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Quantify Public Value Project

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QPV TASK 1 SUMMARY REPORT

Overview

The major activity during this phase was Task 1, the Return On Investment study, following the GITA ROI approach and materials provided to the QPV project team. Following on preparation and completion of the GITA-ROI training workshop in early May, 2010, the approach was applied, as planned, to collect and analyze data connected to parcel-related activities within the Hennepin County Government. After establishing contact, staff from W4Sight sent emails and made phone calls to Hennepin County staff to collect relevant information. This data collection prefaced by a series of ten interview sessions over three days (July 19-21) at the Hennepin County Government Center to finish the data collection and meet with county staff. Valuable data was collected, but substantial limitations arise from the coarse granularity of information on the use of parcel data maintained respective the considerable detail called for by the GITA ROI approach. With only partial cost and benefit data for 7 of 8 county agencies interviewed, we are unable to produce reasonable estimates of benefits and costs even using interpretative interpolation. The dearth of concrete facts limits our ability to state any aggregated cost or benefit numbers with reliability. The findings of this Task 1, the analysis results, and assessment leave a number of open issues.

Project Goals and Task Objectives

As we have come to formulate through meetings, presentations, and discussions, the over-riding goal of the project can be expressed in the question: **What is the geo-enabled value of parcel data?** This is a more specific formulation of the project objective defined in the proposal. The adjective "geo-enabled" bundles key issues that reflect the importance of developing quantifiable indicators of spatial data infrastructure benefits and costs for policy makers, first, and other audiences, especially the broad range of stakeholders involved in regional data sharing consortia.

Task 1 is intended to provide a basis for other project activities, including analysis of the GITA ROI approach. During this task, we undertook with the expert assistance of W4Sight the fundamental analysis of Hennepin County stakeholders working with parcel data following the GITA ROI approach. The objectives were to apply this approach and analyze the parcel data-related benefits and costs within Hennepin County.

Task Activities

Primary contact in Hennepin County is the GIS Office Manager, Gary Swenson, who assisted in the first selection of internal departments for interviews. Some of the selected staff are members of the Hennepin County Technical Advisory Group and are considered frequent users of the GIS parcel data relative to the development, maintenance, and/or use. Members of the Technical Advisory Group, represent their respective departments and provide a network of technology experts, which promote and strengthen GIS technology countywide through inter-departmental communication, collaboration, cooperation, and joint research. The group researches and produces recommendations on GIS technical standards, protocols, and best practices.

The Task 1 interview exercise began by collecting general information through the distribution of a pre-interview questionnaire. Each invited interviewee was asked to complete this pre interview survey to provide the researchers with insight important to effectively conducting the in-person interviews. The pre-interview questionnaire was emailed to each of the ten prospective interviewees on May 25, 2010. W4Sight followed up with each individual until the questionnaires were returned. Using the pre-interview questionnaire results, Hennepin County staff defined their department purpose, general parcel data usage, parcel based products and services, any parcel inquiries, and parcel-related business activities. Insights as to exposure to GIS technology and competency levels were revealed. Detailed responses were provided for the following departments: Taxpayer Services, Assessor, Sheriff, Transportation, Environmental Services, Emergency Preparedness, and Housing Community Works & Transit. The following departments were represented in the survey by multiple business units: 1) Taxpayer Services: Survey/Graphics, GIS, and Property Tax/Property Identification 2) Public Works: Emergency Preparedness, Environmental Services, Housing, Community Works & Transit Leasing and Land Management, Housing, Community Works & Transit Land Acquisition and Transportation.

Onsite interviews with key Hennepin County staff followed on July 19-21. Interviewees possessed varying levels of GIS knowledge and skill sets. Staff varied from heavy to occasional users of GIS technology and most used the parcel data only as reference for their business activities. However, despite these variations, all county staff interviewed agreed that the parcel data plays an important fundamental and integral role in the execution of their daily business activities and that their work processes would be negatively affected if the parcel dataset were not accessible, accurate, and complete.

The onsite interviews were critical to obtaining more detailed information about the parcel-related GIS activities in Hennepin County, however quantitative information consistent with the GITA ROI methodology about the number of county staff who use the parcel data and their frequency of use was difficult to obtain. The exception was the Taxpayer Services Department's Surveyor Unit, which provided very detailed information about hours spent on multiple creation or update activities related to parcel data. Alternatively, representatives of the

other business units were able to provide only estimates of their percentage of time using or referencing parcel data. These variations in data collection precluded accomplishing a complete ROI assessment.

Task Outcomes

The purpose of Task 1 was to assess, following the GITA ROI approach, the existing return on investment achieved internal to the County through its Parcel/GIS operations. The Quantitative Analysis conducted uses data gathered from the interview process related to labor costs, infrastructure, and revenues. Benefits were attempted to be determined through a variety of means, mainly different calculations using measures collected during interviews. However, much of the statistical data recommended in the GITA ROI model was either not accessible or not possible to obtain during the task. During the interview process, county staff were not able to provide comprehensive or accurate statistics on the number of people in their department using the parcel data, the amount of time they spent using it, or in what way parcel data are being used.

This missing critical information resulted in major gaps when attempting to complete the ROI. The study team concluded that in order to clearly define the limitations of the information gathered, general assumptions would need to be generated to realistically assess benefits and costs related to the current parcel/GIS environment at Hennepin County.

This section summarizes the study team's assumptions and offers qualitative, not quantitative, insight into benefits and costs. It is important to recognize that these assumptions must be considered when developing the proposed Quantify Public Value (QPV) replicable methodology.

Assumptions

- Metrics to determine parcel usage and business improvements associated with its use are not available for analysis. The majority of County staff were only able to provide percentages of this time for the current use of GIS and/or the parcel data.
- The automation of the parcel data has been a great benefit for its users by eliminating the need for paper maps and filing.
- The completeness, currency, and accuracy of parcel data have led to better business decisions by county departments.
- The public receives better service through access to parcel data on the county's external interactive mapping application.
- Public inquiries to the County departments have dropped since parcel data has been put online.

- The use of parcel data is considered to be a critical and integral part of county business activities.

Costs

- Connectivity issues with the SDE server with parcel data causes division/division/units to copy the parcel data onto their own department servers or personal computers.
- Many of the division/division/units keep parcel data or data that are derivatives of parcel data on their individual computers or servers. This does not allow other departments to take advantage of this derivative data.
- Many other datasets that would be useful when overlaid on the parcel data are not currently available on the external website. Publishing of this data would significantly reduce public inquiries (i.e. crime locations, flood zones, etc).
- Lack of knowledge of the accuracy of parcel data currently maintained by the county surveyor has lead to some redundant parcel data development.
- Integration of RecordEase with GIS does not exist causing decreased productivity when trying to relate parcels to documents stored in the RecordEase application.

Benefits

- Parcel data is used by many departments for reference or development of "proximity" datasets.
- Ease of accessibility to data is very beneficial to business activities for all departments with parcel-related activities, creation of exhibits for internal or public use, and answering public inquiries.
- Parcel data is the cross-departmental default standard for geocoding all GIS data.
- Research time related to Parcel Identification Numbers (PIN) and/or address ownership records has been cut immensely through deployment of the County's internal/external web-based parcel application.
- Use of parcel data in the public website has decreased public inquiries to most departments (i.e. Property Tax/Property Identification Unit used to receive 3-4 calls per day, now may receive one call per day).
- Analysis with parcel data and actively merging it with other datasets allows for better decision making and in some cases generates revenue or saves the county in land acquisition costs (i.e. avoidance of auctioning forfeited land that will be needed later for a Capital Improvement Project).

- The use of geo-enabled parcel data has eliminated the need for the production and use of paper map books.
- Geo-enabling parcel data has allowed for speed and development of professional-looking map products.
- The use of parcel data in the GIS-based Assessor Mobile (PKG) applications has improved efficiency in the 60,000 plus appraisals completed each year. GIS-based applications include: 1) Inter/Intranet Property Map, 2) Mailing Labels, 3) Community Works & Transit Desktop application (which was given only to certain staff and other still need it), 4) Assessor map, 5) Assessor Mobile (PKG), and 6) Tax Forfeit Mapper. The interviews did not provide sufficient indication how each application is benefiting activities.
- For example, the Assessor appraisal field staff have been reduced in number, parcels appraisal contracts have risen, and coordination and communications have improved with the use of the their Mobile Field Inspection application.
- Improved coordination and communication within divisions/units, cross departmentally, and with external agencies through the use of parcel-related mapping (and use of exhibit maps). Examples are as follows:
 - Appraiser parcel completion maps have assisted in determining where appraisers are needed and assists to efficiently and quickly redistribute field staff when necessary.
 - Sales ratio mapping using parcel data identifies where city appraisers may not be meeting legal guidelines which prevents lawsuits later.
 - Parcel ownership information and location is used to assist in the warrant and parole searches as well as in preparation for serving warrants.
 - Parcel valuation data is mapped to incident areas are used to estimate damage for disaster declarations (federal funding). Ease of this process allows for faster acquisition of those funds.
 - GIS activities are used in the planning and design of the county transportation routes and parcel information provides proximity information.

Benefits and Costs Analysis

At this point, no conclusive benefits and costs analysis is possible. Our team could not conduct the analyses or reliably attempt calculations due to the lack of data. Subsequently, our team has initiated communication with Nancy Lerner, Dave DiSera and Bob Samborski, who each played substantive roles in development of the subject ROI methodology, to share with them obstacles we encountered and seek their advice for subsequent phases of this study.

Our thoughts concerning application of the GITA ROI approach to the study of

a large and complex county level organization are characterized as follows. Based on the work of Hennepin County staff with parcel data, our study results provide evidence of \$132,500 benefit for two positions in the surveying/ graphics unit. However, this is a 'gross' benefit. The 'net' benefit, following the GITA approach, would have to consider the actual improvements in staff productivity or reductions in time spent on tasks due to spatial data investments. The total costs for developing the parcel data, software and hardware costs, are \$54,264. To reiterate: these two numbers, by themselves, do not allow a comparison, nor should we attempt partial analysis with roughly only 1/3 of the data required, but they do start to allow us to anecdotally grasp the scope of costs and benefits of Hennepin County's efforts to geo-enable parcel data.

Reflections and Considerations for Other Tasks

The GITA ROI approach seems well-suited for capturing costs, existing benefits, and potential benefits of geographic information project activities and immediate, institutional mission related costs. In our, admittedly limited, experience in Hennepin County, the approach is less suited for identifying benefits and costs of use of parcel data across multiple agencies with largely independent GIS-related activities.

After starting the data collection in June, by the middle of September 2010, much of the basic expense data for the ROI still needs to be collected and fit in along existing work activities. Indeed, because of the hierarchical organization and project-level accounting of the county administration, the identification of those portions of work specifically involving parcel data proved to be extremely difficult in many cases and impossible in some for the interviewees. To clarify, this is not a weakness of the GITA approach, but it is an inherent and unavoidable challenge of applying a method most frequently used to assess projects with definable scopes to the complex activities of civil servants and the many uses of parcel data. Exhibit 1 summarizes key issues identified by our study team in the application of the GITA approach. Exhibit 2 summarizes the GITA approach cost/benefit calculation and difficulties encountered to quantify costs and benefits in a large public administration.

For the study tasks that follow, particularly the development of the prototype QPV methodology (Task 3), it appears that to establish benefits and costs, our team will need to develop a methodology that better takes into account organizational culture and complexity of arrangements, a focus of our study. First, consideration should be given to development of a long-term and low-impact study to establish the number of hours that county staff work with GIS technology and parcel data. Second, a survey should be conducted via an online mechanism that management promotes as valuable for the county. Clear instructions, tested for the environment in which to be developed, should be provided to assist the respondents complete the survey. Third, follow up on the studies with questions for identifying the proportion of activities involving parcel data used in the past and present and include a series of questions about costs of

sharing geographic information and efforts to achieve cost avoidance. Our proposed Task 3 is the best opportunity for pursuing possibilities to include these aspects in a methodology designed for large and complex data collaboration activities within and beyond the organization that produces the subject data. Lastly, our Task 3 is proposed to involve development of a framework to help quantify the elusive quality of public value connected to use of geo-enabled parcel data, a complex task which is proving to be a challenge to articulate in a robust methodology.

Exhibit 1 - Issues to consider in application of the GITA ROI approach

Drawing on our partially completed ROI study, we can surmise several points for guiding further work on refining the proposed Quantify Public Value (QPV) methodology.

Missing data, accounting and budgeting

Obtaining data on proportional staff time spent on GIS activities can be very complicated and time-consuming to determine, even approximately. In addition, costs and benefits are hard to determine as most financial data is associated with positions, not with project time spent working with data. Estimates of time to acquire data cannot be too conservative in large multi-agency organizations. Project management should define a milestone when to freeze activities and await the availability of data.

Calculation of costs and benefits

At this point in time, we conclude from experiences that it may be advisable to arbitrarily set a Year 0 and determine the impact of investments and changes by determining costs and calculating benefits for the following years. For instance, Year 0 could be the year prior to a large internal re-organization, and the ensuing years would follow as Year 1, Year 2, etc, up to the current year. After costs have been accounted for (so-called sunk costs) they should not be considered in the ROI determination, although their value may be still not be assessed when the ROI analysis begins.

Analysis

The value of the analysis depends on the data that are able to be collected. While costs and benefits can be assumed, guessed, and estimated, it is important to document the reliability and source of the data as well as provide discussion with an overview of the general and specific reliability of calculations and data.

Exhibit 2 - Suggested cost-benefit calculation

The projects for which cost-benefit analysis are conducted in most cases involve some calculations. Each is prone to particular biases. However, a key calculation, because of its simplicity, is the determination of annual benefits.

As we understand this calculation from material produced by GITA documenting their ROI model (p. 28f of the workbook), annual benefits are determined by subtracting the annual internal labor cost, and any one-time labor costs for that year from the total benefits (TB) for the year.

$$AB = TB - AIL - OLC$$

Costs for longer periods can be distributed to individual years. The simplest way is to divide the cost by the number of years, but other approaches, based on known factors or understood factors can be used to distribute the costs.

The results of the annual benefits calculations can be aggregated to provide information about total benefits. This can be done by multiplying a single year's costs by the project life, or determining the benefits for each year of the project's life and calculating the total.

As application of the methodology in our case (MetroGIS QPV Study) does not involve a "project" but rather an operational, cross-sector system of data sharing, for which our team is attempting to define current not future benefit, completing the calculation for future costs and benefits is not possible with the data and information obtained from Hennepin County staff., nor is it likely we shall have this data within the scope of the project.