GIS FOR
ELECTRIC

GIS FOR
GAS

GIS FOR
TELECOM

GIS FOR
WATER

CASE STUDIES

PREPARED BY:

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PROBLEM STATEMENT

One of a major utilities in North-India wanted to revive their GIS system in order to have it integrated with their active ERP system and their planned SCADA system.

PROJECT CHALLENGES

The major challenges faced during the implementation of the project were:

Designing of the Data Collection and Import activities to ensure high quality across data.
Migration of the functionalities from client's current archaic Web Solution to the latest Web-Solution.
Interoperability and synchronizing of data across systems
Identification of the Integration Points for integration with clients ERP and SCADA systems.

SOLUTION PROVIDED

The challenges associated with implementing a fully integrated GIS environment, such as interoperability and synchronizing of data across products and systems, on the generalized electric Datamodel were overcome by extensive sessions with client and the sustained efforts of Red Planet's team. To overcome the challenges associated with the migration of existing web functionalities, Red Planet worked closely with the GE's core product team through the various "pre-release" versions in order to come up with the mapping of the existing functionalities with that of the newly available one. This provided Red Planet with a better footing with respect to compiling of a road map for working on ground-up implementation of GIS in utilities.

RESULT

As part of this project Red Planet held numerous workshops with the client who in turn helped us identify the Business Processes in which GIS can play a pivotal role. This was followed by analysis of each of the identified Business Processes, in order to determine the "Integration Points" wherein GIS can come into play. These workshops allowed Red Planet to further

deepen its understanding of how a modern system such as a GIS can be made to work in rapidly changing developing country such as India. It also provided Red Planet with opportunities to increase in their knowledge related to Electric domain and the Smallworld Suite of products for Electric clients. As part of the project Red Planet configured and customized an array of Smallworld suite products including Design Manager, Electric Office Web, Mapframe, Smallworld Business Integrator, and CIM Data Extractor. It also helped Red Planet understand the challenges associated with the migration of SIAS (old web-GIS system) functionalities to Electric Office Web (latest web-GIS system), integration of GIS system with ERP systems and SCADA systems along with the steps to overcome the challenges.

Integration of GIS with SAP has helped the client by dramatically increasing the identification and isolation of theft cases and as a result has had a direct positive impact on the financials of the client. The integration has also reduced the time taken for the completion of various Business processes by automating a number of phases of the processes. Lastly, this project has enabled the client to better track the lifecycle of their assets which has, in turn, empowered them perform the activities related with the Installation, Maintenance and Removal of their assets efficiently. As a direct result perform of this, the audit associated with their assets has become less tedious and time-taking.

Client: Electric and Gas Utility
Client Location: North-America
Project Type: Upgrade of Enterprise Wide GIS System.

PROBLEM STATEMENT

One of a major utility in America with a customer base of over 3.6 million wanted to update its current Smallworld environment, used to manage its assets related to its Electrical and Gas networks, from 3.1sp2 to 4.2.

PROJECT CHALLENGES

The major challenges faced during the implementation of the project were:

Replacement of the defunct "SW-View", as a tool for mobile GIS, with a batch process controlled and fully automated "read-only" core Smallworld 4.2 on the laptops.

Challenges associated with multi-tier Datamodel upgrade.

Challenges associated with re-modelling of specific Datamodel objects to incorporate the "Heterogeneous" joins introduced as part of Smallworld 4.2.

Implementation of Java based GPS tool to allowing GPS tracking within Smallworld environment.

SOLUTION PROVIDED

To overcome the challenges associated with the Datamodel changes, Red Planet performed an "in-depth" analysis spread across multiple systems (Smallworld, Oracle, etc.) to get a better understanding on what are the points of impacts associated with each change. This analysis helped them to better plan the execution of our Datamodel upgrade plan. On the other hand, the challenges associated with replacement of the mobile GIS platform was done by holding extensive sessions with the client field resources in an effort to better understand their expectations and have it mapped to the functionalities that a "read-only" Smallworld system can offer. The gaps which were identified were closed using customizations. Lastly, the challenges associated with the implementation of the Java based GPS tracking functionality were overcome by significantly increasing our knowledge base with respect to the architecture and functionalities of the Smallworld API product.

RESULT

Upgradation of their Smallworld version allowed the client to enjoy the performance enhancement upgrades such as the introduction of new base architecture (SWAF). It also enabled the client to exhibit better control over Authorization, and Conflict Management.

This project helped Red Planet to augment their expertise with respect to the performing multi-tier Datamodel upgrades (especially the ones where upgrade to Smallworld Version 4.2 is required). It helped to better understand and leverage the strengths of Smallworld API architecture and improved Red Planet's know-how to provide mobile solutions for Smallworld Version 4.2 users.

Client: Electric and Telecom utility
Client Location: Malaysia
Project Type: Audit of GIS System and Re-Designing of Business Processes.

PROBLEM STATEMENT

One of a major utility in Malaysia wanted to review its current GIS systems and redesign and implement numerous Business processes stretching across multiple divisions of its network.

PROJECT CHALLENGES

The major challenges faced during the implementation of the project were:

- Audit the enterprise wide GIS System across 6 divisions (Generation, Transmission, Distribution, Telco, Land services and Planning/Forecasting).
- Impellent Mobile GIS to compliment the Corporate GIS framework
- Provide Subject Mater Experts (SMEs) on System, Data and Process to streamline the existing processes.
- Analyzing of the current customized GIS environment and preparing reports on steps to be followed in order to stabilize the current GIS environment.
- Customizing Smallworld Oracle Insync PLSQL procedures for handling workflow in oracle similar to Design Manager state model.
- Customization of Insync in order to accommodate the business rules configured for client's electrical and telecomm assets.

SOLUTION PROVIDED

Red Planet initially performed a comprehensive Audit of the existing GIS system and focused on the following aspects

- Implementation strategy
- Proposed design

The aim of the audit was:

- To take stock of the foundation phase of the project implementation (example Scope - LV/MV, prioritization of functions for all divisions, project structure, data model complexity, etc.)

To review the nationwide rollout phase with regards to the scope, implementation strategy

Aspects of process, system & tool and data management were covered as follows:

Process
- Review CGIS processes for all divisions focusing on Distribution, and analyze its execution and effectiveness.
- Identify the cause of failure or weaknesses in the execution of the current processes.
- Review current GIS Guidelines, Policies and Procedures.
- Propose improvements and recommendations.

System & Tool
- Conduct CGIS system assessment by GE Smallworld Subject Matter Expert.
- The assessment should cover the following:
- System/Application Design, Development and Configuration.
- Hardware Design and Configuration.
- System Integration Design, Development and Configuration.
- Assess current Smallworld Implementation in regards to catering to current business needs.
- Propose improvements and recommendations.

Data Management
- Review and analyze existing Data Management strategy, methodology execution and effectiveness.
- Analyze and review Division's involvement, roles and responsibilities with regards to GIS Data Management and data ownership.
- Review the effectiveness of tools used in Data Management activities.
- Propose improvements and recommendations.

In addition to the Audit services Red Planet was also instrumental in the setting up of the Mobile GIS and also the System Remediation activities across all divisions utilizing the corporate GIS.

RESULT

As part of the evaluation, Red Planet classified the existing modules into various categories depending on how deviated was its design from the proposed design. As a result of this, the client was able to get a clear idea on the current status of the implemented GIS system and provided them with a logical roadmap to be followed in order to make the current GIS system "user-ready". Red Planet was also instrumental in re-aligning the GIS ten year master plan for their corporate GIS.

Client: Water Utility
Client Location: America
Project Type: Migration of GIS System from SmallWorld to ESRI ArcGIS.

PROBLEM STATEMENT

One of major water utilities in America with a customer base of over 14 million wanted to migrate their current SmallWorld environment to ESRI ArcGIS.

PROJECT CHALLENGES

The major challenges faced during the implementation of the project were:

Challenges associated with "as-is" migration of data from SmallWorld Data Set to ESRI Arc-SDE.

Creation of custom application tools on top of Arc-Map as Add-Ins to be used for creation of the utility network features, generation of reports and creation of batch plots. Implementation of the application in ESRI Workflow manager.

SOLUTION PROVIDED

To overcome the challenges associated with the Data Migration, Red Planet performed an "in-depth" analysis spread across multiple systems (SmallWorld, ESRI Arc-SDE etc.) to get a better understanding on points of impacts associated with data migration. This analysis helped Red Planet to better plan the execution of Data Migration. Having developed the roadmap for migration of data, Red Planet generated the set of mapping file for data migration using geospatial utility tool FME.

RESULT

The introduction of workflow manager helped streamline various business process. This, in turn, helped the client to create, monitor their jobs in different level of business models. Custom tools developed by Red Planet has helped the client to reduce the time associated with the creation and placement the complex network features. It has also helped them to generate the reports and plots to satisfy their various business needs.

PROBLEM STATEMENT

One of Major Cement producers in India wanted to have a Land Management System. The primary aim of the project was to reduce the time taken by the client to obtain the land-related information, particularly in the remote areas. Another gap that this project was envisaged to bridge was the need for an on-line system that would provide an integrated information about the land, its resources, topography, existing infrastructures, statutory requirements and the regulation. The aim was to leverage this information to plan and execute all of the future projects.

PROJECT CHALLENGES

Major challenges we are faced during this project were as follows:

All land records are currently stored in manual form at their location. Some of the records are very old. Whenever any of these documents are required to be referenced one needs to physically travel to the location where these original documents are stored or provided photocopies of these documents. Total volume of documents are around half a million pages.

SOLUTION PROVIDED

As part of the implementation Red Planet developed as a custom ArcGIS Server based solution for the information system on land which can be easily visualized by the common people through secured login and the information on land through authorized login. Different type of spatial information like Mining Area, land parcel, road network etc were stored as to allow users to do the following functionalities.

Provide information over the planned development or improvement
Managing information on Land Acquisition
Maintaining Project, Land, Parcel, Owner, Vendor, Cost and registration details
View the status of the project
View geometry of the project/land/parcel
Managing the land record document
Updating the progress of the project

RESULT

The following were the results of the project:

The information system could be accessed through authorized login Id and password both at viewer and editor level.

General user will be accessed to view the details of Project, Land, Parcel, Cost, Registration, Vendor and Ownership over the land but only the authorized user can enter those above details and can also add vendor and owner details.

All those details will be stored in a separate database as layers in ArcSDE and can be accessed easily. The documents will also be scanned and stored in the prescribed format.

The information on the proposed/current/completed project can either be directly viewed on the map or through the parcel geometry at the required zoom level.

Some of the other proficiency were we can draw, measure and know the status of the project of over the particular land/parcel.

User-friendly menus such as Land Information and Report are available for updating/viewing the information shortly. Under Land Information, view, insert, edit and GIS option are available as shortcuts and under Report, Print, save and graphs options are available.

The information such as Project Name, Project Status, Mode of Purchase and Project budget will be under Project details and under the same we can add vendor details to view it on the map at single click.

Similarly, information such as Land Use, Land Area and Address were under Land Details, information such as Parcel type, Parcel Use, Owner Type, Parcel Area and Address were under Parcel details.

In addition, Owner's Name, Age, Gender, Phone Number, Occupation, Address were under Parcel Owner Details and Estimated Land value, Guideline Value, Actual Value and Document Value under Parcel Cost Details

PROBLEM STATEMENT

One of our clients, with its business built around agriculture, had a static map that was being published in a blogger. The satellite images were processed and the final image were being uploaded statically to the blogger. As part of the project the client wanted to develop an open source web portal of their own which can be used by departments and can also be made available to the public.

PROJECT CHALLENGES

The following were the challenges associated with the project:

Conversion of static data to Geo-Referenced data.
Development of an open source Web Gis which is integrated with client's existing Agriculture Web Portal.

SOLUTION PROVIDED

The approaches adopted by Red Planet for the development of the web-portal along with the hierarchy of the users and the functionalities which can be implemented in the web-portal are provided below:

Administrator

The administrator is the highest position in the hierarchy and he enjoys all the rights. The administrator is given a web application and also authentication credentials to log in to the system. Administrator will be able to:

Make amends in the rights given to other users
Broadcast information to the users below
Verify the corrections and activities done by the users

Departments

Many departments are maintained by the administrator. Each department is given a separate authentication credential to log into their own portal. In other words, each department owns a separate web application. By this way, the confusion across departments can be mitigated. The department heads will be able to

Map the data of their own departments

Perform analysis, prepare reports, take important decisions

Assign work to the on-site officers and monitor their work continuously

Public

The public are given both web application and mobile application for making the accessibility of information easier. With the help of the application, the public will be able to

Get information from the people in the top of the hierarchy seamlessly at once

Lodge any queries

On-site officers

The on-site officers are provided with a mobile. With the help of this application, the on-site officers will be able to

Collect ground truth data

Assess damages caused to the crops and fields

Perform a routine task of visiting the fields and reporting the status to the growth of the crop

RESULT

The introduction of the Open Source Web GIS application enabled the client to perform complex analysis of data and thereby made their decision making activity simple and comprehensive.

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