Satra Infrastructure & Esri India team up for enhanced road asset management

Business challenge

To maintain its leadership in the road asset management, Satra Infrastructure Management Services Private Limited, a subsidiary firm of New Zealand based HIMS Limited and Data Collection Limited, sought to gain more control over its marketing processes and more effectively leverage its business intelligence. The ultimate aim was to strengthen customer loyalty.

HIMS solution

Satra Infrastrucure collaborated with Esri India to develop a GIS-based road asset management system. The solution, which was built using Esri ArcGIS JavaScript API, is called HIMS Road Asset Management System.

HIMS, Commercial Off The Shelf (COTS) software is a powerful database and analytical system designed to meet the needs of asset owners, managers and consultants.

HIMS stores, manages and analyses asset data (spatial and non-spatial) on Roads & Highways, structures, railways, power distribution lines, and any other linearly referenced features. The embedded ArcGIS map server serves the spatial data operations in HIMS.

On asking why they chose Esri India, Raj Mallela, Managing Director of Satra Infrastructure said, "We chose Esri India for the solution because of its state-of-the art, sophisticated features and high functionality. Of all the available software in the market, whether open source or commercial, the features of Esri ArcGIS are simply the best."

HIMS has been implemented on networks ranging from 1,000 km to over 100,000 km comprising of national and state roads in several countries. HIMS is available in Client-Server, Web and SaaS models.

Key features

→ **Location Referencing System:** HIMS makes use of advanced and best practice location referencing principles for linearly referenced assets. It can store data in multiple referencing systems and then can convert data from one referencing to another. HIMS defines a Location Referencing System that can utilise a Linear as well as a Spatial Referencing method to identify a same road feature.

→ **Network Editing and Auditing:** The in-built network management module of HIMS allows users to track the historical changes in the road network through facilitating split and merge network operations by means of linear referencing notion. The supporting spatial operations like feature selection and rendering operations facilitates therein.

→ **Embedded GIS:** Apart from reading and importing industry standard/ data exchange files, HIMS can read MS SQL tables to make dynamic data representation. HIMS can produce dynamic segments and thematic mapping in its GIS maps using attribute data, such as road condition data, pavement type, roughness index, traffic information, etc.

→ **User Definable Objects and Reports:** The end-user can define and import various objects such as tables, queries, and forms to store and edit the data. The default templates available in the system

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facilitate rapid creation of databases and data entry facilities.

➜ **Project Controlled Access Based on Roles and Region:** HIMS allows varying user levels, each level having different functional accessibility and privileges. This routine can also be used to define a separate "access network" for each user based up on the region limits.

➜ **Homogeneous Sectioning:** Based on the user defined criteria, HIMS can automatically create "homogeneous sections" of road data that can be used for road analysis. Various methods are avail-

connection to the powerful capabilities of HIMS for work management, inspections and data collection.

➜ **Multi-Language Support:** HIMS comprises multi-language support facilities to suit the global requirements.

Business benefits

➜ Improving the availability and performance of road assets while decreasing operating costs and without increasing liabilities.

➜ Tracking work orders and failures to better schedule preventive road maintenance.
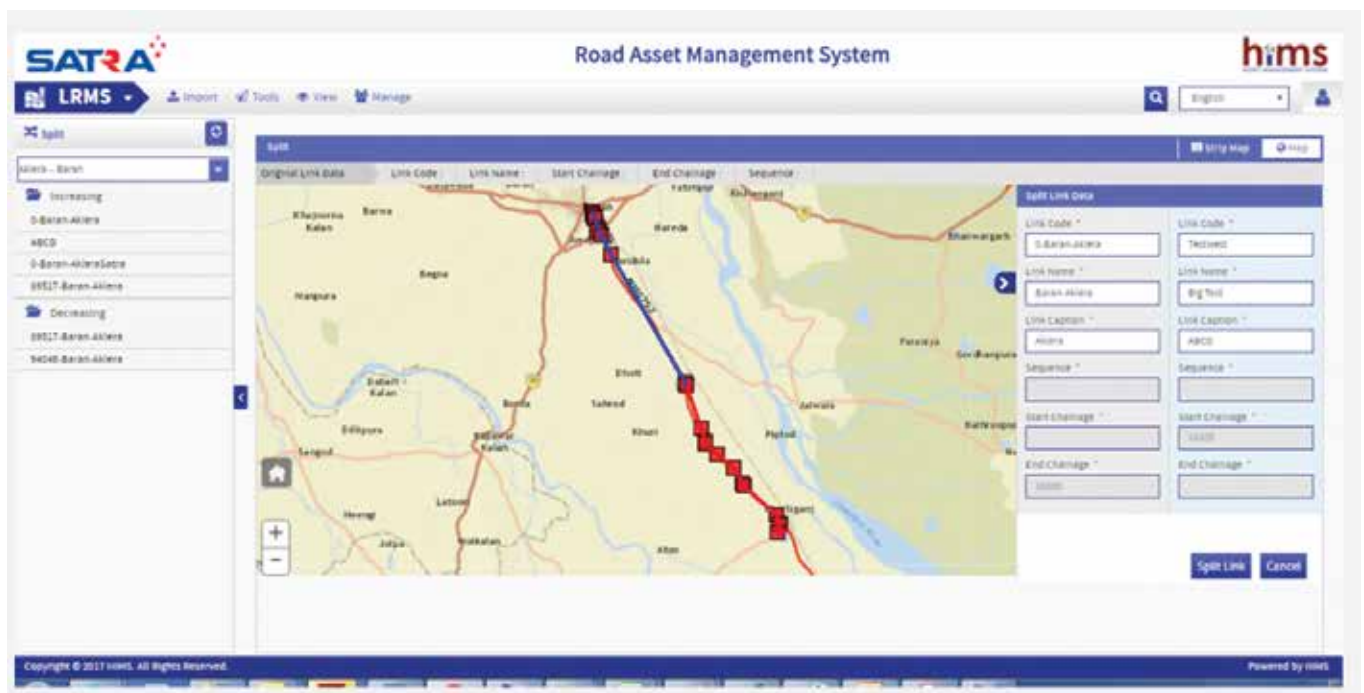
able for sectioning such as fixed length, value change, value range, cumulative deviation, etc.

➜ **Analysis Engine:** The in-built analysis engine offers a platform for various types of analysis including predictive modeling, lifecycle costing, optimisation, multi-criteria analysis, programming, scheduling, and asset valuation. This engine is very flexible, completely configurable and flexible to any infrastructure asset.

➜ **HDM-4 Interface:** The in-built HDM4 (a tool for the analysis, planning, management, and appraisal of road investments) interface can prepare network and traffic data for HDM4 analysis.

➜ **Mobile Interface:** HIMS Mobile is a single customised app that provides field staff with real-time

➜ Accessing state-of-the-art information technology for network analysis.

➜ Elevating a cost-effective IT solution for asset management through bundling the ArcGIS mapping software along with HIMS.

➜ Improving service quality and incident resolution time with accurate IT asset information.

➜ Providing accurate road budgeting and improving service delivery efficiency.

The technology used by HIMS can be divided into two categories-software and services. The software used by HIMS is ArcGIS Suite, Dot Net Framework, MS SQL Sever, and the service used is ArcGIS JavaScript API. ♠