

Land Management Tool for Local Administrations

Paul-Dan URSU, Romania
Jill URBAN-KARR, USA

Key words: e-Government, municipal management, land management, GIS, data integration

SUMMARY

Local administrations (municipalities, county government, etc.) need to be able to accurately manage, enhance and promote their boundaries of responsibility. In today's world of fast-paced decision-making and foreign investment, the local administration has expanded from an entity focused exclusively on the "inner" activities of its jurisdiction to include the "outer" focus of marketing and promotion, regional disaster planning and response, and compliance to EU and international mandates.

In order to successfully provide both quality customer service to the citizens and respond to the increasing needs of numerous external factors, the local administration must have the proper tools to support management (primarily land/property based management), real-time decisions, and legal and regulatory requirements. This paper will present a general description of one such tool for local administrations, based on research conducted in Romanian localities. This tool is developed using a geodatabase solution that utilizes cadastre and ownership data as the foundation for local administration activities such as addressing, property valuation and taxation, disaster planning, comprehensive development planning, agricultural management (LPIS-IACS), infrastructure maintenance and improvement, permitting, and customer service.

This solution is also able to be expanded so as to support two levels of administration (local and regional/county). In this two-tier scenario, the upper level geodatabase (for the regional/county office) is a concatenation of each local administrative unit database that is in the jurisdiction of the county. This results in a "bottom-up" approach: the local level has the greatest detail about each of their respective areas, this information is then consolidated at the regional level where "big picture" strategic planning, analysis, evaluation and modeling can then occur.

Land Management Tool for Local Administrations

Paul-Dan URSU, Romania

Jill URBAN-KARR, United States of America

1. INTRODUCTION

Typically, a *local administration* is composed of two levels of management, the first (usually the smallest self-managed unit) being the municipality or locality and the second being the county or region. In order to operate and optimize the modern concepts and technologies available today so as to create efficient activity and results for the local administration, it is proposed that an integrated *Evidence and Analysis System* (EAS) be implemented at both levels of local administration management.

2. EVIDENCE AND ANALYSIS SYSTEM (EAS)

The roles and responsibilities that are tasked to the aforementioned levels of management varies from country to country, however, for the purposes of this discussion, the following division and allocation of effort provides the underlying activity framework based on the findings in Romania:

Administrative functions:

- administration (financial, taxes, human resources, etc.)
- technical (zoning, permits, etc.)
- patrimony (public and local administration private domains),
- communication (informing and collecting information from citizens and other local factors)

Strategic Planning functions, based on:

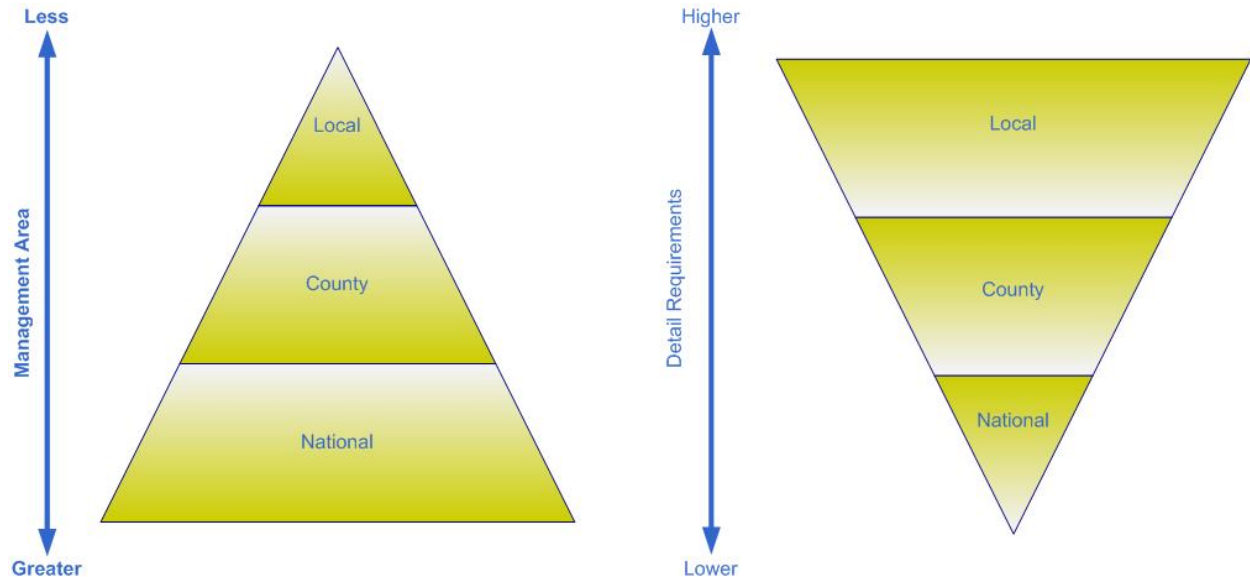
- current situation (physical, economic, development),
- legal framework,
- general strategy of the national government,
- general strategy of county governments,
- impact analysis, risk assessment, and customer feedback.

EAS is a tool for supporting and evaluating an administration's activities by correlating and integrating varied and diverse information sets, resulting in a powerful decision-support tool. "Evidence" refers all registered entities (persons, properties, structures, roads, etc.) and the associated processes and procedures that are necessary for the actual registration and maintenance of these entities. The EAS is composed of two major components:

- Territorial Data System
- Decision Support System

2.1 Territorial Data System

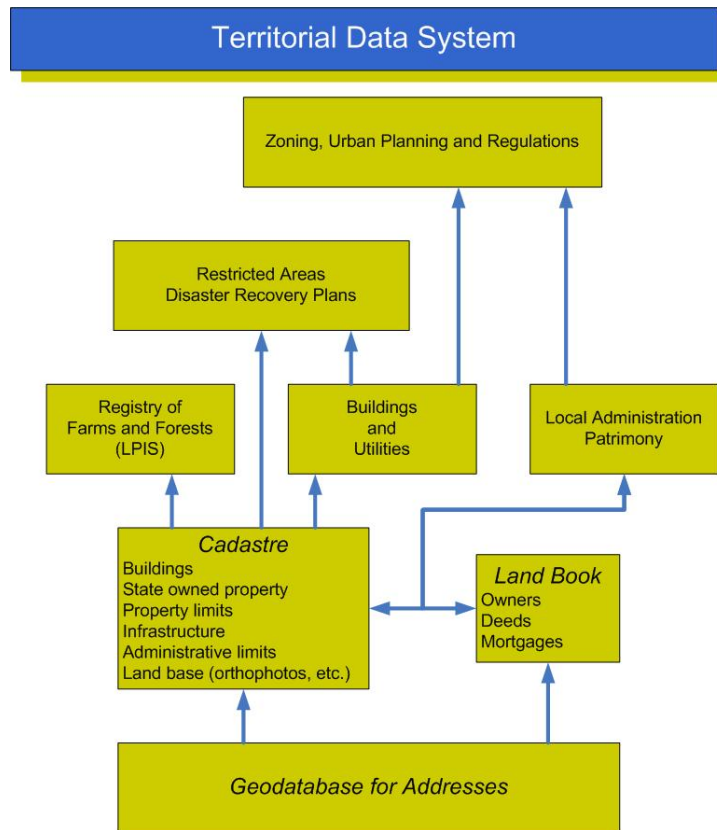
The first key step is the construction of a comprehensive databank for the local administration. The county level will consist of a concatenation of all municipalities'/localities' databases within their respective county territory. Likewise, the national level will be a compilation of the county databases. When examining this scenario, it is important to consider that the level of detail that is needed at each level increases as the management area decreases:



The main components of the Territorial Data System include:

- Geodatabase of cadastral and land book information of territory,
- Geodatabase of buildings,
- Geodatabase of agricultural land, forestry and waters,
- Geodatabase of utilities
- Geodatabase of infrastructure
- Geodatabase of zoning and urban regulations,
- Database(s) for demographics, taxes, restricted areas, etc.

A key to the success of this ultimately nationwide solution is the creation of a foundational database that can serve as the unique “connector” of all of the databases utilized throughout the system. For the EAS, this “connector” is a geodatabase for *administrative addresses*. The administrative address is the most important management unit for local administrations. By implementing a standardized addressing network throughout the system, the ability to geocode information to the correct location becomes more streamlined.



Although the data is the core of the EAS, it is not the only component that is necessary to enable this coordinated effort. Without specific tools that allow for the input/maintenance and analysis of the information, the EAS is nothing more than a digital filing cabinet. Therefore, the next pivotal component in the EAS is the actual “tool box” of functionality. – *Management Decision Support Tools.*

2.2 Management Decision Support Tools

With the compilation of numerous and potentially complex data sets, it is important that the users are able to not only access and extract the information, but also perform analysis for their respective territories. The objectives of this analysis will be numerous, but summarily, it will result in an objective means for measuring success or changes. This type of analytical effort can combine any of the available datasets, however, most frequently these are grouped into modules of effort:

- Module 1: Productivity analysis (unemployment, poverty, income, local productivity)
- Module 2: Social development (demographics, health, child care, education, crimes)
- Module 3: Utilities (location, type, capacity, maintenance history, fees)
- Module 4: Transportation (road and street system, public transportation, right-of-ways)
- Module 5: Environmental management (pollution monitoring, sensitive areas, inspections)
- Module 6: Public services (fire and emergency response, disaster planning, social services)
- Module 7: Urban Development (planning, zoning, permitting, inspections)

Module 8: Agriculture Management (permitting, inspections, compliance)

The ability to have this toolbox accessible and useable by all levels of the local administration is critical to its overall success. These users will range from the general public, to the administration management to the technology support team. If the ability to perform analysis requires an “IT expert” then the value of the system will never be fully realized. A successful implementation will be reflected in not only the availability of information, but in the wide-spread capabilities provided to the self-reliant user community.

3. EAS RELATIONSHIP WITH TO CENTRAL (NATIONAL) PUBLIC ADMINISTRATION

As has been discussed, information is collected and stored at all levels of the local administration in Romania. According to the laws, each responsible entity must make their respective information valid for others (administrative entities, citizens, third parties, etc.) that will be using the data. The activities of local administration are based on information existing multiple entities in numerous locations. Because of this dispersed approach, the need for an EAS to provide correlated and integrated information is critical to the continued improvement of the services that are offered and managed at the national level.

At the national level, evidence systems are organized based on the concept of *Public Permanent National Registries* (PPNR). PPNR is a system of nationwide inventory databases of various entities, each with a unique identification number (i.e. cadastre numbers, personal identification numbers, etc.). The EAS utilizes components of PPNR, specific to each territory. For central public administration, it will be significant a benefit to have a correlated solution between the various PPNRs and the local administration databanks. With a well-designed EAS at the local level, the ability to correlate the large PPNRs at the national level to the local administrations becomes a straightforward effort with both levels being the beneficiary to such a coordinated effort.

EAS for the local administration is a tool that integrates and correlates all the selected information from various sources. It is not relevant who the “owner” of data is, the important element is that the data is available for all administration levels. The “owner” has the responsibility to maintain the accuracy and currency of the information thus providing the best possible resource to the other users. If all of the data “owners” perform their required maintenance on their respective databases, then the reliability of the information increases, thus increasing confidence at all levels of the user network and further supporting the ability to make correct and timely decisions.

One of the key issues for achieving this goal is the standardization of the processes and data structures in all levels of the local and national administration. Although certainly a challenging task, it is achievable. Often the most successful approach in this standardization process is to allow “bottom up management” as opposed to “top down mandates” to occur. For example, allow the lowest level of the administration (municipalities) to provide the

detailed guidelines and standards based on the framework outline provided by the national level.

4. PROBLEM AND PROPOSED SOLUTION EXAMPLE – BUCHAREST

One of the most important economical drivers in any economy is building and infrastructure construction. As required by Romanian law, a permit is required before any new construction is undertaken. This permit is provided by the local administration. In order to acquire a permit for new building construction, the local administration requires review, recommendations and ultimately approval from numerous administrative entities including, but not limited to: the urban zoning department (municipality), cadastre and land book office (county or national), sanitary department (municipality), utility providers (water and sewer, electricity, telephone, gas, etc.), disaster planning department (county), fire department (municipality), cultural monuments commission (national), environmental protection (county), etc. Over a period of 3-months, the building permitting process was analyzed in Bucharest (Romania). It was found that the most complicated permits require 16 separate recommendations, and may require 9-12 months for approval.

It is readily apparent that an integrated and automated solution would expedite this review and approval process. Under the EAS strategy, not only will the local administration receive the needed information from the other authorizing entities, but these entities will in turn receive current information regarding their particular needs, in a timely and detailed manner.

5. CONCLUSION

The implementation of a comprehensive EAS will provide the much needed link between all participants of the decision chain of the local administration. This joining of the levels of the local administration will not only provide improved and coordinated decision-making, but will most importantly be the source for accurate and timely information, eliminate duplicated efforts and expenses, and streamline management efforts with these benefits:

- Coherent and coordinated management of the territory
- Fair and efficient support for tax valuation and assessment
- Efficient, complete and precise resource for correlated information for third parties
- Comprehensive technical support for decisions
- Budget and resource management and analysis

BIOGRAPHICAL NOTES – PAUL-DAN URSU

Paul-Dan Ursu is the Director of Projects for Stewart Romania where is he actively working on various e-Government projects in Romania and the region. Mr. Ursu is an experienced IT and GIS specialist with over 25 years of experience in both the private and public sector, including over 10 years of experience in working for Romanian local administration of Central Bucharest and the National Office for Cadastre, Geodesy and Cartography.

Mr. Ursu received his Computer Science Engineering degree from the Polytechnic University of Bucharest in 1978 where he was recognized for the co-development of an algorithm for logical algebra. After graduation, Mr. Ursu has worked in China and Czechoslovakia (now Czech Republic) as the technical team leader for the maintenance and support of computer systems sold to clients in these respective countries. In the following years, he continued his professional advancement in the IT world with several key positions in the private sector.

Mr. Ursu is currently a member of the Project Management Institute (PMI) and is working toward PMI certification in 2006.

BIOGRAPHICAL NOTES – JILL S. URBAN-KARR

Jill Urban-Karr is the Vice President of Eurasian Business Development for Stewart Information International, where she is currently working on projects and development activities in Romania, Bulgaria, Turkey, Egypt, and Jordan. She is an experienced e-Government project manager with a strong background in municipal processes in both the public and private business sectors. She has proven her ability in strategic planning, process analysis, needs assessment, and proposal development on numerous international projects. Ms. Urban-Karr has coordinated multi-participant GIS projects in both the public and private sector in the United States, the Caribbean, Latin America and Eurasia.

Ms. Urban-Karr received a Bachelor of Science Degree from Texas A&M University in 1986 where she specialized in Geographic Information Systems (GIS) and their utilization in government processes. After graduation, Ms. Urban-Karr became the GIS Manager for the City of Irving, a municipality near Dallas, Texas, where she successfully implemented a city-wide GIS solution for the city departments, including Planning, Engineering, Police, Fire, Inspections, and the City Managers Office.

Ms. Urban-Karr joined the Stewart family of companies in 1997, where she managed the GIS mapping services and the governmental consulting solutions for the company's domestic clients. In 1999, she expanded her activities to include international clients located in the Caribbean and Latin America and completed several successful e-Government solutions in the US Virgin Islands, Costa Rica, and Venezuela. Beginning in 2002, Ms. Urban-Karr moved her focus to the many opportunities in Eurasia, and is currently working on several Public Private Partnership scenarios for land records management.

CONTACTS

Mr. Paul-Dan Ursu
Stewart Romania
Str. Banu Manta, nr. 22, bl. 29, sc. 2, et. 5, ap. 64
Sector 1
Bucharest
ROMANIA
Tel. +40.21.233.24.44
Fax +40.21.222.41.10
Email:pdursu@stewart.com
Web site: <http://international.stewart.com>

Ms. Jill Urban-Karr
Stewart International
5730 Northwest Pkwy, Suite 100
San Antonio, TX
USA
Tel. +1.210.477.2600
Fax +1.210.641.2085
Email:jkarr@stewart.com
Web site: <http://international.stewart.com>