

2.0 Design Consideration for GST system

Following are the design considerations that have been considered while conceptualizing the GST solution.

2.0.1 Ecosystem Approach

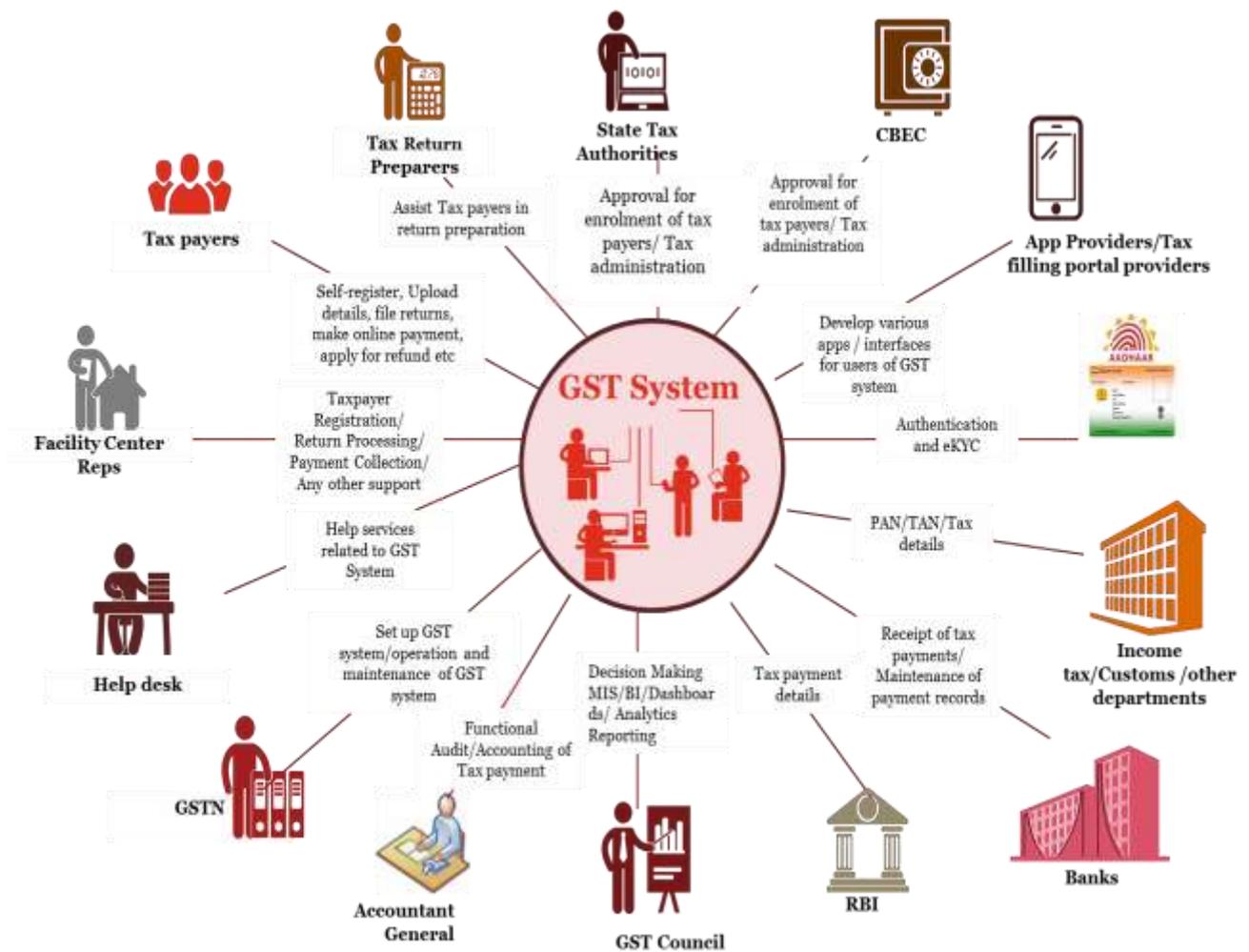


Figure 1: GST System Stakeholders

A common GST system will provide linkage to all State/UT Commercial Tax departments, Central Tax authorities, Taxpayers, Banks and other stakeholders. It will be a common medium of information sharing with standardized forms, formats, payment challans, acknowledgements, certificates etc.

Taxpayers will interface with GST System via GST system portal or via ecosystem provided applications for activities such as Registration, Tax payments and Returns filing. Information captured on the GST System will be shared with the respective State/UTs and centre / CBEC for further processing. State/UTs and centre will process the information in their respective tax administrative systems and re-transmit the processed information to GST system which will be available for Taxpayers for viewing various MIS reports via their choice of applications. 3rd party applications provide all user interfaces and convenience via desktop, mobile, and other interfaces. These applications connect with GST system via secure GST system APIs. All such third parties service providers have been given a generic name, GST Suvidha Provider, hereinafter referred to as "GSP" in this document.

GSTN has also engaged in continuous dialog with standardization bodies, with technology providers, and other partners to ensure a high degree of uniformity in the quality of data collected and resident experience.

Such an ecosystem approach necessitated that the interfaces between these partners and systems were well defined and standardized. Hence, GSTN also needed to build a technology backbone that would hold together this partner ecosystem

Functions / roles in brief of each kind of stakeholder are detailed below:

S.N.	Name of Stakeholder of GST System	Major Functions
1	Tax Payers	<ul style="list-style-type: none"> a. Application for registration as taxpayer, and profile management b. Payment of taxes, including penalties and interest c. Uploading of Invoice & filing returns / annual statements d. Status review of return e. Others
2	State Tax Authorities	<ul style="list-style-type: none"> a. Approval for enrollment/registration of taxpayers b. Tax administration of state tax(Assessment /Audit /Refund / Appeal/ Investigation)
3	Central Board of Excise & Customs (CBEC)	<ul style="list-style-type: none"> a. Approval and management of GST b. Assessment, Refund, Audit, Appeal and investigation of central tax. c. MIS and other functions
4	Banks / RBI	<ul style="list-style-type: none"> a. Receipt of tax payments b. Maintenance of records of payments c. Reconciliation/state wise accounting

		d. MIS and other functions
5	Facilitation Centre	a. Assist taxpayers in Registration b. Assist taxpayers in invoice upload & filing returns
6	GST Suvidha Providers (GSPs)	a. Development of various apps / interfaces for users of GST system b. Providing other value added services to the taxpayers
7	GSTN	a. Set up of GST system and maintain the same b. Clearing house for IGST c. Interface with the ecosystem of GSPs
8	Help desk representative	a. Interacts with partners for issue resolutions and other clarifications b. Forward issues to the technical team to resolve.
9	GST council	a. Define policies & procedure for GST b. Body for decision making
10	Tax Return Preparers (TRP)	a. TRP denotes CAs, tax advocates etc. b. Act as a mediator and helps the taxpayers in registration/payment/ return submission. c. Help the taxpayers in resolving tax related issues.
11	Income Tax & other department	a. Departments which directly or indirectly interact with GSTN for information exchange b. Income tax system will be used for PAN , TIN validation
12	Aadhaar	a. For strong unique identity usage and online authentication of identity of partners /proprietors /Directors etc.
13	Accountant General	a. MIS relating to tax payment b. Accounting for Government including reconciliation

2.0.2 API Approach

GSTN has decided to adopt Open API as the guiding paradigm to achieve the above goals. Though GST system would develop a G2B portal but that would not be the only way for interacting with the GST system as the taxpayer via his choice of third party applications, which will provide all user interfaces and convenience via desktop, mobile, other interfaces, will be able to interact with the GST system. These applications will connect with the GST system via secure GST system APIs. This architectural approach has been taken as the UI based integration through a ubiquitous web portal requires manual interaction and does not fit most consumption scenarios. The following benefits are envisaged from API based integration,

- a) Consumption across technologies and platforms(mobile, tablets, desktops, etc.) based on the individual requirements
- b) Automated upload and download of data
- c) Ability to adapt to changing taxation and other business rules and end user usage models
- d) Integration with customer software (ERP, Accounting systems) that tax payers and others are already using for their day to day activities.

GSTN would prescribe the mechanism for empanelment of GSPs who will be the user agencies of the GST system APIs and build applications and web portals as alternate interface for the tax payers.

2.0.3 Distributed Access

One of the design considerations is to provide multiple channels/interfaces to taxpayers to interact with GST system. The aim is to reduce load on GST system portal layer. The high level view of stakeholder's interaction with the GST system as common data hub interfacing all communication via Open APIs is depicted below. State infrastructure communicates with GST system to download, process, and upload data.

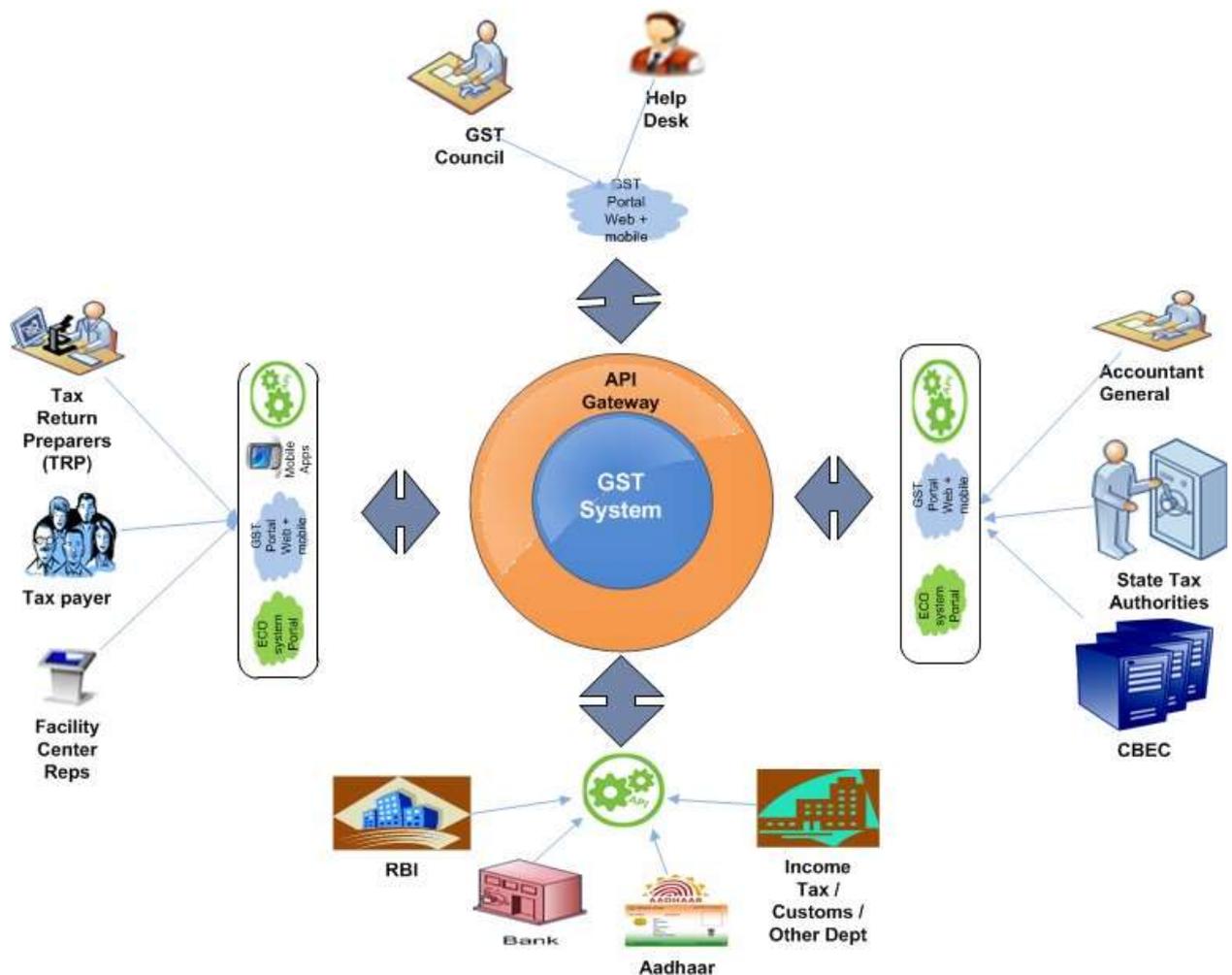


Figure 2: Stakeholder access points

2.0.4 Security & Privacy

Security and privacy of tax data should be fundamental in design of GST system without sacrificing utility of the national indirect tax system. When creating a national indirect tax system of this scale, it is imperative that handling of privacy and security of tax payer data are not afterthoughts, but designed into the strategy of the system from day one.

2.0.5 Configurability

All configurations including policy decisions, business parameters, rules, etc.

shall be captured in a central place within GST system. The system shall provide facility to the decision makers to add new or edit/delete existing policies or make changes with appropriate permission control and audit trace. Managing these in a central repository ensures only once source of truth is used across many application servers and reduces issues of inconsistent application behavior.

Decoupling of the business parameters/rules/master data from the rest of the solution architecture and making them configurable allows for a great deal of flexibility. At a later date, if rates are changed or new items are added to the list of taxable items, or if existing items are exempted; these changes can be reflected in the central configuration repository without affecting the rest of the system. This also makes it possible to start the design and implementation of all IT systems, even while policies and rates are debated. Once the policies and rates are fixed, they can simply be reflected in the central repository for entire application to use.

At a later date, if rates are changed or new items are added to the list of taxable items, or if existing items are exempted; these changes can be reflected in the Tax rule configuration system without affecting the rest of the system. This also makes it possible to start the design and implementation of all IT systems, even while policies and rates are debated. Once the policies and rates are fixed, they can simply be reflected in the Tax rule configuration system.

There should be a central interface for managing the configurability by authorized user group.

2.0.6 Data Distribution Service

The system shall be able to provide data on subscription-publication basis. The organization of the information exchange between modules is fundamental to publish- subscribe (PS) systems. The PS model connects anonymous information producers (publishers) with information consumers (subscribers). The overall distributed application (the PS system) is composed of processes. The goal of the DDS architecture is to facilitate efficient distribution of data in a distributed system. Participant using DDS can 'read' or 'write' data efficiently and naturally with a typed interface. Underneath, the DDS middleware will distribute the data so that each reading participant can access the 'most current' values.

