

Case Study

Connecting data unlocks valuable answers and enables county services

Like the proverbial left hand that may not know what the right hand is doing, organizations with separate systems and data cannot operate as effectively as possible. By connecting and organizing data, they can validate critical information and use it to make decisions and draw conclusions on a more informed basis. Their data integration can build a foundation for incremental systems and services.

Without sharing information, can a team work like a team?

Though county government departments serve on committees that set direction for the county as a whole, they are often a federation of entities serving specific and distinctly separate purposes. In Hendricks County, the Auditor, Assessor, and Recorder have significant autonomy. Each maintained separate data in different systems. In addition, departments relied on several media, including paper spreadsheets, desktop databases and third-party applications to manage information for permitting, personal property, not-for-profit assessments, and other functions.

Implementing systems to support this organizational structure can result in unintentional data barriers that must be addressed by the entire organization. For example, due to parcel sales, property owners were often different from the prior assessment, so separate listings existed so each system could be updated. As a result, at tax time, data from the Assessor and Auditor systems was printed and manually reviewed, line-by-line, to verify consistent assessment values across systems and that every parcel was counted. Such non-integrated systems can result in personnel wasting significant time validating data and balancing across systems.

Initially, Systems Administrator John Parsons saw the need to connect the county via a high-speed network to implement network applications and internet access and tie disparate applications. The infrastructure implementation led to the decision to develop a data warehouse of consolidated information.

Hendricks County

Organization

Hendricks County, Indiana, has facilities in the Government Center, Courthouse, Sheriff/Jail, and the Fairgrounds.

It has approximately 500 employees, with close to 300 desktops supported by a four-person IT staff. On a base of \$10 billion in assessed value, annual tax revenue is approximately \$170 million.

Industry

County government.

Issue

Disparate systems and data compromise responsiveness and result in missed opportunities.

Solution

Business intelligence, application development.

Product

Data warehouse, data management tools, and web access for employees and citizens.

Web Site

www.co.hendricks.in.us

Comprehensive information, consistently organized and readily available.

With a consistent infrastructure in place, Quest worked with county personnel to design a data warehouse.

The initial goal was to provide comprehensive information about a parcel with a single query. The key was to tie data from separate systems using the parcel number. This required importing data from different systems used by the Auditor, Assessor, Environmental Health, and Planning & Building. Fortunately, each department's system used the parcel number as a unique key for the property information. With capabilities in Microsoft SQL Server's DTS (Data Transformation Services), data from pertinent tables in the separate databases were copied into a single relational database. Using Visual Basic, programs were developed to organize the warehoused data into more useful tables. To keep information fresh, data extraction routines and organizing programs run nightly.

County personnel use tailored web pages (ASP) and Microsoft Access to query, report, and analyze data, including parcel history. By design, all access to warehoused data is read-only. Each department maintains data they own in their own systems. Public access to selected information is provided over the Internet using web pages.

This web interface is now a primary source for all parcel information for county employees as well. Employees use it to get comprehensive information, where before it couldn't be stored in existing systems. The parcel information included owner and addresses, tax deductions, tax bill summaries, assessment values, land and building summaries, property photographs, well and septic information and drawings, building permit information, and a direct link to the county's Geographic Information System (GIS) site showing the property location on detailed maps.

In addition to warehousing electronic data, older data from paper archives was scanned and indexed. This included marriage licenses, commissioner meeting minutes, and ordinance documentation dating back to the 1820s.

Higher quality, better decisions, and a more responsive organization.

The initial data warehouse was implemented on time and on budget, had no detrimental impact on production systems, and provided a variety of benefits for the county employees and constituents. As the IT environment has evolved, the data warehouse and import and management software have been enhanced to include information from diverse data sources. Production systems are continually upgraded and migrated, but the warehouse and overall model on which it is based are flexible enough to maintain the same basic structure with only incremental changes required.

From initial warehouse implementation, the Auditor-Assessor **balancing** report yielded significant benefits, enabling county personnel to spot differences between the two departments' systems in seconds instead of days of work previously required to reconcile them. Once Assessor-certified assessment values and new data are loaded into the warehouse, the balancing report can immediately compare the two systems, parcel-by-parcel, and reveal discrepancies to resolve.

Data **cleansing** that occurs when loading the warehouse has also paid dividends. During implementation, errors were discovered by the extraction routines. Many production systems had duplicate and missing information, as well as invalid dates and parcel numbers, all of which could be resolved after being identified. This continues to be a major benefit, because current operational systems often don't provide adequate validation at data entry.

Because property data is provided via the Internet, constituents have access to information immediately and employees spend less time addressing phone and walk-in questions. Employees in departments without access to one of the production systems can also use it to quickly find information. Property and tax information can now be effectively provided to realtors, to mortgage companies, and to the local media.

County employees have also experienced considerable **research** savings from the data

warehouse, because they no longer have to physically visit each department to review and copy records to determine changes in parcel ownership or annexations into different tax units. Since the warehouse contains more historical data than the production systems, complex query needs previously dependent on paper files can now be satisfied from the warehouse.

Benefits beyond original expectations.

Many new applications have been developed to leverage the data warehouse, using information not considered during the initial implementation.

Surveyor – can now quickly find the current owner name and mailing address for any parcel changing from undeveloped land to developed property. As farms are sold to developers, the county maintains drainage ditches and can charge homeowners, but must be able to identify owner for each parcel, previously requiring recognition of the change and considerable research. During the first year, this increased revenue more than half-a-million dollars.

Assessor – township assessors can view and update personal property assessment data, which is then formatted for the production tax system prior to billing. A tax-exempt record-keeping system was also developed to maintain information about not-for-profit organizations, previously tracked using Excel spreadsheets.

Auditor – forthcoming online deduction filing will enable home owners to efficiently file mortgage and homestead deductions. Using the data warehouse, the home owner will not need to know their parcel number or legal description, but will use the Internet to provide the Auditor with a complete deduction form ready to be approved and filed and with which to provide an e-mail response. A homestead deduction fraud analysis can also determine if deductions were filed for a single person on multiple properties.

Other uses of the data warehouse system include foreclosure analysis, construction analysis, property analysis for the Clean Water department, and occasional one-time reports or analysis.