

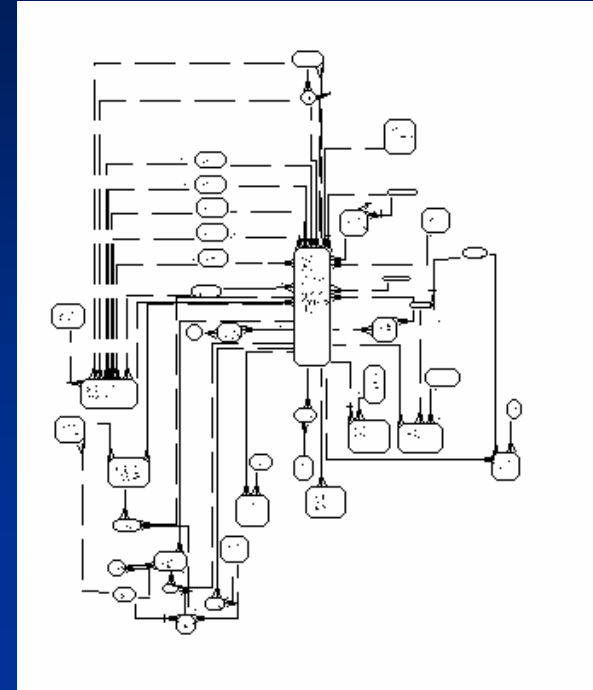
# Integration of GIS into Business systems and eGov



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# Why are most business applications not Geography Aware?

- GIS is a relatively new science.
- GIS commercial availability
- Awareness: GIS system with data / tools / business processes not static map or image.
- Historically the GIS and the IT may have grown separately in the institution



# The availability of standard GIS and Imaging data is very new

Today for a few hundred thousand SR,  
ESRI Enterprise Globe-in-a-box

**Plug** it into network and Input the IP address

**Integrates** with your data sources (Military survey, ADA, KACST, Municipalities, Electricity, Postal service, Maps GeoSystems, Farsi, SpacImaging, etc..)

**Analyze** your data, Add more data layers, and get periodical updates for free



# The Reasons for Integration

Why do you need to integrate GIS into eGov and utilities' eServices?

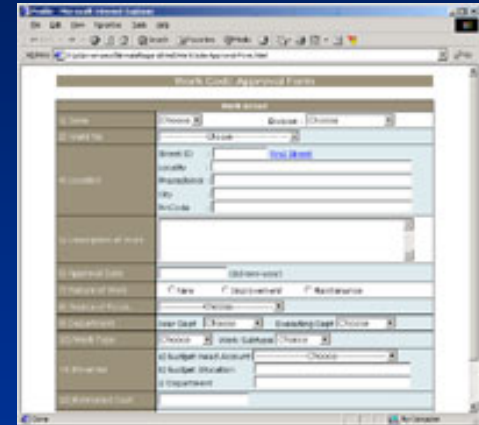
Why do you need to integrate GIS into your business processes, financial systems, fixed assets, workflow, field work orders?

# Example Local Government

- Property registration, split, merge
- Apply for construction permit
- Apply for a business permit (gas station, food shop, industrial, pharmacy, ..)
- Change your address online
- Request a water/electricity connection
- Authorize a contractor to perform road works

# Example: eGov Cadastral Management

- Property Database & Management
- Property Registration
- Integration with Financial Accounting system
- Integration with GIS system
- Citizen friendly, pay anywhere system
- MIS Reports at City, Quarter, Street levels



## Property search

By Full postal address

By street name / Street number

By House or Building Name

Property reference number

Parcel number

Zoom in using map

# Example: Request a fixed phone line

Provide address

System locates Nearest phone box, Finds alternative box if box was full)

Forwards driving directions to installation team PDA

Installation team updates status through PDA

System provides statistics, helps finding regional trends  
(e.g. today a huge trend in DSL subscription is taking place north of Riyadh – Order expansion units anticipating demand)

# Necessity for integration: E-Government



Open a new business

Build a Mall

Request a work residency

Finance

Police

Health

Cadastral

# Technologies and levels of Integration

## Portal Integration

Integration at the application level

Address matching, driving directions

- Spatial searches, Routing of fleets, crews
- Mapping, Geocoding



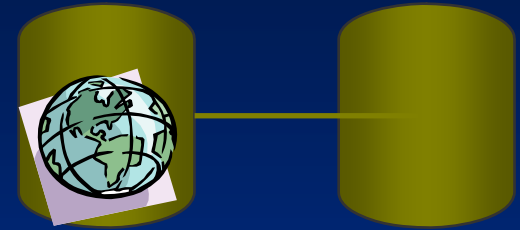
## Data warehouse integration

Different data sources – regenerate links according to keys

Produce patterns that were not visible in the business before (insurance accidents locations, crime rating, air pollution indicators analysis, agriculture crops variations, hotel reservation demand, transportation and distribution analysis,...



# Technologies and levels of Integration



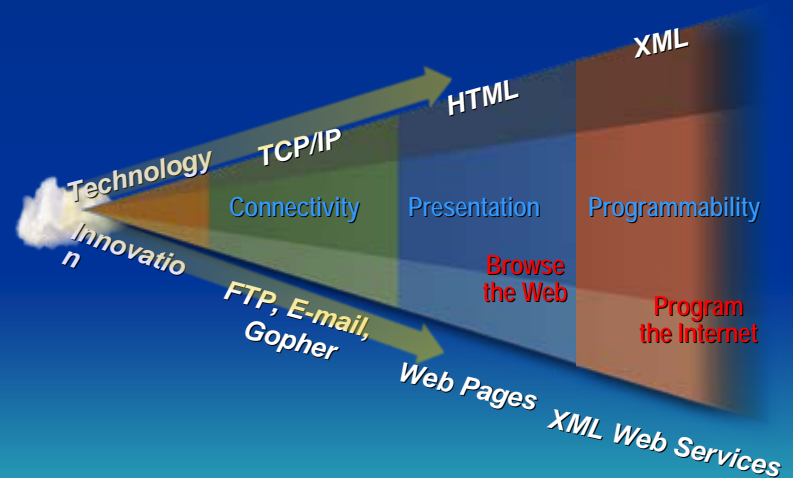
## Online Database level integration

Materialized views – fast refresh – full refresh

static or moving references (coordinates, addresses, parcel numbers, car plates, mobile phone numbers, ...)

## Web Services Integration

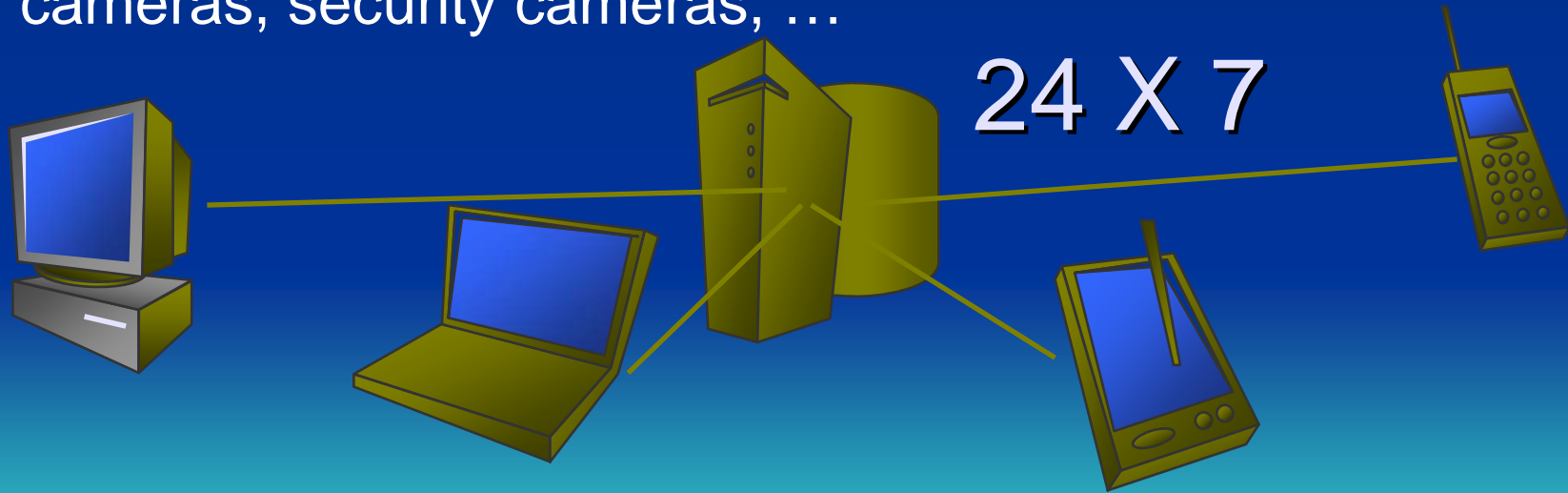
Ease of implementation, speed of implementation, flexibility, independent systems that interface through services



# Just-in-time integration

## Command and Control Centers

- Online applications monitoring through sensors, GPS, satellite image feed, CCTV or digital cameras, ...
- Command and control center integration with GIS
- Pipelines, electric power lines, water lines and stations, traffic cameras, security cameras, ...



# ESRI's Open Platform for Integration

Geodatabase, Base maps, Imagery, DTM, Reference points

OGC specifications such as WFS, WMS, and GML

spatial types: translators; direct read; data access via SQL, OLE COM, XML, and GML;  
Web services; published APIs; CAD data; and other GIS formats

VB, C#.NET, Java, Windows CE, Pocket PC

GIS Server, GIS Desktop, Thin client, Custom applications

SAS, IBM DB2, Oracle eBusiness, SAP, FileNet

Autodesk, Bentley, Intergraph, Leica, MapInfo, and Trimble

Web Services: XML, SOAP, UDDI, and WSDL

DB2 Universal Database, Informix Dynamic Server, Oracle, and Microsoft SQL Server

IIS, Oracle IAS, WebSphere

TCP/IP, HTTP, and HTTPS

Windows, UNIX, and Linux.



# Architecture of Integrated Solution

Do not mix your operational data with your Geo Database

ESRI's ArcGIS

GIS Map Data

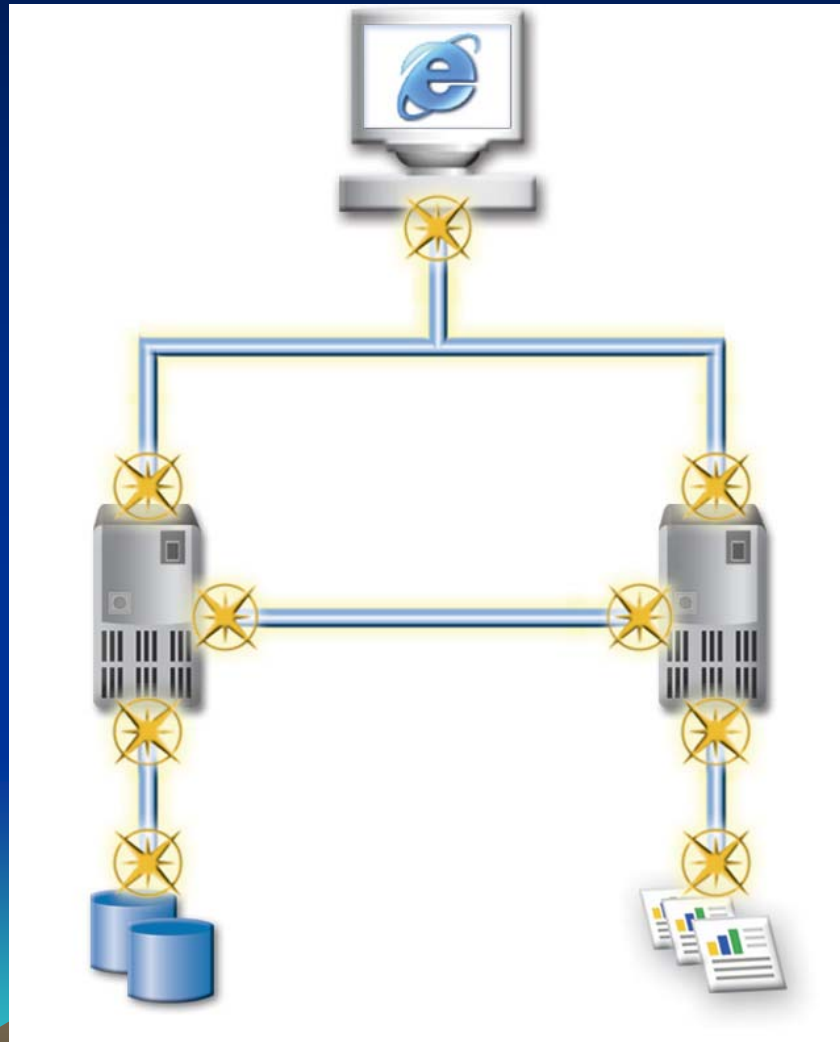
OCG

SDE

Shapefile

Existing Business or Government

Web Services



# Benefits of Integration

- Integration is not a luxury: It is a Must **TODAY!**
- Better serve your customers/inhabitants
- Accuracy in your work
- Less Human Errors
- Money and time saving

# Hints

## STANDARDIZE !

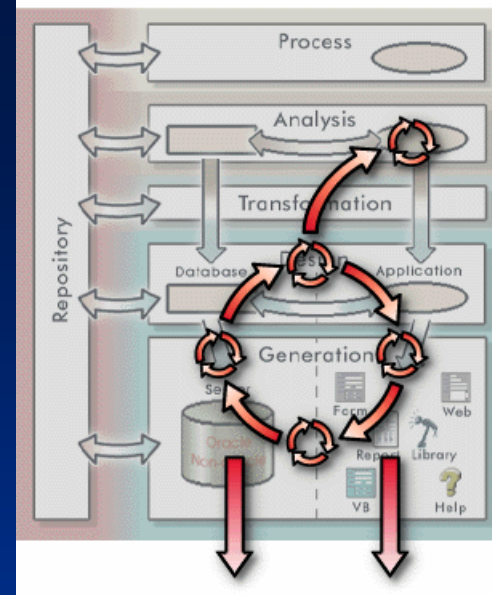
Your data, your workflow, your business process, your database, your people's training, ...

- ESRI full adoption of OGC? standards – common data format in the database ANY Database

## BUDGET !

Many institutions could not integrate their systems simply because they have not allocated the necessary budget.

Ability to **Standardize and integrate** your systems shall decide your **Success** !



الإسلام  
محمد رسول الله

# Thank you!

## Q U E S T I O N S A N S W E R S

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