Smart City Innovation for Multi-modal Transportation Authority

Leveraging data for optimizing a people-centric transportation system

SMART CITIES

This city-wide multi-modal transportation authority manages a transportation system that's critical for keeping its millions of citizens and socio-economic development moving. The authority oversees this task through traffic management, and regulation of private and public transit. It plans, develops, and manages for short- and long-term needs to provide an efficient, people-centered system that includes roads, rail, buses, taxis, and private vehicles.

Introduction

Given this city's fast-paced development and growing population, the projected demand is expected to strain the public transportation system if not planned for properly. To serve these anticipated needs, the authority drafted its Land Transport Master Plan for transportation network investments that forecasted needs over a decade.

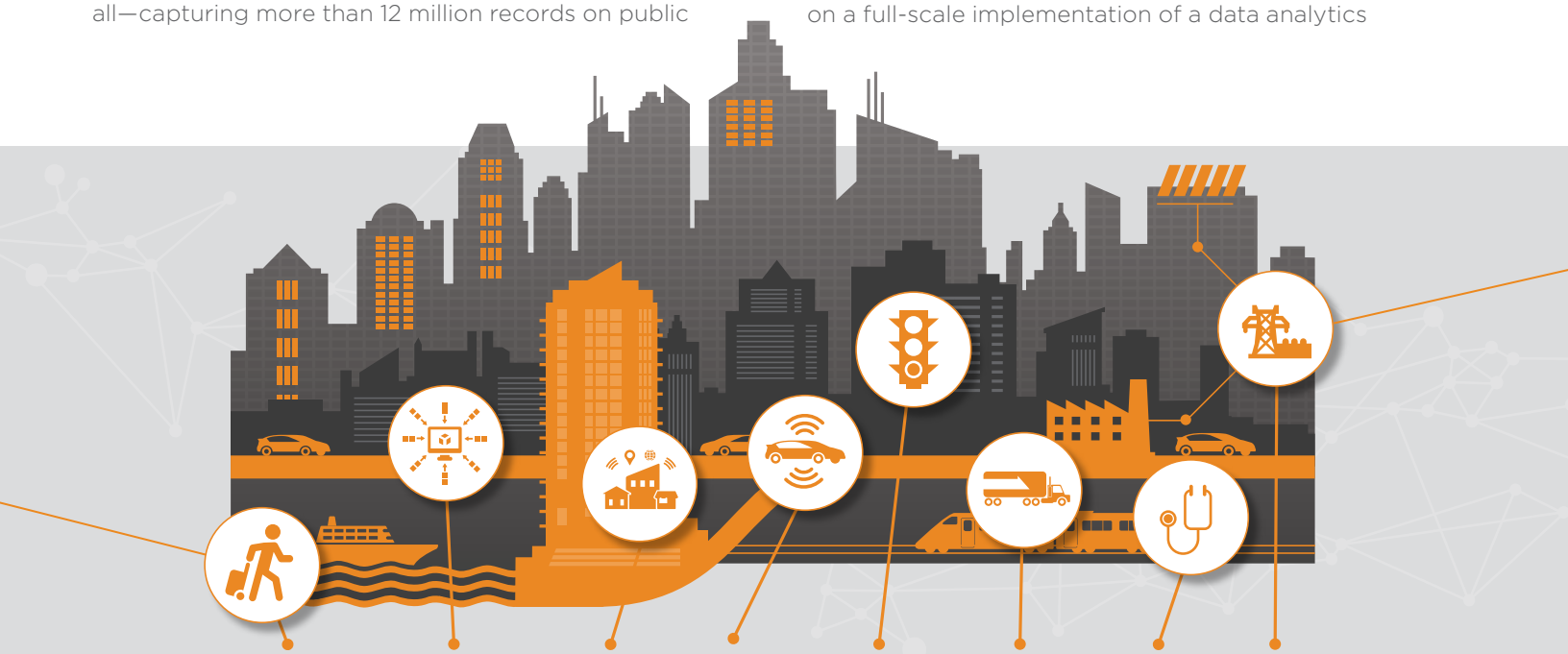
In addition to a rapidly growing population, ever-expanding data volumes posed a considerable challenge to their technology infrastructure. The authority relies on data and applications to ensure smooth travel for all—capturing more than 12 million records on public transport each day. However, land transport IT systems were designed for quick response time, with priority given to keeping transactions moving; but not for keeping data beyond three months. Lost data meant a lost ability to conduct meaningful trend analysis, create long-term policy planning, or engage in data mining.

With the expectation that data volumes would continue to grow, a decision was made to create a data management ecosystem focused on implementing new measures to better address commuter needs.

Putting the Authority's Data to Work

Teradata initiated a proof-of-concept study to identify a suitable enterprise data warehouse that would address their growing data volumes and, more importantly, put their data to work. Several test scenarios assessing performance, scalability, and workload management resulted in a 99 percent improvement in query response times.

Following these encouraging results, Teradata embarked on a full-scale implementation of a data analytics



ecosystem utilizing technology from Teradata. Its implementation helped the authority set a course for creating a decision capability that supports its vision of a truly people-centric transportation system.

Today, the ecosystem provides the transportation authority with advanced capabilities to perform large-scale business analytics, and transport simulation in the deployment of various Land Transport Master Plan initiatives. This enables planners to determine levels of efficiency and resource optimization; e.g., tracking traffic flow and behavior, passenger loading, route running times, and transfer volumes for advanced trend analysis.

Smart Data Management is Key to a Smart City

For the transportation authority, data-driven policy and planning decisions with fast turnaround were regarded as the critical success factors of the strategy. A sound infrastructure is the essential building block for any smart city initiative. The infrastructure must be skillfully engineered to integrate and manage a wide variety, and large volumes, of traditional and non-traditional data. This usually requires an integrated data warehouse, a data lake, and an analytics platform.

A smart data management system uses the infrastructure to take data from agency silos, bring it together with data from a wide variety of other sources, then make the information accessible for advanced analytics. The analytic insights trigger actions, either through automation or by informing city workers who can take appropriate action.

A practical approach to smart data management addresses current problems, but it must also be flexible enough to overcome emerging challenges. For example, the system can start with a focus on improving transportation, but accommodate other aspects of the smart city in the future, such as enhancing energy and water efficiency or reducing greenhouse gas emissions through clean and renewable energy initiatives.

With our experience in IoT and related applications, deep industry knowledge, and broad expertise with complex analytics at scale, Teradata enables companies to derive sustainable value from their smart city investments.

A smart data management strategy can integrate mobility, energy grid, public safety, and government agency data to provide real-time information to state systems, officials, and citizens across the state—and easily allow insights that were once near impossible to achieve.

Teradata Smart City Solutions

Teradata empowers companies to achieve high-impact business outcomes. Our focus on business solutions for analytics, coupled with our industry leading technology and architecture expertise, can unleash the potential of great companies.

We help companies evolve from standalone or narrowly-focused smart city projects to highly integrated, business-driven operations. Using a smart data management strategy as a focal point, Teradata drives projects to success through data acquisition and a proven strategy that optimizes analytics.

For more information about Teradata Smart City solutions, visit Teradata.com.

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