

Goods and Services Tax Network (GSTN) India

Open Digital Ecosystem (ODE) Case Study



1. Context: Towards a Unified Indirect Taxation System

The previous indirect tax system in India was a complex, multi-tiered structure comprising different laws, processes, and forms across 29 States, 7 Union Territories, and the Central Government. The complexity was further amplified as many state departments levied their own taxes such as entertainment tax, luxury tax, etc.

Under the previous system, a taxpayer registered in every state would have to complete around 495 forms and report to 36 different portals to comply with the regulations

Consequently, the entire tax regime faced multiple challenges that included (i) dual taxation, (ii) multiple paper-based, manual processes, (iii) significant transaction time and cost for the taxpayer, (iv) administrative complexity for the tax authorities, and (v) considerable opportunities for tax evasion due to ambiguity and loopholes across the different rules and systems. To address this complexity and lack of uniformity in the indirect tax regime, the Goods and Services Tax (GST) Act was introduced in 2017. The GST Act subsumed the different indirect taxes at the central and state level and replaced it with a single tax structure for the entire country.

2. Solution: One Nation, One Tax, One Portal

The main purpose of a uniform system for indirect taxation is to improve compliance and make the tax-filing process convenient for the taxpayer. To achieve this end, it is imperative that the implementation of such a system is efficient and seamless. Recognizing this, the government decided to create a single interface between itself and the taxpayers. Further, the GST Act necessitated the introduction of a settlement process between the centre and states due to differential rate sharing. This required building a system that could capture, process, and exchange large volumes of data to compute and disburse settlements. To address these two requirements a strong technology backbone was imperative.

This was delivered through an innovative digital delivery platform called the Goods and Services Tax Network (GSTN), which provides:

- **A single front-end interface** between the government and taxpayers for all indirect taxation processes - registration, filing returns, and tax payment.
- **An interoperable system** enabling smooth transition and interaction at the back end with pre-GST tax systems which is **flexible** enough to cater to future needs.
- **Collaborative service delivery with ecosystem players** including small businesses and start-ups, resulting in greater efficiency and user-friendly services to taxpayers.
- **Analytics-led intelligence** to improve compliance and transparency with regard to taxation.

GSTN has benefitted both taxpayers and the government by easing and improving compliance, and increasing transparency in the system. From the tax payers' perspective, a single point of tax payment with paperless processing makes tax compliance more user-friendly, efficient, and accurate. Another tangible benefit for tax payers is easy access to credit. It has been observed that Micro, Small and Medium Enterprises (MSMEs) now find it easier to access credit due to the availability of verified financial records linked to the GST Portal. ICICI Bank, for example, provides an overdraft facility of up

to INR one crore in two days to any GST compliant MSME.¹ The government, on the other hand, has benefitted by way of increased tax revenue. Since the introduction of GST, the number of indirect taxpayers has doubled.² GSTN has also enabled the government to conduct analytics and glean insights that have helped in curbing tax evasion and assisted in optimal policy decision making. In addition to the above, digitization of key taxation processes like refunds has increased transparency in the system. The implementation of a simpler tax regime has accrued several benefits to the nation including a steady improvement in its performance on indicators such as the World Bank's Ease of Doing Business Index (in 2019, India was ranked 77, a jump of 23 places from 2018). This will go a long way in facilitating the Indian economy in attracting foreign investment.

3. Key Features and Learnings from GSTN

This section gives an overview of the key 'tech and "non-tech' features of GSTN, focusing on the Digital Platform, Community, and Governance.

3.1 Digital Platform

- **Open technology architecture makes the system interoperable**

GSTN platform's design is based on open application programming interfaces (APIs) and open standards to enable interoperability between the GSTN system and the central and state tax systems. This has two main benefits, (i) it enables GSTN to share data with other agencies such as the income tax authority, and (ii) it allows (in principle) third parties to build solutions on top of GSTN. The platform approach makes the GSTN system interoperable. For example, the platform can interact with the legacy systems of nine states that did not use the backend system created by GSTN. Further, it makes the GSTN system flexible as a new functionality can be added easily by developing it independently and integrating it with the existing GSTN platform through APIs. However, currently, GSTN selects the third parties based on technical capabilities and financial strength (it has mandated the third party to have an average minimum turnover of INR five crore in the previous three financial years). For now, this would preclude early-stage startups from building solutions on GSTN.

Principle 1: Be open and interoperable

GSTN's flexible, open and interoperable technology architecture enables compatibility with existing tax administration systems. New capabilities are built on top for the smooth transition of users. This has enabled states to continue to use legacy systems at the back-end but offer a seamless front-end experience to taxpayers.

For example, in 2019, the registration process of GSTN was integrated with the SPICe-AGILE form of the Ministry of Corporate Affairs (MCA). Now, one can obtain their GST registration number directly through the SPICe-AGILE form while applying for incorporation with MCA, eliminating the need for multiple registration processes.

- **Built in multi-layered security systems**

The GSTN platform can face both internal and external security threats. This could include incidents of data tampering for commercial benefit, industrial espionage, unauthorized

access, and cyber-attacks. To ably counter such threats, GSTN has fortified itself with significant threat mitigation and management principles in its technology infrastructure. The core GST system is not exposed to the internet and all interaction with the GST system is done via APIs. This provides it maximum protection. Additionally, data is transferred from the GST system in an encrypted format using industry accepted standards. Use of digital signature, role-based access controls, segregated environments for development, testing and production with access controls, and deployment of web application firewalls are the other measures taken by GSTN to safeguard the platform. Data security is ensured through database encryption and database activity monitoring.

While GSTN adheres to some of the best practices of the Open Digital Ecosystem (ODE) approach, it has faced technical challenges in its software such as issues in filing returns, late credit of payments, computational errors, inability to make corrections in the data, delay in release of new tools to ease compliance, etc.³ The GST Council has prioritized resolving the issues by identifying and sharing the list of challenges with the GSTN partner, Infosys, for quick resolution. Resolving the challenges is imperative considering the economic importance of the taxation system. GSTN and Infosys are exploring the adoption of more agile ways of working and other best practices for software development and project management to pre-empt challenges and ensure early identification and resolution of errors.

3.2 Community

- **Multi-pronged user adoption strategy enabled smooth transition**

GSTN was entrusted with the mammoth task of transitioning 65 lakh taxpayers to the new system in the backdrop of a challenging compliance landscape. To add to the complexity, the taxpayers ranged from individuals to airlines and village-based micro-enterprises to corporations operating pan India. Similarly, more than 50 thousand tax officials, down to the village level, had to be trained to efficiently operate the platform. A multi-channel approach of using both online and offline channels was adopted. While taxpayers were targeted mostly through online channels, tax officials were trained through partner-led workshops. GSTN adopted a three-fold strategy of (i) online training, (ii) training the trainer, and (iii) incentivizing to drive user adoption. However, due to continuous challenges in the migration of taxpayers to the GSTN portal, the deadline for its launch had to be extended several times from 31st January 2017 to 31st March 2017 and then to 30th April 2017. During this time, the tax agencies stepped up their outreach efforts by publishing advertisements in leading newspapers and urging taxpayers to register by the deadline.⁴

Principle 7: Drive participatory design and end-user engagement

GSTN adopted a three-fold strategy of (i) online training, (ii) upskilling the trainer, and (iii) incentivizing to drive user adoption.

Among online initiatives, learning content ((user manuals, tutorials, videos, frequently asked questions (FAQs)) was posted on the platform and social media handles. Webinars were conducted in various languages and continue to be held before the launch of any new functionality.

In the initial years, special helpdesks were set up at trade events to help taxpayers complete their GST related obligations on the spot.

A series of trainings for master trainers was conducted, who further disseminated the knowledge till the village level through partners and trade associations.

GSTN also adopted an incentivization strategy driven by auto population of unique input tax credit (ITC). Taxpayers registered on the portal had their suppliers register on GSTN as well so that ledgers could be matched and they could avail tax credits. Hence, a GSTN registered company was incentivized to trade only with another GSTN registered company.

- **Growing a community of builders to develop solutions over GSTN functionality**
GST Suvidha Providers (GSPs) are private sector players who can integrate with the GST portal to provide value added services to taxpayers. They provide services such as converting sales ledger data into a GST compliance format, integrating Enterprise Resource Planning (ERP) with the GSP system, submitting bulk invoices, creating dashboards to reflect financial performance, etc. While currently it is only GSPs who can provide value-added services and build on the platform, there is potential for the GSTN to expand this ecosystem to include other entrepreneurs who can unlock solutions in other industries. For example, the e-way bill data has significant potential to unlock value in the logistics sector. If made available, start-ups can use this to build solutions for truck capacity sharing, route planning and optimization, etc.
- **Multi-channel grievance redressal system to provide speedy response**
Anticipating initial teething issues, GSTN instituted a 24x7 pan-India helpdesk and a portal to address all queries related to the platform. Despite having instituted the helpdesk months before the launch of the GSTN portal to support the taxpayers, it was unable to attend to the number of queries. Additionally, it was also unable to cater to the diverse taxpayer base as initially it supported only two languages – Hindi and English. The Grievance Redressal Portal (GRP), launched subsequently, helped better manage the written queries which were received previously over email. Through GRP, the user could easily categorize the complaint and add screenshots, thereby ensuring that the grievance reached the concerned authority in a timely manner. Today, the GSTN helpdesk receives about 8,000-10,000 calls daily and is constantly evolving in an attempt to improve taxpayers' experience. Recently, a new toll-free number was launched – it will not only be operational throughout the year but will also support 10 additional languages.⁵
- **Analytics facilitates data-driven decision-making**
Data-analytics led business intelligence is one of the key pillars of GSTN. Analytics-driven solutions can help increase compliance, provide convenience to taxpayers, and increase ease of doing business. For example, analytics enables the team to check for discrepancies between e-bill data and tax returns or identify parties reporting all transactions amongst themselves and take corrective action. Going forward, GSTN plans to implement more complex fraud analytics systems and further leverage data to achieve its goals. For example, GSTN could enable companies to access credit using cash-flow based financing by evaluating data on the portal to project cash flows or develop a rating system to rank taxpayers based on GST compliance, thereby creating more transparency.

Principle 9: Be analytics-driven for continual user focus

GSTN has constituted a dedicated in-house Business Intelligence Unit (BIU). This unit leverages analytics for three purposes, (i) continuous improvement in interface, (ii) increase tax compliance, and (iii) enable data-driven policy making and new initiatives.

For example, the data captured through the e-way bill has facilitated in mapping transportation activity to the pin code level, helping identify potential transport hubs. This information can be shared with the state governments to formulate policy in the transport and logistics sector.

3.3 Governance

- **Accountable institution with control over decision-making and operations**

GSTN was set up as a Special Purpose Vehicle (SPV), not-for-profit, private limited company. This decision was taken considering the urgency and efficiency with which the GST system needed to be built. Hence, the central and state governments together held 49% equity and non-government financial institutions held the balance 51%.⁶ The public private partnership (PPP) structure aimed to provide independence to GSTN with respect to operational decision making, recruitment, partnerships, etc. This has enabled GSTN to have an independent board where key internal decisions are taken by the Chief Executive Officer (CEO) and the Board, precluding the need for an added layer of ministerial sign-offs, which could lower agility in decision-making. Subsequently, in its 27th meeting, the GST Council decided that 100% ownership of GSTN should be with the governments. While this likely has multiple benefits, including greater credibility, complete government ownership could pose challenges to transparent governance and the agility of the organisation. The impact of this decision is yet to be seen.

Principle 11: Define accountable institutions

GSTN was incorporated as a PPP to ensure independence in management and operations for efficient and reliable delivery of services. All decision-making and End-to-End (E2E) responsibility for delivery lies with the CEO, management team, and the board of GSTN.

- **Clear rules of engagement guided by policy and process rules**

GSTN is governed by the GST Act and is expected to comply with clear rules that define business processes pertaining to registration, return, payment, and refund. GSTN has clearly defined internal rules and procedures which establish roles and responsibilities as well as levels of authority and escalation for employees. For example, the Finance and Accounts Manual, which is modelled as per the General Financial Rules of the Government of India, prescribes the delegation of certain financial powers to specific authorities within GSTN and details a transparent procurement process. Transparent procedures are also established to define the decision-making process to be followed by employees, including the chairman.

- **Partnerships to deliver specialized services**

GSTN has collaborated with several private companies to deliver specialized services such as building software, managing the grievance redressal helpdesk, and generating e-way bills. This allows the core organization to focus on delivering key strategic outcomes, such as

keeping the system secure and reliable for smooth functioning while at the same time ensuring ease of compliance for taxpayers.

Principle 14: Ensure the right capabilities

GSTN has fostered partnerships to ensure that key capabilities and functions are delivered by experts. This helps in the faster execution of strategy in response to the dynamic needs of taxpayers and officials. Currently, GSTN has four such key partnerships.

- i) Infosys for building the GSTN platform.
- ii) Tech Mahindra for its helpdesk system.
- iii) Wipro manages the Tax Information Exchange System (TINXSYS), a centralized exchange of all interstate dealers supporting verification and reporting.
- iv) Recent contract to the National Informatics Centre (NIC) for generating e-way bills along with the development and management of the system.

- **Competitive recruitment strategy aimed at hiring the best talent**

Talent is one of the key imperatives for the successful implementation of any ODE. Considering the complexity of the Information Technology (IT) infrastructure and the expertise required to build it, attracting professionals with sophisticated technology knowledge becomes imperative. In order to achieve this, GSTN eschewed the prevailing government recruitment processes in favor of a newly designed competitive recruitment process. This included benchmarking against private sector skills, offering attractive compensation, and engaging a specialized consultancy to implement a rigorous screening process.

Principle 14: Ensure the right capabilities

GSTN required in-house, top-class technology talent to manage and guide its network of vendors. The talent has been attracted through a competitive and open-market recruitment process. This has been made possible by offering attractive compensation and using specialized talent acquisition services rather than solely relying on officials appointed by the government.

For example, GSTN needed sophisticated skills in platform management. It hired its technology head from the industry who brings 20+ years of expertise in big data, systems integration, and platforms. His experience spans private sector enterprises like Walmart, Yahoo, and Goldman Sachs, each with a distinct technology footprint.

- **Sustainable funding model for reliability of services**

In order to ensure that GSTN operated as an independent entity, it was envisaged that GSTN would have a self-sustaining revenue model. Decision makers largely agreed that dependence on external funding would likely lower the reliability and sustainability of the platform. Hence, the Union Cabinet approved the levying of user charges on both taxpayers and tax authorities. However, on objections raised by the state governments on charging taxpayers, the revenue model was changed. Currently, GSTN earns revenue from user charges paid by central and state tax authorities in proportion to the number of taxpayers in the states. The user charges are estimated by incorporating GSTN's capital and operational expenditure and expenditure on new projects (such as e-way bill). Moreover, the respective

governments are required to make the payments six months in advance to ensure operational efficiency of the GSTN.

GSTN is an example of an ODE in terms of the mechanisms that have been instituted to govern the platform – establishing an accountable institution with independence in operations, defining rules of engagement, building private sector partnerships, and incorporating a sustainable financing model. However, challenges have also arisen, for example, with the decision to convert GSTN to a fully owned government entity and with private partners not delivering according to the set expectations. The first challenge would require efforts to build trust in the governance of GSTN by ensuring transparency in policies and processes developed. As for the second challenge, stronger partnerships need to be fostered with defined rules, processes, and incentives to prioritize the achievement of objectives.

4. Conclusion

GSTN continues to adopt many of the guiding principles laid out in the ODE approach. While it has faced several challenges, key among them being troubles with the network in filing returns, GSTN continues to serve as a benchmark across many of the ODE principles. These include migrating from monolithic technology architecture to open, interoperable systems, creating an accountable institution to implement government reforms, and enabling innovation through partnerships with private players. Having said that, it is continuously evolving which is evident from the 39 GST council meetings that have taken place to date to resolve myriad issues.

Going forward, GSTN has the potential to further leverage the benefits of the ODE approach and become a truly open digital ecosystem, unlocking new opportunities in finance, logistics, and other sectors. We propose three ways in which the platform can further evolve.

- GSTN has been facing several issues in its functionality, processes, and servers. To address these issues in a timely manner, stronger and more proactive governance measures need to be established. A more iterative development method could also potentially reduce the time between the build-test-launch-refine phases. Finally, GSTN could leverage the expertise of the broader developer community to not just build solutions on GSTN but also help tackle some of these issues.
- With GSTN being converted to a wholly government owned company, questions arise on transparency in governance especially with respect to the use of taxpayers' data. To maintain and build the trust of the taxpayers in the system, GSTN could define transparent policies on data governance (for example, data use and decision-making across stakeholders) and internal processes, and make them accessible to everyone.
- GSTN currently interfaces with only empanelled GSPs. Going forward, there is potential for making the data available to a wider community of institutes and smaller businesses to enable them to build applications or use data for research. GSTN can consider building open APIs and other data sharing mechanisms to unlock innovative solutions on top of the platform – both for the taxation system as well as other sectors like logistics and financial services. However, data security and privacy must continue to be paramount and the necessary safeguards need to be incorporated to prevent misuse and privacy breach.

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