

Data and Strategy Unit: Detailed Terms of Reference (ToR)

The first round of Data Governance Quality Index (DGQI) was initiated in May 2020 and was completed in Feb, 2021 based on the information provided by 65 Ministries/ Departments of the Government of India on their data preparedness levels for ~250 Central Sector and Centrally Sponsored Schemes. The final report of DGQI was shared vide a D.O. letter from Sh. Bhaskar Khulbe, Advisor to Hon'ble PM dated 02nd Feb, 2021. The D.O. letter also advised Ministries/Departments to develop an action plan/data strategy to reach frontier DGQI 5.0 scores by December 2022 and set up a Data & Strategy Unit (DSU) to steer the development and implementation of this action plan. Indicative responsibilities and structure of the Data & Strategy Unit was also shared as an Annexure to the letter.

Based on multiple requests from Ministries/Departments (M/Ds) to provide guiding details of the structure, indicative strength and key roles and responsibilities of the unit members, this detailed Terms of Reference (ToR) for Data & Strategy Unit at M/Ds has been developed to guide their efforts in the direction.

This ToR has been divided in the following sections:

1. Purpose of DSU
2. Organization Structure of DSU
3. Key roles and functions of DSU members
4. Indicative strength of DSU

1. Purpose of DSU

In order to create better mechanisms for digitization of processes related to implementation and monitoring of Central Sector/Centrally Sponsored Schemes and other non-schematic interventions of Ministries/Departments, an institutional mechanism in the form of a **“Data and Strategy Unit”** may be set up within each Ministry/Department. The Data and Strategy Unit shall drive the process of building and harnessing existing as well as augmenting the monitoring, statistical, technological and data analytics capabilities of the respective Ministry/ Department.

The key roles of the DSU shall include breaking silos within the Ministry/Department to enable creation of well-integrated monitoring and data systems while ensuring adequate focus on data quality and security and creating mechanisms for regular data analysis within the Ministry/Department to inform policy decisions. Coordinating with scheme divisions within the Ministry/Department as well as with required external partners such as States, other Ministries/Departments, research organizations, leading private players and academic institutions for taking necessary steps in the direction shall also be one of their key responsibilities.

2. Organization Structure of DSU

To fulfill this purpose, The Ministries/Departments can augment their present institutional setup to create DSU.

The DSU may be headed by an Additional Secretary/Joint Secretary/DDG level officer who would be directly reporting to the Secretary of the Ministry/Department. As shown below in Figure 1, it is proposed to have the following four verticals within the DSU

1. Monitoring Unit – For integrating siloed monitoring initiatives across the Ministry/Department
2. Statistics Unit – For identifying overall statistical needs of the Ministry/Department and ensuring coordination with necessary agencies to meet the same
3. Technology Unit – For ensuring 100% digitization and integrating siloed MIS/dashboards/data systems of the Ministry/Department
4. Data Analytics Unit – For undertaking and promoting data analysis on collected data to drive decisions

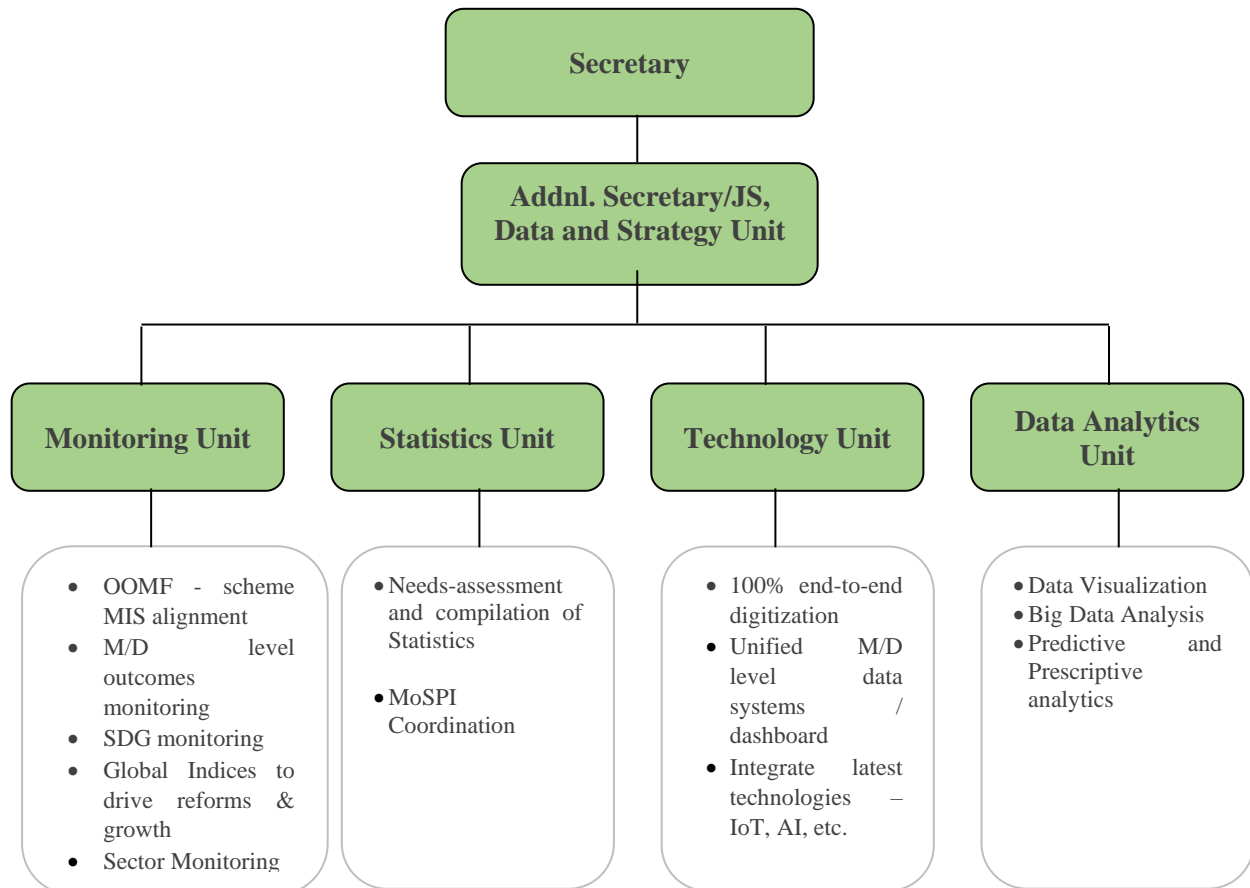


Figure 1 Verticals of DSU

A snapshot of the organization structure of the four verticals of the DSU has been provided below in Figure 2.

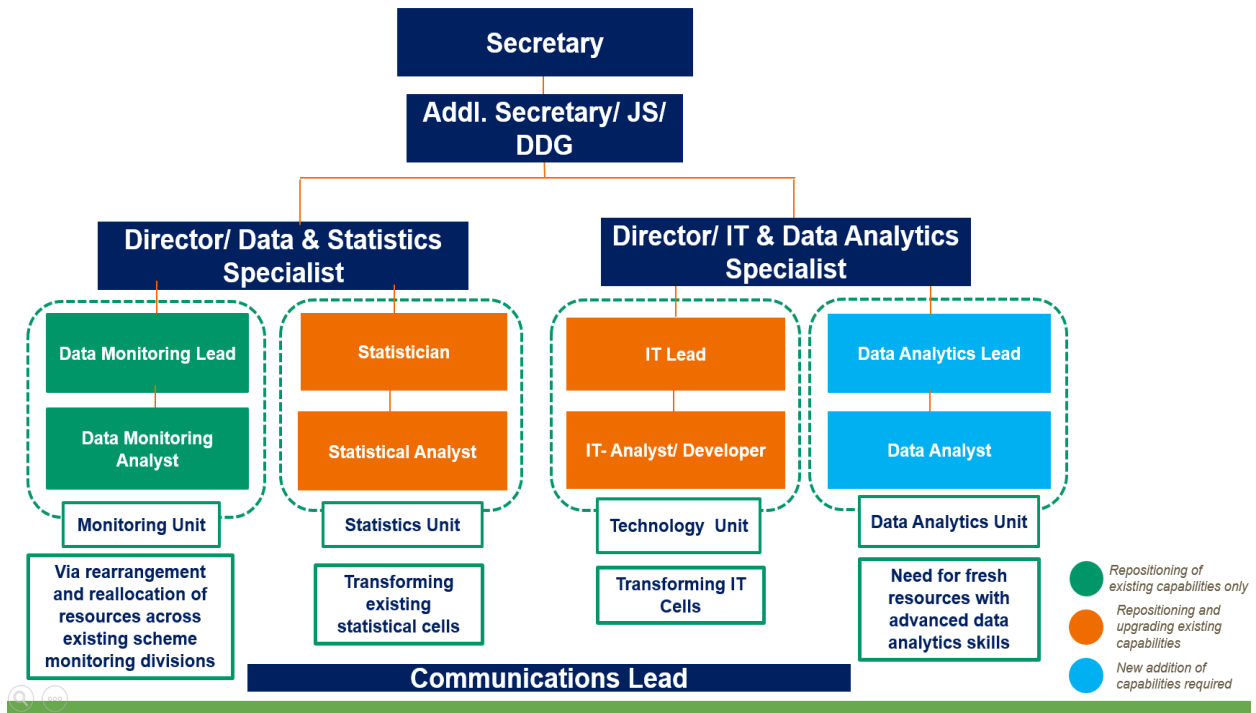


Figure 2 Organization Structure of DSU

The sub-units within the DSU should be headed by a Director level officer. In order to make the DSU lean and more responsive, it is suggested that sub-units with similar tasks may be headed by one Director level officer i.e., one Director for Monitoring and Statistics sub-units and one Director for Technology and Data Analytic sub-units.

Each sub-unit is recommended to be composed of leads who would be domain experts and provide direction to the efforts to be undertaken and skilled analysts who would have domain knowledge and be responsible for carrying out the implementation efforts.

It is envisioned and suggested that majority of these positions in these sub-units can be filled by repositioning of existing staff as explained below.

It is suggested that the Monitoring sub-unit may be almost entirely created by reallocating some of the existing staff among different scheme divisions which are already regularly monitoring scheme implementation to DSU. Similarly, current resources engaged in OOMF, Global Indices and SDG monitoring in Ministries/Departments can be integrated to form the Monitoring sub-unit of the DSU. One, this would aid in ensuring that resources from different scheme divisions work in tandem with each other, helping in breaking the siloes as they get to understand how different schemes may be monitoring similar initiatives. Two, with different types of monitoring needs (OOMF, GI, SDG etc.) being looked at by a central team, the Ministry/Department would be able to understand how these efforts can actually be synergized, reducing the administrative reporting burden on Ministries/Departments.

Similarly, Statistics sub-unit may also be largely created by reallocating roles in the existing statistical cells to the DSU. The statistical cells at present are already responsible for dissemination and compilation of Ministry/Department statistics. To be able to meet newer expectations from the Statistics sub-unit of the DSU such as needs assessment for more statistics that need/need not to be

collected and coordination with other partners (private agencies/Ministries/others) for synergistically collecting some statistics, their capabilities may require some upgradation. In order to transform existing statistical cells for this purpose, every Ministry/Department may undertake an assessment at their own level and consider the need for a few additional resources with required skills based on their present status.

The Technology sub-unit may similarly be created by transforming existing IT cells present in the Ministry/Department. Some of the resources can be re-casted to play the role of the technology arm of the DSU. However, if it is felt that there may be a need for upgradation of their capabilities in certain domains such as integration of several dashboards or creating single metadata architecture for all scheme MIS/dashboards, then the Ministry/Department can again undertake an assessment at their own level and consider the need for a few additional resources with required skills based on their present status. For e.g. If the existing IT cell in the department does not have a suitable person with required skills of IT analyst, he/she may have to be recruited as a lateral entrant.

The Data Analytics sub-unit is one sub-unit where it is believed that most Ministries/Departments may not have enough capabilities or resources at present and hence may require people with advanced data science and analytics skills to be freshly recruited to complete this missing link. This would play a crucial role in completing the vision of moving to evidence-based policymaking across Ministries/Departments.

To summarize, it is suggested that the creation of DSU may be principled on reorganization of existing organizational structure and roles of Ministries/Departments. The key idea should be to bring together existing resources with skills, experience and passion for these tasks together within the DSU to break the siloes of the present structure, and thereafter, only for required roles, recruitment may be done to fill the skill gaps, wherever necessary. The same is also depicted above in Figure 2 where monitoring sub-unit is colored green to show that it only requires repositioning, statistics and technology sub-units are colored amber to show that they majorly need repositioning but some Ministries/Departments may also require upgradation and finally, data analytics unit is colored blue to show that it is the major place where fresh talent acquisition may be needed.

The next section details the roles and responsibilities for the personnel in each sub-unit in detail. Ministries/Departments can map their current capabilities in accordance with the same.

3. Key roles and functions of DSU members

Sub-Unit	Function	Member	Role
Monitoring Unit	<ul style="list-style-type: none"> Conceptualizing integrated monitoring systems for schemes of the M/D (e.g. DISHA initiative of MoRD) based on a unified monitoring framework that enabled tracking of schemes, broader sectors and M/D level outcomes, and its contribution to SDGs/National Priorities. 	Data & Statistics Specialist	S/he will coordinate the work related to- <ul style="list-style-type: none"> Develop M&E plans for all schemes and projects and ensure the same is followed up during implementation process Provide insights, review and revise the DGQI action plan developed by M/D Review frameworks developed for monitoring OOMF, GIRG, Sector dashboards, etc Design, plan and manage the data requirements and data collection.
	<ul style="list-style-type: none"> Coordinating to drive its implementation in collaboration with other scheme units Development of clear and SMART input, output and outcome indicator frameworks for schemes and ensuring that the indicators are aligned with the output outcome monitoring framework. 	Data Monitoring Lead	S/he will coordinate and contribute to work related to <ul style="list-style-type: none"> Assist in Indicator development that need to be monitored across the scheme divisions (in a synergistic approach that enables monitoring on all aspects: OOMF, SDG, GI, etc.) Ensure that data are collected on all indicators required for monitoring and policy making within the department. And, there is no duplication of efforts across divisions for same set of data points. Support in development of data quality protocols needed for reliable monitoring systems Conduct spot data quality assessments with implementing partners
	<ul style="list-style-type: none"> Development/ identification/ tracking of other sector level indicators at M/D level and aligning their progress tracking with the SDG goals. Ensuring a synergistic approach that enables monitoring on all aspects: OOMF, GIRG, Sector dashboards, etc. of the M/Ds. 	Data Monitoring Analyst	S/he will assist in work related to <ul style="list-style-type: none"> Prepare monitoring frameworks and indicators to ensure tracking of schemes, broader sectors and M/D level outcomes, and its contribution to SDGs/National Priorities Development of mechanisms to conduct data quality checks with the implementing agency Coordination with implementing agencies for availability of quality data on developed frameworks.

Statistical Unit	<ul style="list-style-type: none"> Identifying data requirements across scheme divisions within the M/D along with M/D-level indicators based on M/D needs as well as reporting requirements Based on the gap analysis of data requirements so gathered, designing and implementing data capturing mechanisms in collaboration with the respective scheme divisions Designing and implementing data quality assurance mechanisms including but not limited to data integrity checks, data cleaning protocols, data validation and verification, among others. Building a statistical register for the ministry to enlist all data points being captured within the M/Ds along with its meta data definitions Facilitating coordination with MoSPI for needs assessment and compilation of statistics as per MoSPI standards of dissemination 	Data & Statistics Specialist	<i>[This would be the same person as given in Monitoring Unit]</i>
	<ul style="list-style-type: none"> Identifying data reporting requirements, including frequency and format in collaboration with scheme divisions Identifying and coordinating with other M/Ds monitoring similar parameters and private agencies generating statistics that may be of use Design and implementation of data capturing and data quality assurance mechanisms within the M/D Co-ordination with MOSPI for needs assessment and compilation of statistics as per MOSPIs standards of dissemination Building a data statistical register to enlist data points being captured within the M/D Ensuring data integrity by performing and reviewing rigorous cleaning, error checking, and validation. Performing statistical tests to determine the reliability and soundness of insights being generated 	Statistician	S/he will coordinate and contribute to work related to
	<ul style="list-style-type: none"> Support in coordination with MoSPI To build a data statistical register to enlist data points being captured within the M/D Compilation of statistics as per the standard norms set by MoSPI Ensure data integrity by conducting rigorous data cleaning, error checking and validation. 	Statistical Analyst	S/he will assist in activities related to

Technology Unit	<ul style="list-style-type: none"> Integration of various internal and external IT systems (MIS/Dashboards etc.) for data collection and reporting and also to ensure end-to-end data integration within M/Ds to reach high-frequency, granular, transactional data generated with minimal human interference across its various scheme divisions and for non-schematic interventions Up-gradation of IT systems with latest technologies Identifying hardware and software requirements for revamping the data systems within the Ministry and drive the implementation to meet these requirements in a time-bound manner. Enabling cross-platform integration given that some of the legacy systems within the M/D across scheme divisions may be operating on different technologies and would thus require seamless data sharing going forward. Explore the use of emerging technologies including Industry 4.0 technologies for driving near real-time, high quality, granular programme information 	IT & Data Analytics Specialist	<p>S/he will coordinate work related to</p> <ul style="list-style-type: none"> Develop and implement a robust IT system for implementation and M&E that will ensure tracking of project/ programme results at different levels Develop/ adopt an integrated database of all projects/ programmes of the department and ensure accountability through regular tech updates and data integrity Review the existing IT systems being used within the Ministry/Department Facilitate and undertake data analytics initiatives within the M/D to drive a culture of evidence based policy making
		IT-Lead	<p>S/he will coordinate and contribute to work related to</p> <ul style="list-style-type: none"> Coordination with NIC and other stakeholders for development of IT based data collection & reporting systems (MIS/ Dashboards) Ensuring compliance against data security and privacy protocols of Meity Ensuring an integrated system for data storage across several MIS dashboards of the M/Ds (Data Warehouse) and API enabled MIS and dashboards to enable free exchange of non-personal data Enable cross platform integration of schemes operating on different technologies Identify and drive implementation of the hardware and software requirements of data systems within the M/D Development of sound metadata for all MIS and dashboard of the M/D
		IT-Analyst/ Developer	<p>S/he will assist in work related to</p> <ul style="list-style-type: none"> Support NIC and other stakeholders for development of IT based data collection & reporting systems (MIS/ Dashboards) Support in the development of an integrated system for data storage across several MIS dashboards of the M/Ds (Data Warehouse) Analyzing the existing IT systems of department and ensure integration of platforms operating on different technologies, adoption of latest technology, etc. Diagnosing IT system problems, inefficiencies, and weaknesses Providing advice on technology best practices

Data Analytics Unit	<ul style="list-style-type: none"> Identify the decision-needs of different stakeholders within the M/D and prepare a data analysis plan incorporating existing and future data availability within the M/D. Use data analytics and visualization to convert data into meaningful insights which may aid decision making to foster a culture of evidence-based policy making within the Ministry/Department. Preparing summaries of data analytics for individual schemes/ NSI Drawing correlations between performance of different schemes, as well as M/Ds lying in the same category for comparisons. Use the latest statistical analysis packages like Stata, Python, and R for quantitative data analysis, tools like Atlas.ti, NVivo, Quirkos, MAXQDA, etc. for Qualitative data analysis, and data visualization tools like Tableau, etc. for enhanced data to insights transformation. 	IT & Data Analytics Specialist	<i>[This would be the same person as given in Technology Unit]</i>
		Data Analytics Lead	S/he will coordinate and contribute to work related to <ul style="list-style-type: none"> Strategic planning for data analysis Describing, interpreting, and summarizing data to support policy decisions Analyzing M/Ds data using statistical software such as STATA, SPSS, R, Python, etc Undertake qualitative data analysis using Atlas.ti, NVivo, Quirkos, MAXQDA, etc. Presenting findings to policy makers in reports that include executive summaries, charts, tables, and graphs and other user friendly visualizations to drive policy decisions
		Data Analyst	S/he will assist in activities undertaken by the Data Analytics Unit by <ul style="list-style-type: none"> Analyzing and interpreting data for schemes/ NSI using quantitative tools like STATA, SPSS, R/ Python, etc and qualitative tools like Atlas.ti, NVivo, Quirkos, MAXQDA, etc Create data visualizations to convert data into meaningful policy insights Prepare reports using data analysis and visualizations to support evidence based policy decisions

4. Indicative strength of DSU

This section highlights the indicative strength of manpower that may be required for the 'Data and Strategy Unit'. As already mentioned above, the unit is proposed to be headed by an Additional Secretary/ Joint Secretary level officer of the M/D, reporting directly to the Secretary. A Director level officer called Data & Statistics Specialist can head the two sub-units, Monitoring Unit and Statistics Unit. Another Director level officer called IT & Data Analytics Specialist can head the remaining two sub-units, Technology Unit and Data Analytics Unit.

For leads and analysts, indicative strength of manpower required in the Data & Strategy Unit has been arrived at in Table 1. The M/Ds under have been classified into three main categories: Small, Medium and Large on the basis of the number of interventions (CS schemes +CSS schemes +Non-Schematic Interventions of the M/D). M/Ds with upto 10 interventions are called small, 11-30 interventions are termed medium and M/Ds with above 30 interventions are termed large. Further, two bifurcations have been created on the basis of average outlay of M/D's interventions (for the size of interventions), depending on whether it is above or below INR 500 Crores. The same has been done keeping in mind that manpower requirements would rise in line with a greater number of interventions or increase in average outlay.

Using this classification and the following general thumb rules –

- For every **5 interventions** with average budgetary allocation **less than Rs 500 crores**, **one analyst is recommended**. M/D may hire/ allocate **one lead for every two analysts** in a sub-unit to guide and review the tasks assigned to them.
- For every **5 interventions** with average budgetary allocation **more than Rs 500 crores**, **two analysts are recommended**. M/D may hire/ allocate **one lead for every two analysts** in a sub-unit to guide and review the tasks assigned to them.

The indicative manpower strength has been arrived at in Table 1. However, it may be noted that this is only meant to act as a guidance for Ministries/Departments is by no means a mandatory requirement.

***Table 1: Indicative Strength of DSU sub-units**

Type of M/D	Total number of interventions (CS+CSS+NSI)	Avg outlay >= INR 500 Crores			Avg outlay < INR 500 Crores		
		Leads	Analysts	Total	Leads	Analysts	Total
Small	0-10	2	4	6	1	2	3
Medium	11-30	4	8	12	2	4	6
Large	Above 30	6	12	18	3	6	9

**Individual M/Ds may modify the numbers as per different combinations/ categories and beneficiary coverage*

Appendix: Responses to comments received from Ministry/Departments on draft version of detailed ToR

M/D	Comment	Response
M/o Statistics and Programme Implementation	Each M/D may be given flexibility to choose the strength	Strength is indicative. M/D can choose it as per own requirement.
D/o Empowerment of Persons with Disabilities	Need for specialized personnel which may need to be outsourced	M/D can proceed with the same as per requirement.
D/o Economic Affairs	Designations like leads and analysts presently don't exist	Designations are indicative in nature. M/Ds can use other designations also.