence & advanced analytics in GST can not only

help in detecting fraud but also help in enhancing compliance administration. GST data should be linked to income tax databases to have a broader image of all activities. Moreover, instant sector-based predictions and automatic compliance prompts can play a major role in decision-making and policy formulation and can also foster voluntary compliance among taxpayers.

THREATS

Although GST has totally transformed the indirect taxation system of India, there are still several external risks that affect the GST ecosystem. Cyber security risks & data privacy can create big trouble if the financial information within the system is not taken good care of. The emerging application of artificial intelligence can also create a risk of algorithm bias. Resistance towards the new approach, risk of privacy, and coordination between the Centre & State can also create hurdles in effective implementation and execution.

Thus, key strengths, weaknesses, future opportunities, and external threats can be summarized as follows-



11. FINDINGS

This section highlights the major findings achieved from the examination of the GST revenue pattern, institutional readiness, and cross-country evaluation of administrative practices. The outcomes are categorized into four parts, which are highlighted below-

11.1 Revenue Trend is marked as an indicator of data maturity

The GST revenue pattern shows three major phases that illustrate the emergence of a new taxation system. The first phase, i.e., the Stabilization phase (2017-19), shows a rise of 63.7% in revenue. This growth was mainly because of an increase in the number of taxpayers, a better invoice tracking system, an improved digital compliance mechanism, and a reduction of the cascading effect. Existing studies

show the influence of the system learning curve on the uncertainties and fluctuations of digital tax reform. This growth can be attributed to database expansion rather than long-term stability.

The second phase, i.e., the Shock & Contraction phase, shows a fall of -6.9 % during the pandemic, showing economic contraction. Though the economy was facing a crisis, the GST system continued to work digitally, showing institutional strength and technical reliability. Time series data are available because of persistent digital reporting during this phase, which can be utilized for an artificial intelligence model.

The third phase, i.e., the Recovery and Consolidation phase, illustrates the rise of 29.8%, 226%, & 11.5%, marking recovery and certainty. This certain pattern shows the mature system and evolution of a predictable trend, marking GST revenue data as a better parameter for predictive analytics and data-based policy framing.

11.2 Institutional readiness for AI application

Only certain revenue cannot prove readiness for AI integration. Readiness depends on various factors like the presence of skilled human resources, efficient data incorporation, a better mechanism for algorithmic decision-making, and better governance measures. GSTN of India records millions of invoices of taxpayers, offering a relevant digital database. As compared to AI-based tax governance of nations like Estonia & Australia, India relies on a rule-driven system, data matching procedures, and compliance checking. To achieve the objective of predictive governance, India must incorporate a risk-measuring model, automatic compliance prompts, and revenue forecasting engines.

11.3 Comparative standing at the global level

Cross-country evaluation shows three major stages in the progression of the digital filing structure. Stage 1 shows the online filing and invoice matching, and in India works through the GST ecosystem and digital compliance mechanisms. Stage 2 focuses on advanced data analytics and risk assessment, and Brazil has demonstrated this through its NF-e and SPED framework, that enhance digital invoicing and data merging. Stage 3 shows AI-driven predictive governance, illustrated by Estonia in its merger of the digital identity system and predictive compliance model. Australia also implemented behavioral analytics and automatic compliance to boost enforcement. At present, India works under stage 1 and stage 2, marking advanced digital infrastructure, but still lacks some predictive analytical competencies.

11.4 SWOT assessment in relation to Predictive administration

India's GST ecosystem shows several strengths that enhance the potential integration of predictive governance. Technological expansion at the national level and a rising taxpayer base improve the accuracy and consistency of the data set. Increasing revenue responsiveness shows rising compliance effectiveness within the taxation ecosystem. Despite its various strengths, India's taxation system faces certain complications that affect the progress and execution of predictive governance. A prime weakness can be witnessed in the skill gap present within the tax department. Limited transparency and accountability can also create concerns about automated systems. Relevant opportunities are present to strengthen India's taxation system. Artificial Intelligence can help in better monitoring, identifying fraud, and preventing tax evasion. With the help of blockchain technology, invoice authenticity can be improved, and false input claims can be detected. This shift to predictive governance comes with lots of external risks and threats. Cybersecurity 7 data privacy breach is a grave issue, as a huge volume of sensitive data is collected within the system. Moreover, the digital divide within several regions and organizations can also result in inconsistent compliance maturity.

12. LIMITATIONS & SCOPE FOR FUTURE RESEARCH

The study offers valuable information regarding India's GST responsiveness for AI-driven tax governance; several limitations exist that need to be considered. However, these limitations provide significant scope for future research in tax administration. Some of those limitations are –

- The study mainly depends on secondary sources like official documents, existing literature, and government reports, thus restricting the broader analysis of transaction-level variation. Future studies can employ anonymized data for deeper and more detailed compliance analysis.
- The study doesn't apply or test any AI or machine learning models empirically. Future research can be conducted by developing and evaluating various models related to compliance and fraud detection for better results.
- Absence of information related to the taxpayer limits the examination of behavioral patterns. Future studies can be conducted using this information to examine firm-level compliance patterns within the taxation system.
- The study doesn't include primary evidence and data, such as surveys and interviews. Future work can examine institutional preparedness, training requirements, and challenges related to adopting new technological transformations.

CONCLUSIONS

This study analyzed the structural capabilities and responsiveness of the GST regime of India for AI – driven predictive governance. The outcomes highlighted the maturity of the GST ecosystem, such as advanced IT infrastructure and a huge volume of data, which is a foundational base for AI-enabled compliance administration and risk profiling mechanisms. These advancements not only help in efficient tax administration but also in detecting abnormalities and improving revenue management. Nevertheless, hurdles like data inconsistency, institutional incapability, and skill gap remain the main issues to tackle. Working on these issues through better policy assistance, technical investment, and better research can offer meaningful help in the better and more effective implementation of AI in tax governance in the near future.

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