ELECTRONIC DELIVERY OF THE LOCALITY-BASED SOLUTIONS

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Abstract
An incrementally implemented, multi-layered architecture, which embraces existing and new systems, offers large potential. A well-designed platform encompassing databases of common geographically related features and assets would enable organizations to be more efficient, flexible and consistent. They would be better equipped to respond both to citizens and to future government requirements.

Keywords
e-government, use of GI in public administration, location-based services

l. Introduction

The massive growth in the ownership of mobile phones, development in the information technology industry and massive advertising campaigns of software and web companies brought into focus of general public the new possibilities in communications.

This information about the possible Internet, mobile phones, digital TV and WAP has intensified the belief, that the services citizens receive from the society should be quick and efficient, powered by this new technology, instead of paper.

One organization in the front line, where the demands meet the real situation is the local authority. This paper tries to show, how it is possible to respond to increasing demand for electronic services by looking at the architecture being employed today to meet the growing demands of e-government and similar initiatives.

The quest of embracing the new technology should not be by any means only technology driven. The key to efficient services is to use as an opportunity to organize data and then select the appropriate technology to take advantage of it.

2. The role of the new services

Most citizens are familiar with being passed from office to office, from door to door by their local authority, even with a presumably single query. Such experiences are perhaps inevitable given the historic way, in which the local administration authorities were organized into discrete departments with specific responsibilities, such as roads, environment, health, planning and development control. Many authorities recognized, that this is increasingly unsatisfactory situation, but only the emergence of new technologies gave them the opportunity to find answers. The "one-stop shop" or "customer contact centers" in businesses are around for some time. However, this concept should be extended to embrace customer relationship management principles by communicating with citizens via centralized call centers e-mail and the Internet.
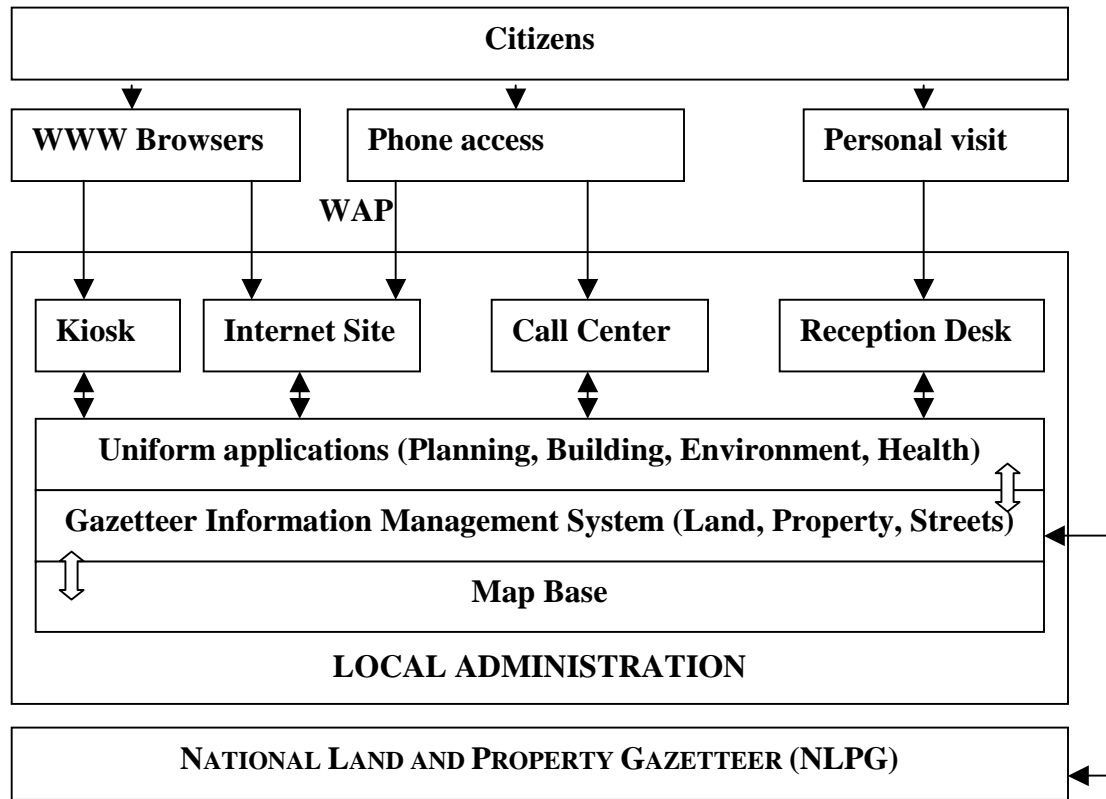
3. The role of the databases

The commercial sector has long acknowledged, that the most valuable asset of the company is often the well-maintained database of customers. If the local governments are to deliver smart services and better information to its citizens, they too must take a more holistic approach to consolidation and management of information on addresses and assets.

The departmental nature of the councils and incremental development of the information systems means that address, asset and other land and property information is often dispersed and duplicated across the information technology infrastructure. The first major challenge to become more "citizen-focused" is to develop a single index database of addresses, land, street, and properties, known as gazetteer. Existing and new systems, especially those with a role in customer- (citizen-) facing activities, must be able to contribute and to utilize the data. System for management of this data is needed to achieve this [1].

4. Implementation of the gazetteer information management system

A gazetteer information management system is a software tool that builds the high-quality database of land, street and property information [1]. It can cross-reference the databases from existing systems, together with the data from external sources to create and maintain single institutional gazetteer containing the data on local land and property.

An additional driver for the adoption of such system may be the creation of the national standard for address information. This standard is needed, when we want to integrate information systems of local authorities through common address referencing. The delivery of smarter services depends on the analysis or use of location. The gazetteer information management system therefore should use tightly integrated GIS tools to capture lines and polygons that define the location and extent of each entry.

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│                           Citizens                              │
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┌─────────────────┐  ┌─────────────────┐      ┌─────────────────┐
│  WWW Browsers   │  │  Phone access   │      │ Personal visit  │
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│   ↓          ↓              ↓                      ↓              │
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│ │ Kiosk │ │ Internet Site│ │ Call Center │ │  Reception Desk  │ │
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│   ↕          ↕              ↕                      ↕              │
│ ┌─────────────────────────────────────────────────────────────┐ │
│ │ Uniform applications (Planning, Building, Environment,      │ │
│ │ Health)                                                  ⇕  │ │
│ ├─────────────────────────────────────────────────────────────┤ │
│ │ Gazetteer Information Management System (Land, Property,    │ │
│ │ Streets)                                                    │ │
│ ├─────────────────────────────────────────────────────────────┤ │
│ │  ⇕                    Map Base                              │ │
│ └─────────────────────────────────────────────────────────────┘ │
│                   LOCAL ADMINISTRATION                          │
└─────────────────────────────────────────────────────────────────┘
┌─────────────────────────────────────────────────────────────────┐
│     NATIONAL LAND AND PROPERTY GAZETTEER (NLPG)                 │
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Picture1: The role of the NLPG in improved Local Administration services

5. Role of the nationally available data

The local administration is in charge of house numbering, street naming, as well as planning and development control; they have the latest address information. However, this data usually covers only the locality served and no datasets exist on the national level [2]. It would be of great importance and help towards creation of the information system on the national level, if the local authorities would contribute to the building of the national land and property gazetteer. There should be some institution, which would devise Intelligent Addressing scheme to coordinate work on address management and on land and property gazetteers and to help create and maintain the national one.

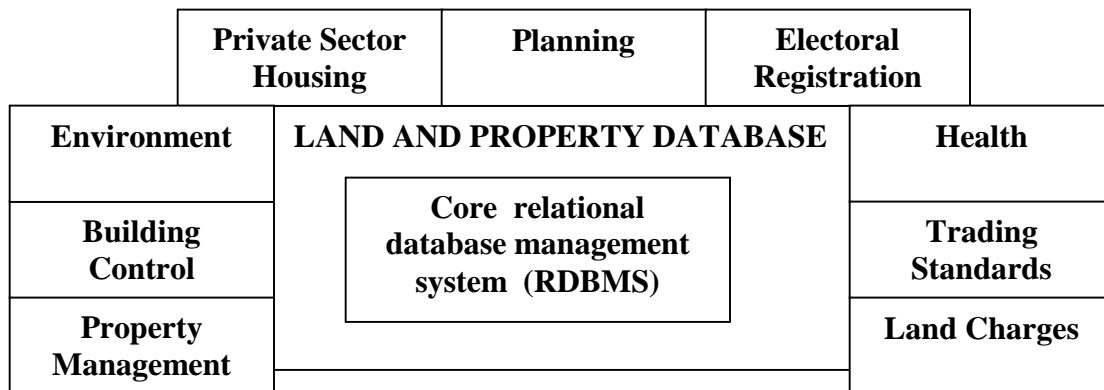The benefits of coordinated activity are numerous:

The involvement in the activity would help local authority improve its gazetteer by giving access to existing land and property data supplied to national gazetteer by bodies on the national level, such as Cadastral Office. The status of local gazetteers varies between departments. Participation in the coordinated activity drives a local authority to create and maintain its own master reference gazetteer.

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6. Implementation of applications

Having established master reference gazetteer, the next challenge of the local administration is to integrate this standard database across its information systems. Where proprietary systems are in use, this would be regular batch process. The local authorities should now take much more integrated approach, recognizing that departmental applications also should share a common database of addresses, land and property and be spatially-enabled by the GIS technology, because much of the information is locality-based. Optimally, there should be some system that would provide complete set of modules for professionals, working in different departments as well as sharing a database. These modules should include [3]:

Building Control, Development Control, Environment Control, Health Control, Local Land Charges, Trading Standards, Estates Management, Local Plans, Residential Premises, Electoral Registration.

Using more integrated and spatially enabled systems, which all share and contribute to common referencing database, means that better services can be delivered to the citizen at the same time as a continuum of the gazetteer maintenance.

Private Sector Housing	Planning	Electoral Registration	
Environment	**LAND AND PROPERTY DATABASE**		Health
Building Control	Core relational database management system (RDBMS)		Trading Standards
Property Management			Land Charges

Picture 2: Modular database systems with modules for professionals

7. On-line delivery

With this architecture in place, the local authority can face the public. A web application framework is the most recent platform for citizen-centered solutions. The approach should be to extend the existing solutions using Internet technologies, improving usability and accessibility by the administration staff and the citizens.

In answering the query concerning the planning application coming from person during visit or by phone the staff would use the same intranet application to find the relevant property using the gazetteer, confirm its location using the map base and call up the planning application from the planning department database. The system should allow to

log caller information, process the query and even update the planning department system [3]. The citizen also might use the same web-based application in modified secure form over the Internet. The online service would be really well appreciated, if it could serve for fault reporting, such as pinpointing of the broken street lights or portholes, or in making available almost any type of the request through a map.

8. Implementation of smarter services

An institution can deliver smarter services by taking a more holistic approach to system that have address, land and property information in their core. An incrementally implemented, multi-layered, web-enabled architecture, which embraces existing and new systems and works from a standardized gazetteer, has a lot of potential for offering solutions. The task is not an easy one and the range of available software and solutions extensive. It is good to choose tools from organizations, which have large experience in local government services, government initiatives and the development, supply and support of the solutions that are necessary in today's world.

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