

More Than Maps

GIS technology provides government with unprecedented opportunities for increased efficiency and higher productivity across the enterprise.



In a weakened economy, government needs all the help it can get. Agencies everywhere are looking for new tools, better processes, more productivity, and increased efficiency. Fortunately geographic information system (GIS) technology can help—now more than ever.

More and more public-sector departments are discovering the value of GIS as it improves operations and reduces costs in an expanding number of disciplines, such as health care, firefighting, police, public works, sanitation, permitting, land assessment, and finance.

To reduce the burden on agency staffs, public-sector agencies are being forced to take a hard look at their workflows, analyzing what they do and how they accomplish

their work. In many cases, GIS can help them do it better. GIS has led to a strong return on investment for numerous government agencies in a wide variety of activities.

ESRI, a world leader in the creation of GIS technology, has studied both business and government for years and has identified four key patterns where enterprises have successfully used GIS to improve operations. These are in the areas of data management, planning and analysis, field mobility, and operational awareness. By looking at their own workflows and applying GIS to them, agencies can increase productivity and efficiency.

1. Data Management—With today's tools, it's easier than ever to have fluid, seamless integration between GIS



A Big Job Made Simpler

Los Angeles trash collection goes more smoothly thanks to GIS.

The Los Angeles Bureau of Sanitation provides trash collection service for about 1.4 million residents. With GIS technology from ESRI, the bureau is up to the challenge. GIS helps the agency create the best possible routes for its hundreds of trucks. It also enables the bureau to analyze data and assign work in a way that gets maximum efficiency from its workforce.

"GIS allows us to see things that are not very obvious with tabular data or reports," said Sal Aguilar, environmental engineering associate with the bureau's Solid Resources Support Services Division. "When you see a map and you see the center route that's always overloaded with tonnage, it always has overtime, and when you see right around it all the other routes that are very light, it really puts it in perspective." Having that spatial perspective lets supervisors look harder at a problem area and arrive at a solution.

Huge Difference

GIS helps the bureau do a lot of analysis. "We look at the operational parameters and display them spatially to see where there are relationships and where improvements can be made," said Aguilar.

When it came to replacing old trash containers, GIS made a huge difference in analyzing the workload and improving daily productivity. It allowed the city to avoid \$400,000 per year in salaries for additional workers. Using GIS, the bureau was able to increase productivity of staff.

GIS has paid off in several ways. "It allows us to systematically approach how we assign work," said Aguilar. "A lot of our operations are more efficient now."

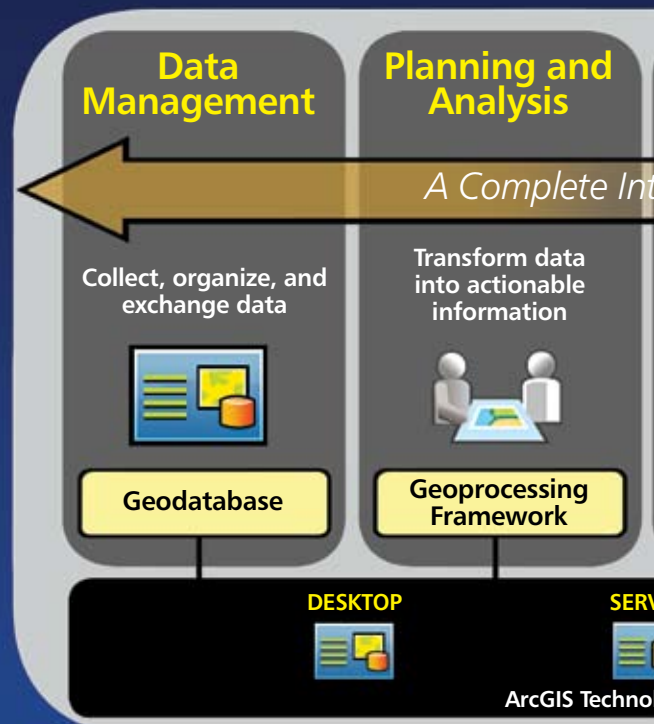
data and your day-to-day processes. It's no longer just about converting existing data into GIS and placing it on maps. Today, organizations can create and maintain data in real time. They can constantly feed new data into their systems and get more out of them.

Getting a handle on their data permits agencies to greatly increase the amount of collaboration they can do with other agencies and jurisdictions. GIS should be part of the enterprise. Organizing information into one dataset for all to share instantly makes numerous processes more efficient.

Establishing a strong GIS dataset also gives government more authority. Many entities today take data from the Internet, mash it up however they want, and proclaim their data to be valid. The public sector, however, needs to be the authoritative source of data in many areas. GIS enables that.

2. Planning and Analysis—Every government agency collects data. To the extent an agency can organize, analyze, and share its data, it will have success. GIS is an easy-to-understand way to view data. A solid geodatabase enables agencies to speed up processes, make faster decisions, and plan for the future.

Common Business Behavior ArcGIS Technology Platform Alignment



3. Field Mobility—The use of mobile devices by field-workers has risen exponentially in recent years. Laptops, PDAs, smartphones, and other devices have quickly become part of the typical workday. Police officers, firefighters, social workers, site inspectors, and many others, are now connected to the organization’s data no matter where they are.

“All this has improved the accuracy of the information. We’re able to better manage our operations and make better decisions at the very front level.”

— Ken Schmidt, GIS Administrator, Honolulu

Field-workers are no longer limited to merely collecting data in the field. Now they can share it immediately. They can put data directly into the organization’s GIS. Information flows bidirectionally now, allowing much faster dissemination and much greater efficiency.

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Big Impression

Honolulu leverages GIS for better services citywide.

The City and County of Honolulu has been using GIS to support services and decision making since 1988 and has seen GIS’s benefits across all its departments in the form of time and money saved and revenue increased.

“Basically, every agency within the city is applying GIS,” said Ken Schmidt, GIS administrator for Honolulu. “We have an enterprise GIS. Since its inception, the GIS development was intended to support all the basic services of local government.” The city-county uses GIS for police, fire, emergency medical services (EMS), tax assessment, sewer maintenance, building permitting, zoning, long-range planning, and much more.

Like many governments successfully using GIS, Honolulu’s looked at its workflows and fit GIS into those. “We evaluate the business processes to determine the information content flow,” said Schmidt. “One of the key things we try to determine is, what is the informational product that has to be produced? We’re very focused on knowing what the business process is and what output product is needed.”

Honolulu can’t imagine providing services to its citizens without GIS. “Once you start building GIS into the mission-critical functionality of your programs, you start realizing the necessity of having that information content provided to you in a geospatial context,” Schmidt said.

The city-county’s GIS is powered by ESRI and has automated numerous processes in the Department of Planning and Permitting, for example. Building permits and other citizen needs are handled more quickly every day thanks to GIS. “All this has improved the accuracy of the information,” Schmidt said. “We’re able to better manage our operations and make better decisions at the very front level.”

That front level is where staff members work directly with the public. “The first level of decision making is with the people at the front counter

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Behavior Patterns Management



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An aspect of field mobility that's growing particularly fast is the use of logistics data. GIS aids logistics by helping agencies plot optimized routing for fleets and helping balance workloads for maximum efficiency. Collecting real-world data and analyzing it saves time and money. Better routing yields more efficiency, lower fuel costs, less maintenance on vehicles, and fewer carbon emissions. Improved workload balance helps agencies use resources more efficiently. Those are numerous benefits from one tool: GIS.

4. Operational Awareness—Knowledge is vital. Whether responding to an emergency, preparing for a public health issue, or analyzing neighborhoods, government leaders need comprehensive data to make the best decisions. Executive dashboards containing GIS data provide a valuable means for leaders to absorb information quickly so they can make data-driven decisions. Situational awareness is critical during public safety incidents. In all kinds of situations, GIS displays the information leaders need to know. It takes real-time data from numerous sources and lets leaders share data with other jurisdictions and the public.

Moving Ahead

Most governments are already using GIS; the next step is to leverage that investment for even greater productivity. Now more than ever, government needs to look at every single department and determine how GIS can help.



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—whether that's the permit clerks, tax assessors, or even the building inspectors," said Schmidt.

Critical Content

GIS provides the core information that's critical when it comes to helping staff make decisions on permit applications. What's the zoning? Are there other permits on this property? Who's the owner? Are there regulatory issues? These and numerous other questions can be answered quickly with GIS.

With permitting, faster speed means more dollars for the city. "We believe the GIS increases revenues through increasing the productivity of municipal operations," said Schmidt. "It reduces the amount of time we spend with customer services."

As directed by Mayor Mufi Hannemann and his administration, the city leveraged GIS to set up online services for several types of permits. The program is called HONLine, and the results have been impressive. More than 25 percent of the city's building permits are now issued online. That brought in revenues of around \$425,000 in 2008. The process also saved 32,000 man-hours in city staff time. It saved permit applicants time too—17,000 hours, the city estimates. "All this couldn't be done without GIS and the ability to do overlay analysis to determine zoning and other regulatory codes," Schmidt said.

GIS has worked so well for Honolulu, Schmidt believes it's something every government agency could benefit from. "Once they start understanding the geospatial relationship of information, and how it affects their decision-making process, they'll begin to understand," he said. "They'll realize the benefits that are associated with it."

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