Egyptian Nationwide Title Cadastre System

Kholoud SAAD, Egypt

Key words: Cadastre, Registration, Urban, Rural, National Cadastre, Automation, re-engineering.

SUMMARY

With growing need for integrated information, Enterprise Solutions has become the key for optimization, thus, enabling the organizations to be more effective.
This paper presents a summary on the development of an enterprise Nationwide Cadastral Information System for managing cadastral activities in rural, urban areas covered by title registration. This system has been developed under cooperation and supervision of the Egyptian Ministry of Communication and Information Technology, and Ministry of State for Administrative Development. The solution aims to automate the registration procedure, designing and implementing an online cadastre system to publish cadastre Information on the web, and publishing an online cadastral portal. It also aims to automate & re-engineer all work-flows within the involved organizations related to the registration process. This paper outlines the methodology that was used, the significant technologies that were employed, and the key issues addressed on implementing cadastral projects.

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1. INTRODUCTION

In this era, the era of New Public Management, a disciplined registry and cadastre systems become a must. Governments have a national duty to remove obstacles from the investors' way in order to guarantee the country sustainable development and economic growth. Defined by public law, Cadastre simply identifies the outlines of the property, together with descriptive data, thus, showing for each separate land object the nature, size, value and legal rights or restrictions associated with the land.

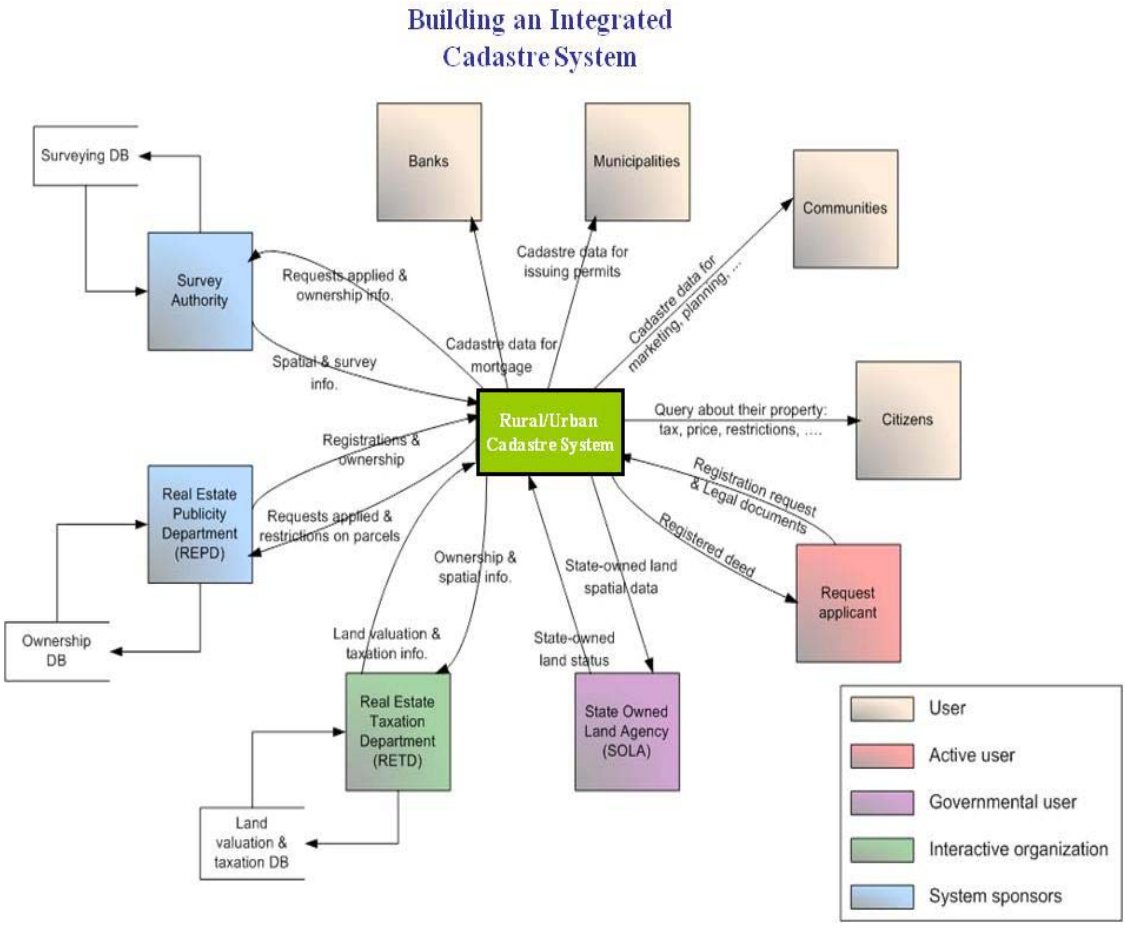
Economic growth and sustainable development are considered the most important targets by all nations worldwide nowadays. The first step towards maximizing this involves executing large-scale projects that attract investments globally. Considering how major investors seek minimal risks and high returns, and believing that long-term planning is a must in the global economy, all countries are shifting their strategies towards establishing strong infrastructure, simplifying regulation, providing high-quality value added services, and achieving more flexibility that would support their target potential growth.

Egyptian Government is investing in building a cadastre infrastructure, Egypt has a clear vision of the targeted high quality level of service, a vision that can only be achieved by employing the state-of-the art technologies of modern GIS for handling the national cadastre survey and parcel management through integrated enterprise cadastre systems providing information and services to different organizational levels and serving the purpose of municipal planning, land reform, and supporting decision-making.

The Egyptian Government has started building its cadastre infrastructure with building an enterprise Nationwide Cadastral Information System for managing cadastral activities in rural, urban areas covered by title registration. This system has been developed under cooperation and supervision of the Egyptian Ministry of Communication and Information Technology, and Ministry of State for Administrative Development.

2. PROJECT'S OVERVIEW

The Egyptian National Title Cadastre system considered as one of the biggest Cadastre Projects in the Middle East, it aims to build a national web based system that automates the different procedures of Rural and Urban Registration, through a simple and user-friendly interface that serves the different service's stakeholders.



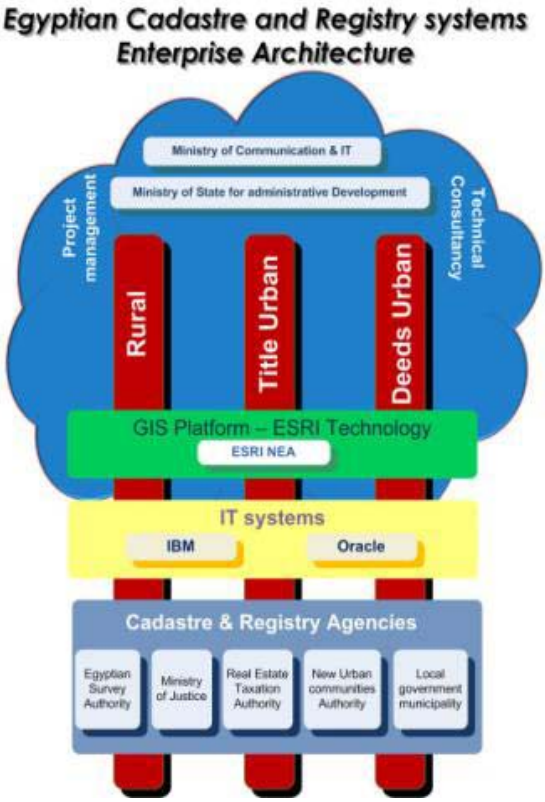
As the studies to the cadastre & registration process within Egypt have shown that it's highly complicated, the project involves many parties each has with responsibilities according to its domain and experiences, these parties are categorized as follows:

2.1 Projects Coordination and Technical Consultancy:

- ✓ Ministry of Communication and IT (MCIT), for rural cadastre
- ✓ Ministry of State for Administrative Development (MSAD), for urban cadastre

2.2 Involved Governmental Organization:

- ✓ The Egyptian Survey Authority (ESA): responsible for all the surveying and mapping activities.
- ✓ The Ministry of Justice (MOJ): responsible for the Legal registration.
- ✓ The Real Estate Taxation Authority (RETA): responsible for taxation and valuation
- ✓ New Urban Communities Authority (NUCA): responsible for the development of Egypt new suburban zones.
- ✓ Local government municipality, responsible for building permits and monitoring construction regulations within the old suburban zones.



2.3 Others

- ✓ Banks: requesting cadastre data for mortgage.
- ✓ Communities: requesting cadastre data for marketing and planning.
- ✓ Citizens: querying about their properties; Tax, Price, Restrictions…etc

The Egyptian National Title Cadastre system automates registration requests procedure; it provides a web framework for cadastre tasks management and simplifies the user's interactions through a seamless web interface which collaborates all information and actions needed to accomplish the task.

3. BUSINESS NEEDS

During the project's planning, the following business needs have been raised as the key needs and expectations that should be covered by the solution:

- ✓ Secure lands ownership
- ✓ Activate properties investment market
- ✓ Centralized control for cadastre information
- ✓ Integrate Cadastre/Registry services

- ✓ Cadastre data accessibility for properties management entities
- ✓ Service improvement and workflow optimization
- ✓ Provide Cadastre data for national strategic projects
- ✓ Develop and monitor strategic statistical KPI's
- ✓ Building reliable and extendible registration system

These business needs can be classified into two groups, building the Cadastre data infrasturcture, and improving the registration services:

3.1 Building Cadastre Data Infrastructure through Constructing Database for Rural and Urban Lands and performing data conversion:

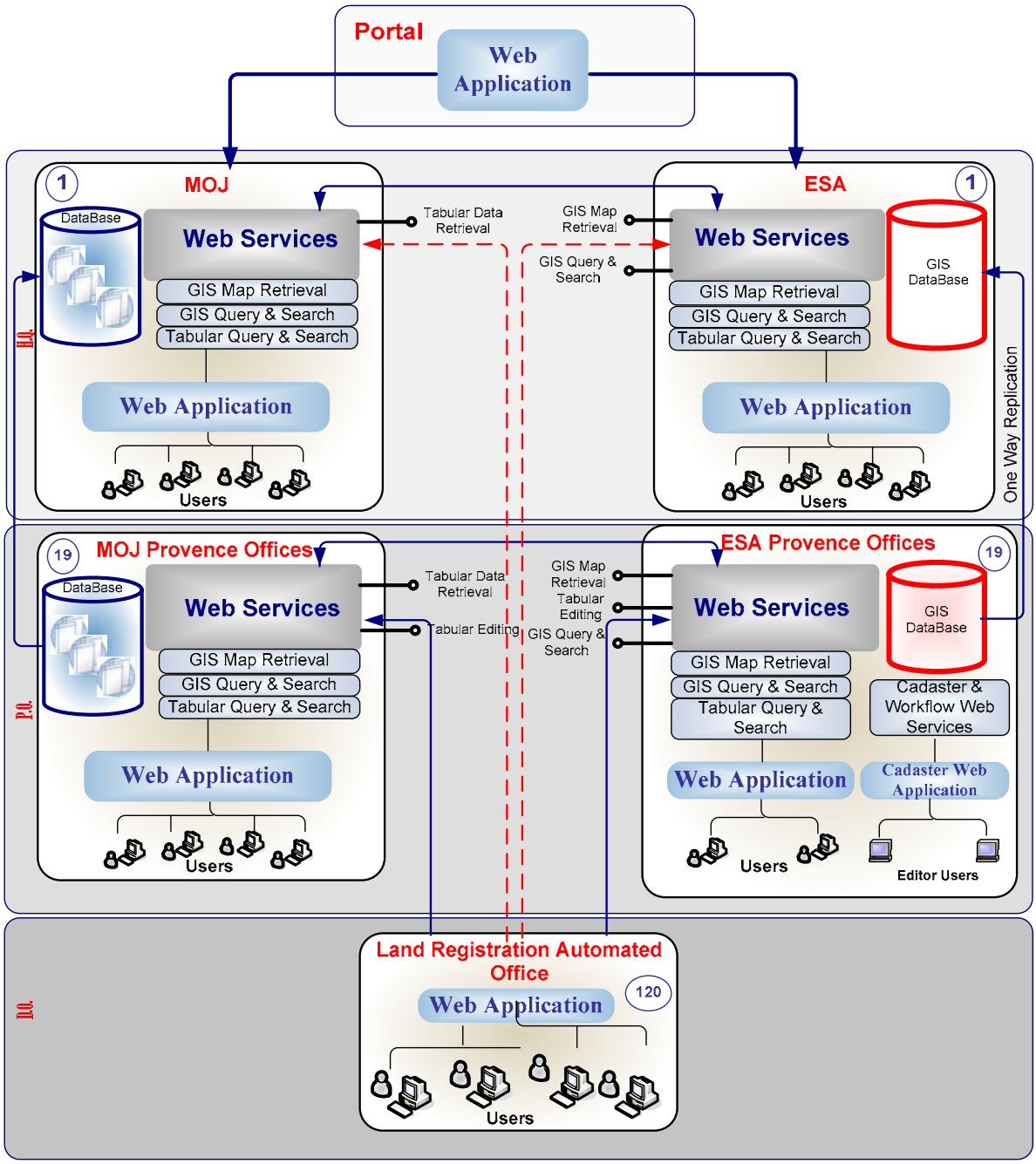
- ✓ Developing rural and Urban cadastre database
- ✓ Developing real estate registration database
- ✓ Converting all available analog maps to digital format
- ✓ Converting all ownership information to digital format and joining it to its graphical representation

3.2 Registration Service Improvement through Title Based Cadastre Automation:

- ✓ Re-Engineer the registration process to improve the service
- ✓ Develop an automated workflow system for land registration
- ✓ Building an integrated extendable system using SOA technologies
- ✓ Apply the "One Stop Shop" concept
- ✓ Provide the system services via internet

4. Technology

The development of the Egyptian National Title Cadastre system is carried out through several consortiums of IT companies and ESRI Northeast Africa. All companies work under one concept "Open Architecture" where systems are integrated through Service Oriented Architecture (SOA) to build one Enterprise system providing high quality of service and enabling ease of integration.



5. NATIONAL TITLE CADASTRE SYSTEM

Implementing the project can be summarized in three stages; Building the Nationwide Geodatabase, Building the Urban Title Cadastre System, and Building the Rural Title Cadastre System, next the explanation of each stage:

a) Building a Nationwide Geodatabase

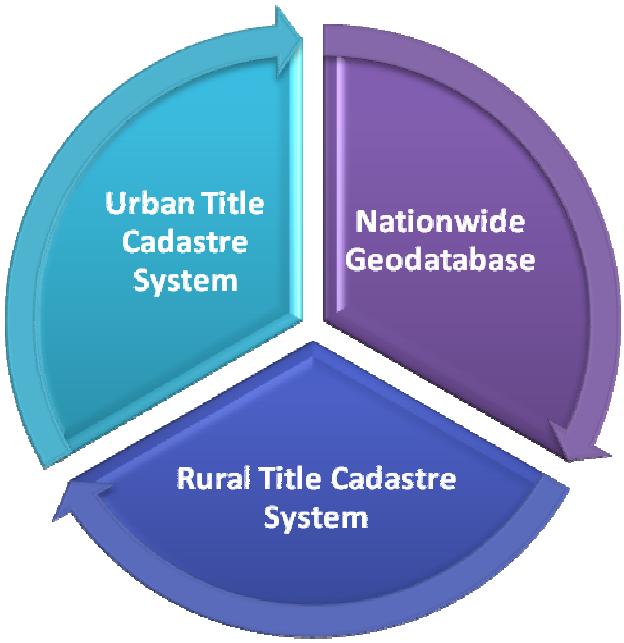
This stage is for the establishment of a unified Geodatabase, enabling the combination of the national urban and rural cadastral data from many organizations, and disseminating the integrated data to the other agencies.

b) Building the Urban Title Cadastre System

This stage is for automating the registration service of the urban properties (real estate) with enabling that process through the web portal.

c) Building the Rural Title Cadastre System

This stage re-engineers and automates the registration service for rural properties (Land Parcels) with enabling it through the web portal.



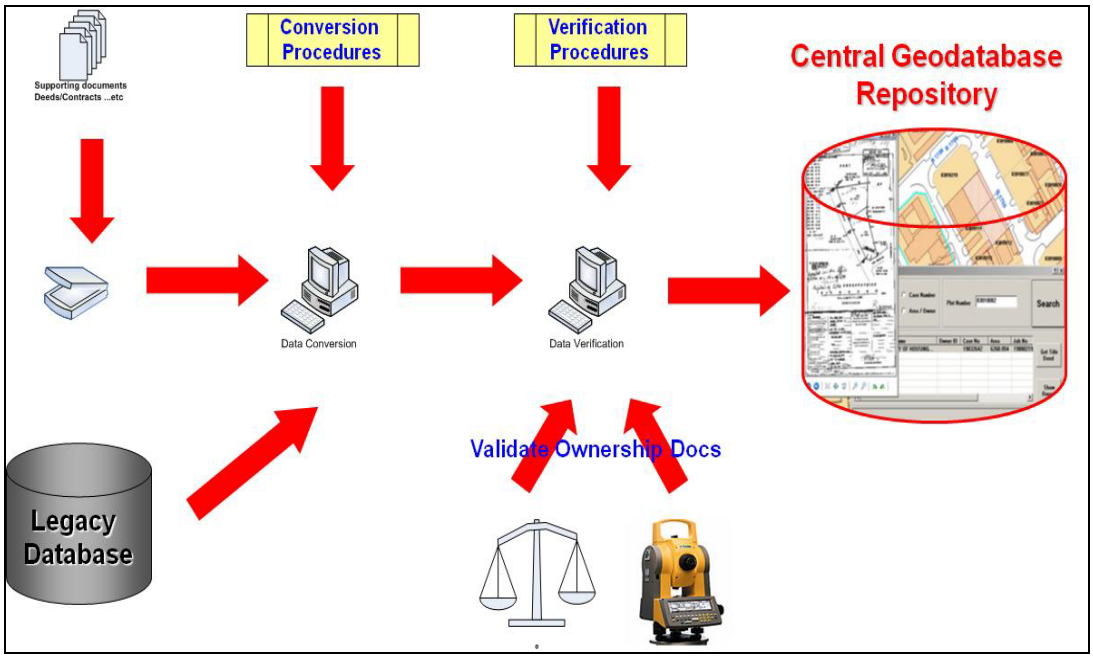
5.1 Building A Unified Nationwide Cadastre Geodatabase

a) Building a Unified Data model for rural and urban data

The first step of the project was defining the required data elements, either spatial or non-spatial data, and building a nationwide cadastre Geodatabase model that covers all the required data elements for the registration service. The geodatabase model links the attributes data with the related spatial data through relationships between the different data elements.

b) Data Conversion

After building the geodatabase model, it was necessary to convert the existing paper maps to the required format. That process has been done through digitizing the old paper maps, and converting any digital data to the required format, and applying verification procedures before the final loading to the geodatabase.

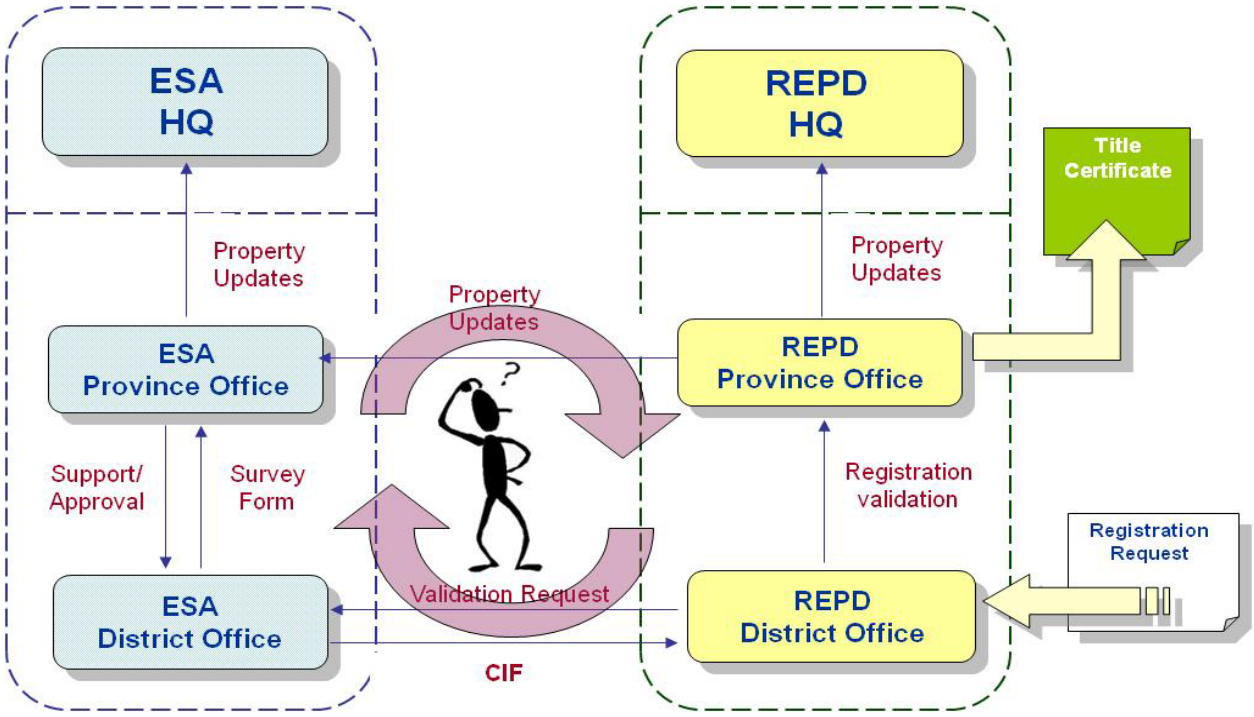


c) Data Entry through Customized application

A customized, easy to use application has been developed for data entry process, in order to store the attribute data, surveying data, and any other type of textual data into the developed geodatabase model.

5.2 Services Re-Engineering and Automation

Building a national title cadastre system requires a re-engineering process for the existing workflows to avoid complications, time consuming, and utilizing resources, in order to simplify the automation of the registration service for urban and rural properties, and gain the expected benefits of the solution in a way that improves the working performance for all the system users, in addition to reducing cost.

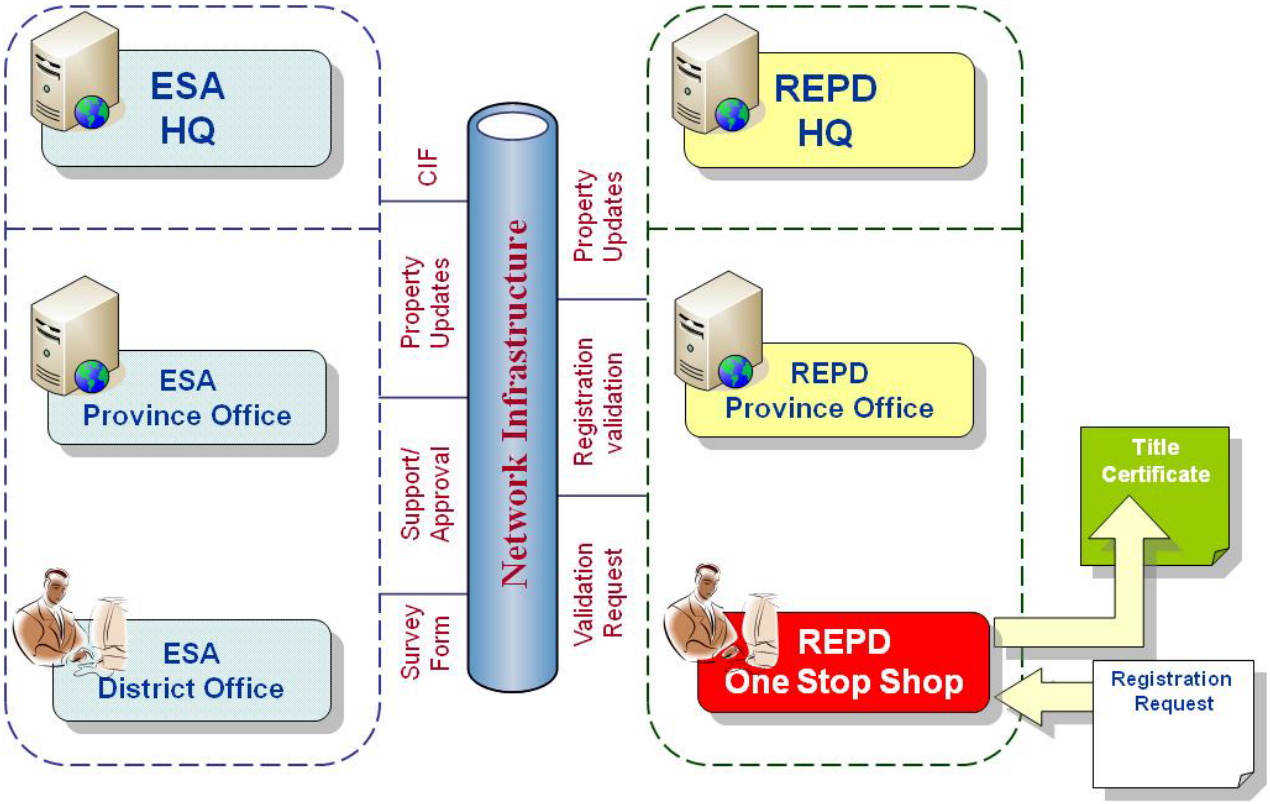


Registration Service before re-engineering

The old registration service used to be provided by the Egyptian Surveying Authority, and the Real Estate publicity department (REPD) belongs to The Ministry of Justice (MOJ). The interaction between the two authorities used to require a lot of goings and returns which waste a lot of time and used to cause losing or spoiling the documents. It used to be a manual paper based process that requires a human involvement to trace any request.

The re-engineering process aims to achieve the following:

- ✓ Follow the operational aspect of the service
- ✓ Eliminate bottlenecks within the service flow
- ✓ Standardize the service inputs and outputs
- ✓ Improve the working environment for better service
- ✓ Unify internal and external communication channels
- ✓ Apply the global cadastre standard
- ✓ Build the required infrastructure (IT, Operation, Construction…)
- ✓ Build the required capacities

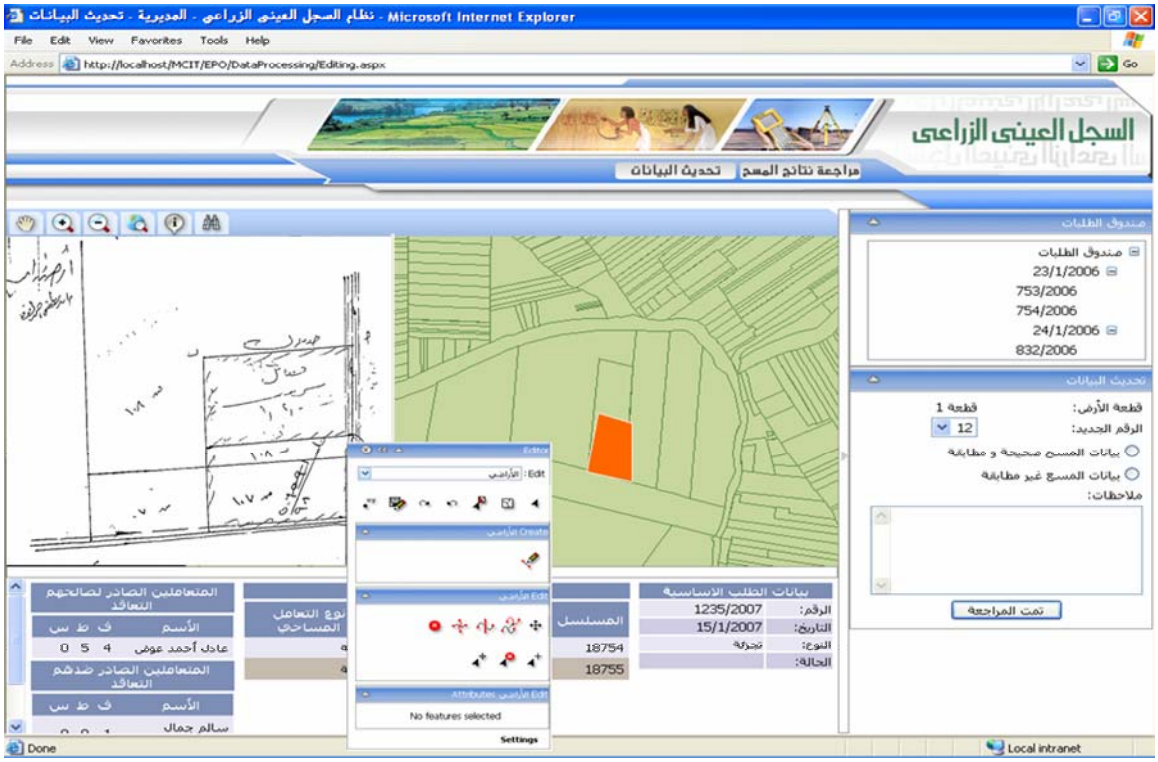


Registration Service after re-engineering

The re-engineering and the automation of the service simplified the process, and removed the bottlenecks, through building the cadastre infrastructure and some web services that perform the different tasks that used to be done manually, and the workflow of requests became automated using a workflow engine that performs the internal and external communications.

5.3 Building the Cadastre Portal

The cadastre web portal is the key success of the project; it represents the efforts that have been done during the project lifetime, it also represents the re-engineered workflow of the registration service.



Through the portal, each user has an account with different privileges based on the user type, the portal provides the citizen user with the required information about the registration service; the user can apply for the service, submit the requirements, and track requests through the portal.

The portal also provides data entry forms, and some supporting tools for data manipulating, in addition to surveying data loading capabilities.

Taxation and valuation processes for the different types of properties can be done through the portal interface, in addition to other capabilities that cover the registration service.

Also the system application is based on a web based application which allows more flexible architecture; even map editing procedures is done on the web.
This gave easy access, installation, and support of the system applications.

6. SYSTEM BENEFITS

- ✓ Automating the Urban and Rural Registration service
- ✓ Removing the bottlenecks and improving the services workflow
- ✓ Applying the Concept of One Stop Shop which makes it easier for the customer.
- ✓ Speeding up the registration process and increasing the work performance
- ✓ Minimizing costs, saving time, and increasing productivity
- ✓ More flexible architectures using the web based applications.
- ✓ Unified digital data repository for the properties data in Egypt.
- ✓ Easy access for the data from the other involved organization (taxation, banks ….)
- ✓ Better data sharing.

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