

FROM PHAROHS TO GEOINFORMATICS
FIG/GSDI 8 WORKING WEEK 2005
Cairo, Egypt, April 16-21, 2005

The Egyptian Survey Authority Business Model to
Strengthen Public Private Partnership in the Real
Estate Industry

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What is this presentation
about?



The Public Private Partnership
'PPP'

- The need to remove all barriers that prevent the mapping business from achieving the full economic potentials of geo-information and GIS industry.
- GI-organizations, both public and private, are forced to work in a more tightly coupled mode to deliver product or services beyond their individual capacity and improve their share in the GIS Market.
- The opportunities provided by ICT and Web services technologies play a key role in realizing such new business goals.



Presentation Agenda



1. Challenges facing NMAs and trends for Public Private partnership PPP to strengthen the economic potentials of GIS market
2. The concept of Virtual Enterprise VE for collaborative work to support the implementation of PPP as VE
3. The Egyptian Survey Authority and search for new business models for PPP
4. Case Study for a framework for the implementation of 'PPP' as VE; applying the concept of data and service broker and Workflow Management to search, control and chain of services across organizations related to the administration of land in Egypt



Presentation Item 1



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What Characterize most of NMA?

- Mostly government bodies, operate as service organizations with national mandate, offering almost 'free' services.
- Traditional in conducting their business, depending on secure Government funds. Cost recovery is not a common practice.
- Modern concepts and the opportunities offered by IT for the management of operations, quality, resources, etc. either not applied or no apparent impact on business and performance.



Trends and Improvement Actions

- Revise the organizations' mission from business perspective, apply modern management concepts for business process re-engineering and exploring new business paradigm
- Change of focus from standard products to be customer focused and offer (preferably Just-in-time) diverse products and services
- Adapt cost recovery policy, in the framework of its national mandate
- Re-engineering of processes and workflows, apply modern concepts for the optimization of processes and the management of information, workflow, quality and resources.
- Effective use of ICT technology and the opportunities offered to access and share data and services offered in a distributed GIS environment.



What about Public Private Partnership PPP ?

- Most of NMA as public sector bodies often have natural monopolies over their information sources. Such control over information gives them considerable market power, thus restricting competition and having negative impact on the GIS market.
- They are lacking experience (and motivation?) with collaborative work and partnership with other public and private institutions (Public Private Partnerships, PPP) for the creation of services beyond their capacity, achieving common business goals.
- Consequently, such business barriers might hamper the possibilities for the economic exploitation of foundation data available in these organizations and in particular the creation of value-added, diverse services by private companies.



Options for PPP?

- NMAs need to explore new business paradigm, based on collaboration and strategic alliance with others to work beyond their individual capacity to achieve common business goals and chain their workflows and resources to offer large services.
- Such business models include options for the re-orientation of their core tasks focusing on core competencies, while outsourcing of many activities which either are no longer profitable or fall outside their scope of expertise



Examples for PPP in Mapping Industry

- Distributors (for electronic service delivery)
- Value-added resellers
- Data partners
- System partners
- Notaries, Conveyors and legal Surveyors
- The collaboration of the private and public sectors for the establishment of a NSDI.



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Exploring new business paradigms in GIS market: Lessons learned from other industries (1)

- The emerge of 'virtual enterprises': Today's dynamic business environment forces industrial and service sectors to work beyond their boundaries and to operate in a more tightly coupled mode, forming integrated 'virtual' enterprises, to seize business opportunities, reduce time-to-market and deliver services beyond their individual capacity.
- A Virtual Enterprise (VE) is a (temporal) network of independent organizations (legally autonomous, public or private, institutions) that joins functions with a particular objective. A VE is structured and managed in such a way that third parties see it as an identifiable and complete organization (one enterprise). The participating organizations can join or split over time according to their business interests.
- The opportunities offered by ICT and Internet and Web technologies play a key role in realizing such an enterprise.



Exploring new business paradigms in GIS market: Lessons learned from other industries (2)

- The GIS market needs varieties of spatial data sets and services, mostly of large volumes and in near-real time mode, and beyond the capacity of 'single' GI-organization.
- The emerge of 'virtual enterprise' VE concept in GIS Industry, networking GI-organizations to satisfy such business goals.
- VE provides a platform for Public Private Participation PPP in the GIS market



13

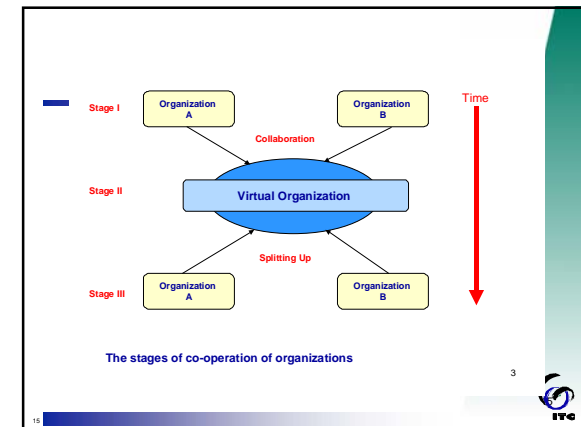
Concepts Applied

VIRTUAL ENTERPRISE:

- independent enterprises
- cooperate
- sharing common business goals
- core competences
- ICT



14

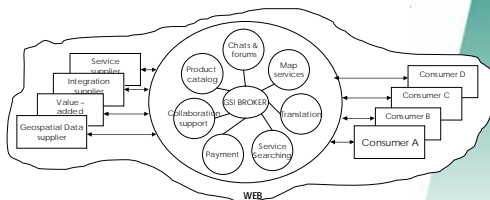


3



15

Concepts concepts to realize Virtual Enterprise



16

Operational Model for VE

- **The unbundling of the functionalities** of current stand-alone systems in the participating organizations, to make them available as independently developed, yet **interoperable autonomous services**. Such functionalities include processes from different data sources, processes to create databases and manage their access, processes for map visualization, GIS functionality for spatial data analysis, etc.,
- **The PPP Broker**: the tool used for the agencies, or **enterprises to interact with each other**. Such broker will **provide** both data and services that are relevant to the different players in the GIS market. **Services can be simple as well as complex**, chained from various service nodes.
- **Chaining Services / workflow management**: special services will be developed to provide the option of combining and chaining of services and to **manage inter-organizational workflows** and manage the quality of services in such wider network of services, **operating under different rules and constraints**.



17

A case study will be presented later to show how develop a platform for the implementation of 'PPP' as 'VE' to support the real estate market in Egypt



18

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19

The Egyptian Survey Authority, ESA, History Background

- In 1879, ESA was first established as the Old Revenue Survey, then became as the Survey Department in 1898, operating under the Ministry of Finance. Since 1971, it was renamed the Egyptian Survey Authority under the Ministry of Water & Public Resources.
- ESA is the only governmental organization responsible for the coverage of the entire territory of Egypt with base topographic maps. ESA has also the responsibility to the support of the national cadastre and land registration scheme, in cooperation of the Real Estate Office in the Ministry of Justice.
- Since the beginning of the 90s, several initiatives have taken place in ESA, in cooperation with international donors, to modernize its production facilities, work procedures and to upgrade its resources, as well as efforts for capacity building and performance improvement
- In the year 2001, ESA started to operate on 'cost recovery' basis, aiming to be fully self-subsidized, generating revenues from the services it offers without violating its national mandate.



20

New Government Measures

- Speedup efforts to complete the national cadastre in order to improve the Real Estate Industry and to encourage international investors; a matter of strategic importance
- Increase the share of the private sector in the evolving GIS market in Egypt; leading to more job opportunities in this sector
- Convert large public institutions like ESA to a 'slim' institution; leading to downsizing and job re-orientation of government employees
- Encourage public institutions to learn from the private sector and its flexible approach to changing requirements
- Reducing monopolies imposed by the public sector agencies and consequently creating healthy conditions for large economic potential of GIS industry



21

ESA Respond to Government Policies:

- Cooperate with interested bodies, public as well as private, to initiate national programs to complete map coverage and land registers, in the framework of the Egyptian Spatial Data Infrastructure NSDI.
- ESA realizes that the tasks involved are beyond its capacity and require the collaboration of many public and private institutions.
- ESA sets its business strategy based on outsourcing of most of its data acquisition activities while focusing on information management and the delivery of diverse services.
- ESA will also rely on partnership with private companies in areas outside their expertise, such as ICT services, generation of value-added services, marketing and partnering for wide distribution of data and geo-services, the on-line delivery of services, etc.
- ESA is busy restructuring of the various mapping functionalities, converting them to autonomous, accessible services, to allow outsourcing as well as integration with services provided by others.



22

Required Government Support?

- Exploring ways to guarantee financial support from all interested parties, both public and private parties, as well as financial bodies, both local and international bodies.
- Support large public organizations such as ESA to minimize the negative social impact as a result of optimization, downsizing and the re-orientation of tasks and core business. Such support will include the necessary legislation for the layout of staff, financial compensations for early retirement, training and job-reorientation, job allocation, etc.



23

Regulatory Body for Mapping Industry ?

- The government is encouraging the establishment of a regulatory body, formed from the main stakeholders in mapping industry, to regulate such industry
- The tasks of such body is to address requirements to initiate large mapping programs, rules and business practices for public private partnership PPP, licensing professionals, competitive issues, copy rights and the conditions for re-use issues which govern the exploitation of geo-information and the creation of added value applications.
- Such body is mainly concerned with all barriers that prevent the mapping business from achieving the full economic potentials of geo-information and GIS.
- The current discussion now concern with the authority, responsibility and power of such body? Further, its impact on the management of the various organizations involved in mapping and cadastre tasks?



24

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24

PPP to support the creation of land Information System in Egypt (1)

The data and functionalities to create and maintain LIS tasks are distributed in various private and public organizations, such as:

- The Egyptian Survey Authority **ESA** (surveying of rural an urban parcels)
- The Registration Estate Publicity and Notary Department **REPND** (ownership registration for cadastre parcels)
- The Real Estate Taxation Department **RETD** (valuation and taxation of properties)
- The State Owned Land Agency **SOLA** (managing the State-owned land and developing land use scenarios)
- Several institutions from the private sector are playing a role in the real estate market, according to their competent and expertise, such survey and mapping companies, IT companies, companies experience in management and control, real estate brokers and layers, banks and financial bodies, etc.



25

PPP to support the creation of land Information System in Egypt (2)

- Several initiatives took place in these organizations to introduce IT for the automation of various functionalities. The return on investment on the 'quality' of cadastre services, however, is not that great. This is due to the fact that such initiatives were made in 'isolation' and no common view is formulated for the handling of cadastre and other related data.
- The activities involved in the completion of land registers and the associate maps for the entire territories are beyond the capacity of these organizations
- Further, there is no common views on the economic potentials of cadastre data, due to conflict of interest and lack of vision (and tools) for collaborative work
- Due to such situation, the economic growth in the real estate market is below expectation and international investors are reluctant to invest in such environment.



26

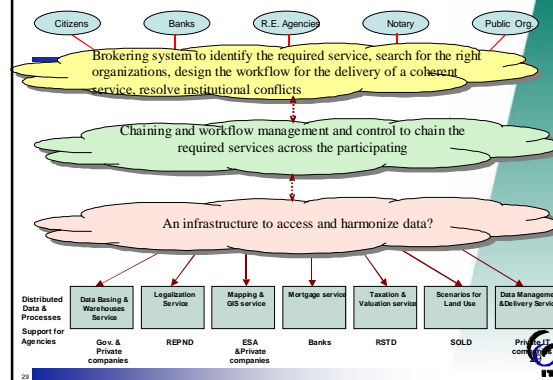
PPP to support the creation of land Information System in Egypt (3)

- A case study will be presented to develop a platform for the implementation of 'PPP' as 'VE' to support the real estate market in Egypt.
- Such platform will incorporate both institutional, economic and technological components.
- (on-going research project in the framework of the cooperation program between ITC and ESA for capacity building for cadastre services)



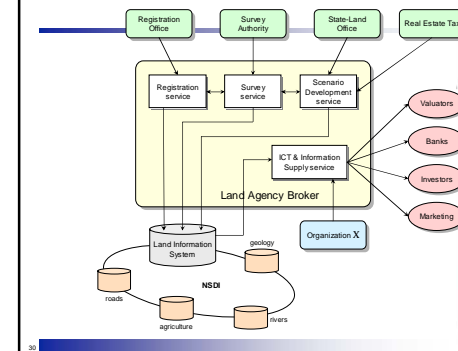
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Platform for PPP as virtual enterprise



29

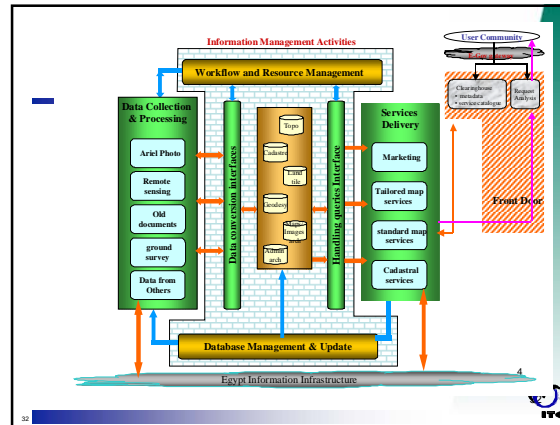
Virtual Land Agency and its Participants



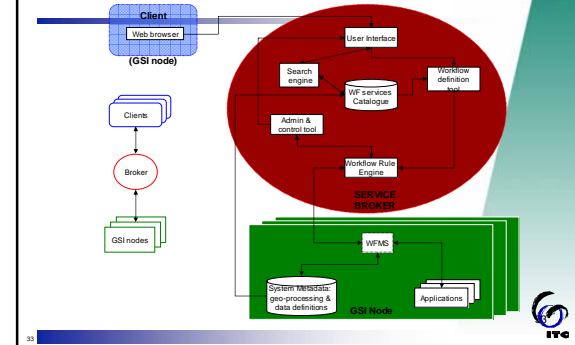
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Operational Model for VE

- The unbundling of the functionalities of current stand-alone systems in the participating organizations, to make them available as independently developed, yet interoperable autonomous services. Such functionalities include processes from different data sources, processes to create databases and manage their access, processes for map visualization, GIS functionality for spatial data analysis, etc.,
- The PPP Broker: the tool used for the agencies, or enterprises to interact with each other. Such broker will provide both data and services that are relevant to the different players in the real estate market. Services can be simple as well as complex, chained from various service nodes.
- Chaining Services: special services will be developed to provide the option of combining and chaining of services and to manage inter-organizational workflows and manage the quality of services in such wider network of services, operating under different rules and constraints.



eCAD Broker Architecture



The Broker Functionalities:

- User Interface: a browser (with a graphic interface) to provide access to different services; cadastre data and functionalities (simple or complex) in the registered agencies.
- Services to create Data and Service Catalogs, and metadata query.
- A pool of specially designed tailored services, such as mapping/cadastre services, which are composed by chaining several functionalities that are available at registered agencies.
- Capabilities to access supporting functionalities, which are provided by several service nodes over the Internet, such as Web GIS-Services, including data download and delivery, geo-services for spatial data analysis.
- Further, this broker will operate in the framework of the NSDI initiatives, making use of all tools offered to resolve various business constraints as well as data and processes interoperability issues amongst the participating nodes.

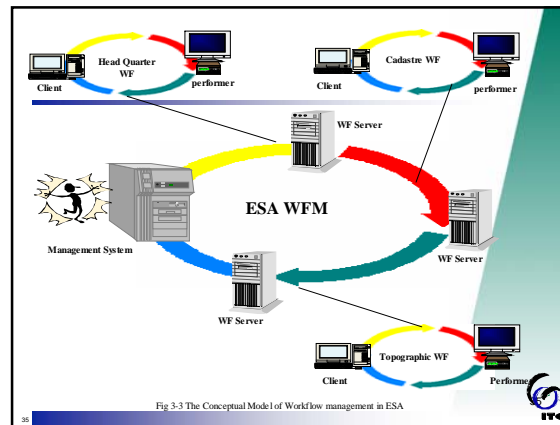


Fig 3-3 The Conceptual Model of Workflow management in ESA

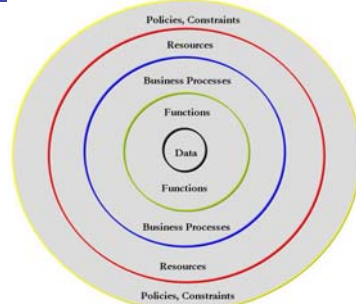


Workflow Management capabilities

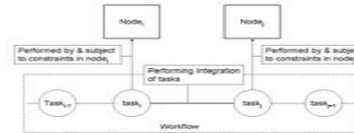
- Search Engine: searches for business processes in the Workflow Service Catalogue
- Workflow Service Catalog: support various enterprises to advertise their data and services
- Workflow Definition Tools: creates definitions of the various processes
- Workflow Rule Engine: executes the workflow and chain services across the boundaries of the various enterprises
- Administration and Control Tool: keeps track of workflow progress



GI Business Nodes (GI-organization): Components and layers of regulations (constraints)



Business Integration (on-going research project)



- Business level:
 - Policies, performance & quality goals, trust
- Workflow level:
 - Business process & application integration
- Data Level:
 - Data interoperability

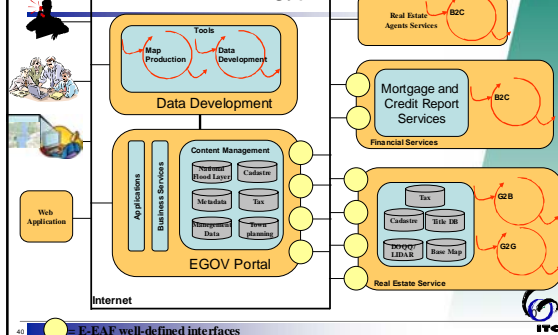


The impact on participating GI-organizations:

- **Promoting the sharing of data and accessing services** provided by others
- **Downsizing**; as a result of effective use of digital technology
- **Outsourcing**; re-orientation of core tasks and focusing on core competences, while outsourcing of many activities which either are no longer profitable (such as base mapping activities) or fall outside their scope of expertise (like the delivery of on-line services, ICT and information management activities).
- **Achieving common business goals** with others and increasing their share in the evolving GIS market
- It is important however to **examine carefully the consequences** of such orientation such as competition and optimization issues, downsizing and the **social impact** on its employees, training programs for job re-orientation and job opportunities



Architecture for Real Estate service portal in Egypt



E-EAF well-defined interfaces



Impact on NSDI

- Starting from the conventional (current) concept of SDI as a mechanism to facilitate access/sharing of spatial data hosted in distributed GISs
- **through** the access and chain of WEB services offered by distributed GISs, making use of ICT opportunities
- To a **new business paradigm** where 'SDI' is emerging as a 'virtual enterprise' to promote the partnership of GI-organizations (Public/private) to provide wider scope of data and services, of size and complexity that is beyond their individual capacity.
- The development of such SDI requires an integrated platform to support the chaining of services across participating GI-organizations



SDI as Virtual Enterprise

- SDI as Virtual Enterprise
- It operates as collaborative work, networking data providers, service providers and Clients



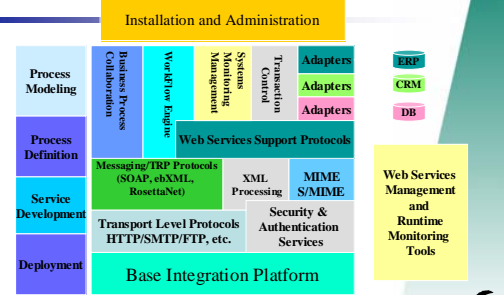
Requirements to develop platform as an integrated virtual enterprise

- An integration platform that enables interoperability of functional service nodes (OGC Initiatives for the interoperability of data and Web services).
- Apply tools that are developed in other industries to model and design an integrated enterprise from various perspectives (Reference models/standards for open distributed systems (ISO, CIMOSA, etc.).
- Appropriate use of Internet and WEB Technologies
- Several concepts exist to chain workflows and resources across the participating organizations



43

Technology Stack



44

Finally What it is all about?



45

- It is apparent nowadays that the monopolies of these NMAs over geo-information are fading away, while public private partnerships, PPPs, will characterize the GIS market in the future.
- The objective is to create the healthy conditions for large economic potentials in mapping and GIS industry.



46

Thank-you!!!!



47