

CHENNAI UNIFIED METROPOLITAN TRANSPORT AUTHORITY

TERMS OF REFERENCE

I. Introduction

At present the management of traffic and transportation system in Chennai Metropolitan Area (CMA) is fragmented and several government agencies are involved in it. For optimum utilization of resources, a greater coordination and streamlining of activities among all the concerned agencies is essential. Therefore, Government of India (GoI) insisted to establish Unified Metropolitan Transport Authority (UMTA) under its National Urban Transport Policy (NUTP) 2006 that was revised in 2014. Consequently, the Chennai Unified Metropolitan Transport Authority (CUMTA) was established by the Government of Tamil Nadu (GoTN) through the CUMTA Act, 2010 and the Rules for CUMTA were notified during January 2019.

The creation of CUMTA was a step towards integrated and sustainable urban mobility for Chennai. It is better placed to manage the existing institutional gaps and overlaps amongst various agencies in tackling urban transport issues at optimum utilization of resources. The jurisdiction of CUMTA extends over the whole of Chennai Metropolitan Area (CMA).

Currently, CUMTA is functioning under Housing and Urban Development Department with 'Special Officer' to execute the duties of Member-Secretary, CUMTA.

To fully operationalize CUMTA's functions in the urban mobility sector, additional experts/professionals, are now required. The role, key responsibilities, qualifications, work experience and additional competencies required for the post of Senior Data Integration Engineer are given below:

II. **Name of the Position:** Senior Data Integration Engineer

III. **Description:**

The Senior Data Integration Engineer will be responsible for developing and implementing data integration strategies to ensure the seamless exchange of data between different agencies and stakeholders involved in the Digital Chennai initiative. This position will require expertise in data management, integration, and analysis, along with the ability to communicate and collaborate effectively with internal and external stakeholders.

About Digital Chennai Project:

Chennai has witnessed rapid urbanization over the past decade, straining existing urban systems that are ill-suited to meet the scale or pace of emerging physical, economic and demographic demands. The compound challenges faced by public officials require new approaches to govern the urban ecosystem, and new tools to plan, implement, manage and monitor all the services.

The goal of this project, is to define the means and methods by which data will be compiled and integrated to inform planning and investment decisions, guide real-time urban management and operations, and allow for in-depth monitoring and evaluation of service delivery standards and other key performance indicators. Combining data from different agencies and carefully chosen external sources, in one platform should provide a multi-sectoral, holistic understanding of city performance and the ability to make empirically informed choices between competing policies and programs.

Against this backdrop, the two technology solutions envisaged are as follows. The **Integrated Urban Data Platform (IUDP)** will comprise a platform that is able to integrate, store and share spatial and non-spatial (both structured and non-structured) data through a single data portal; and provide modular analytics that combine and analyze the data for a comprehensive tracking of city service performance. The **Urban Project Planning and Management (UPPM)** tool will facilitate planning, management, coordination, supervision, and monitoring of multi-agency urban projects.

IV. Key Responsibilities:

- To develop and implement data integration strategies and processes to ensure the seamless exchange of data between different agencies and stakeholders involved in Digital Chennai.
- Manage data integration and lead a team of data integration professionals.
- Collaborate with internal and external stakeholders to develop data sharing agreements and standards.
- Develop and maintain data dictionaries, data lineage, and metadata.
- Ensure data quality and integrity across all systems and databases.
- Monitor and evaluate the effectiveness of data integration strategies and processes and make recommendations for improvement.
- Support data collection and data creation efforts in CUMTA.

- Keep up to date with industry trends and emerging technologies related to data integration.

V. Qualifications and Experience:

- Postgraduate in Computer Science, Information Technology, Big Data, Data Science, Analytics, Information Systems or a related field is required. Certification courses in Big-Data/Cloud platform/Data Science/ML will be an added advantage.
- Minimum **5 years** of experience in data management, integration, and analysis, preferably in a large-scale, complex environment preferably in transport sector.
- Strong understanding of data governance, data management principles, data security, data privacy regulations, cybersecurity tools is mandatory.
- Experience with data integration tools and technologies, including ETL tools, data warehouses, APIs, and cloud-based services is mandatory.
- Should have extensive experience in managing and integrating large-scale datasets from diverse sources in the transportation sector.
- Should have good understanding of Event Driven Architecture implementations.
- Should have architected integration solutions for cloud, hybrid, and on-premises integration landscapes.
- Experience in developing and optimizing large scale data pipelines in multi cloud environment and in on-prem environment.
- Advises project team during system development to assure compliance with architectural principles, guidelines, and standards.
- Understand Configuration and Management, Platform Monitoring, Performance Optimization Suggestions, Platform Extension, User Permissions Control Skills.
- Should have hands on experience in configuring AS2, https, SFTP, SOAP, DB involving different authentication methods.
- Analyze and prototype Data Source Connections (Data Integration) ODBJ, JDBC, XML, WS.
- Experience with relational SQL and NoSQL databases, including SQL, TSDB, Postgres and Cassandra, etc.
- Should have strong proficiency in writing/reviewing SQL scripts and optimization of queries/sub-queries.

- Hands-on Experience with object-oriented/object function scripting languages: Java, SQL, Scala, Spark-SQL, Pyspark and other related languages.
- Hands on experience with Hadoop and Bigdata tech. e.g. HIVE, HBase, Kafka, Spark and other related technologies.
- Working knowledge of message queuing, stream processing and highly scalable 'big data' data stores.
- Nice to have experience with data pipeline and workflow management tools: Azkaban, Luigi, Airflow, etc.
- Demonstrated experience with GIS tools and FME or similar spatial ETL tools. Developing knowledge of GIS portals and applications is desirable.
- Experience in working on modelling spatiotemporal systems such as GIS, urban dataset, satellite images, and other sources is desirable.
- Should have experience in developing large scale real-time platforms that are functioned with data collection, analysis and visualization, workflow integration and closed loop systems.
- Strong project management and team leadership skills. Should be able to explain complex data integration concepts to non-technical stakeholders
- Excellent communication and interpersonal skills, with the ability to collaborate effectively with internal and external stakeholders.
- Knowledge of emerging technologies related to data integration, such as AI, machine learning, and blockchain, would be an advantage.
- Certifications in data management, integration, and analytics, such as Certified Data Management Professional (CDMP), Microsoft Certified: Azure Data Engineer Associate, or IBM Certified Data Architect is an added advantage.

VI. Work Location

The work location will be at Chennai Unified Metropolitan Transport Authority, Nandanam, Chennai. She / He will be required to travel frequently within and outside the city and occasionally outside the state for project purposes.

VII. Duration

Appointment to the post will be on contract basis initially for a period of two year and likely to be extended based on the performance.

VIII. Reporting Arrangements

The Senior Data Integration Engineer will report to the Special officer / Member Secretary, CUMTA.

IX. Remuneration

Upto Rs.2,00,000 per month. Remuneration will not be a constraint for exceptionally deserving candidates.

X. Language

Working knowledge in Tamil is desirable.

Apply by:

Interested candidates may apply with the detailed resume, portfolio, expected salary and pay-slip for the last 3 months on or before **10-August-2023** by e-mail to cumtaoffice@tn.gov.in.