Integrated Geo-Spatial based Estate Management System (iGEMS)

V.O.Chidambaranar Port Trust implemented iGEMS to manage port estate.

Indian Ports are the backbone of trade and play an important role in the growth of Indian economy since decades.It enables international trade and commerce by providing an interface between the ocean transport and land-based transport. The port uses massive land and water area to establish deep ship channels, berth, good transport network, cargo storage areas, quarters and utility facilities, etc. To meet the future trafficrequirements andincrease the operational efficiency,Indian port sector isimplementing an integrated port information system with modernized IT infrastructure.

V.O. Chidambaranar Port is the second largest port in Tamil Nadu and one of the major ports in India, contributes significant growth in India's Economy. V.O. Chidambaranar Port Trust (VOCPort Trust) had initiated an end-to-end integrated Port Information system (e-SAIL) to improve the core business processes, monitor and enhance service delivery to its customers, increase its operational efficiency, and enhance service delivery to its internal and external customers using integrated system that seamlessly ensures workflow across all port activities. VOCPT chose L&T Infotech as its Information Technology Transformational partner to implement eSail.As part of eSail project, L&T Infotech implemented an Integrated Geospatial based Estate Management System (iGEMS) to manage the port estate by integrating ERP and GIS.

Business drivers

Visualizing the graphical representation of entire Port land and water area, monitoring the land use pattern and availability of vacant land, managing all available landparcels (like storage space, buildings, berth, jetties, warehouses, etc.) and assets effectively to enhance revenue from these was a big challenge for the Port and hence this was identified as the key business objective for iGEMS by Port management.

Major Business drivers of iGEMS solutions are-

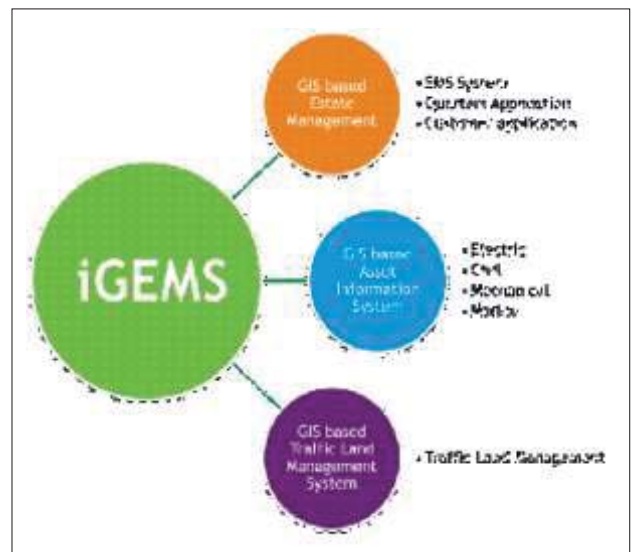• Creation of comprehensive enterprise spatial database for the entire port

• Integrating with SAP and Port Applications for real time information

• Establish & optimize landuse pattern

• Unified and real-time storage area availability status

• e-booking option for the vacant storage area

L&T Infotech iGEMS Solution

To address the above business drivers, L&T Infotech designed, developed and implemented a web based iGEMS solution using ESRI technologies. iGEMS solution helps the stakeholdersto capture, store, manage, analyze and visualize all spatial and associated non-spatial information. The solution is integrated with Port applications and SAP to display real-time information to the user.

The iGEMS application includes three sub modules, which addresses core estate management business functionalities of VOCPT. GIS based Estate management: This moduleprovides the detailed information to Estate department usersto

↑ iGEMS application sub modules

manage the estate efficiently andalso VOC Port Customer / Lessees decision making. This module also provides the quarter's availability status to employees,also addresses Quarters allocation needs. This application fully integrates with SAP for business workflows.

GIS Based Asset information: This moduleprovides utility and marine assets and its related non-spatial informationto Mechanical, Electrical, Civil and Marine users. It integrates with SAP Portal.

GIS Based traffic Land Management: This moduleprovidescargo storage area details, land availability status, cargo detailsetc., to Traffic department users. This module is integrated with Port application.

All above three modules in iGEMS include common

↑ Major business drivers of iGEMS Solution

functionalities like basic search, advanced search,spatial search,measure, print,and display the status of the asset and land parceletc.,
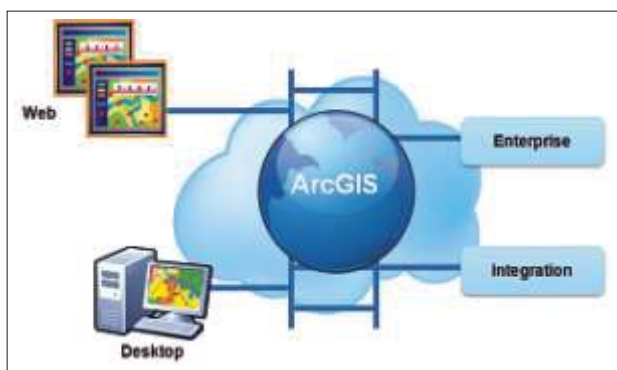
Salient Features of iGEMS Solution

Key features of iGEMS solution are-

- Customized and comprehensive spatial database forentire port – spatial and Non-spatial data

- Single-window access—An integrated, easy-to-use rich web interface for land and asset information

- GIS-based system tightly integrated with SAP & Port applications to provide single seamless "Integrated Geo-Spatial Solution" for supporting:

- Processes related to lease management covering allotment/occupation/vacation/renewal, demand & collection of rentals, recovery of charges, etc.

- Processes related to allotment of quarters for employees, allotment of land, shops and building on rent/ leases, etc.

- Shared Spatial data infrastructure & Rich graphical representation and visualization of VOC Port's land and water area

- Dynamic and Online Monitoring of all spatial assets with provision to switch on/off multiple layers

- Ease of management of vast estate of land, buildings and other structures leased out to external parties efficiently

Why ESRI technology?

L&T Infotech chose ESRI's ArcGIS technology to address the following needs of VOC Port Trust.

- Enterprise architecture & database support for storing spatial data

- Technology support for tight Integration with SAP system and Java based third party applications

- Rich web Map application API for FLEX, Silverlight and Javascripts

- The ArcGIS platform includes APIs and SDKs for

developers, ready-to-use content, and geospatial web services

- To meet the future development requirement of the port Business Benefits of iGEMS Solution L&T Infotech iGEMS solution provides following business benefits to VOC Port Trust:

- Comprehensive enterprise spatial database for the entire port

- Improve operational efficiency through unified, workflow based system for land parcel management

- Sharing spatial information to all departments

- Spatial asset monitoring through display of Port area & assets belonging to Estate, Civil, Electrical, Traffic, Marine departments

- Transparency through uniform information delivery to all lessees and general public

- Geo-spatial Decision Support system for land-use patterns, land availability & demand patterns, rental revenue patterns, etc.,

- Faster Analysis and Decision making through integration with SAP &port Application.

About the Authors

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↑ Salient features for selecting ArcGIS software's for iGEMS Solution