



TRANSFORMING UTILITIES

BILL MEEHAN SUGGESTS A WIDER ENTERPRISE IMPLEMENTATION OF GIS WILL CREATE MANY BENEFITS AND OPPORTUNITIES. HE DESCRIBES HOW BUSINESS ASSETS ARE NOT ONLY BEING MAPPED BUT HOW BUSINESS TRANSFORMATION IS DRIVING HIGHER PRODUCTIVITY.

What went wrong? A utility decides to interface its newly converted distribution mapping system with a brand new commercially available outage management system. The distribution maps look fine. Oops. Electrical connectivity doesn't exist. No one built relationships between the conductors, the poles, the transformers streets or customers. Can the digital mapping system be fixed? Anything is possible, with enough money.

The utility decides to maintain the operating network separately in the outage management system. Opportunity lost.

Assessing the situation

A utility spent millions on an Automated Mapping/Facility Management (AM/FM) system in the mid 1990's. They converted their old operating drawings to beautiful crisp, clear computer generated plots. One of the distribution operating managers wants their new GPS tracking system interfaced with the AM/FM system. The AM/FM manager sheepishly confesses that the old maps were converted "as is" based upon the old mapping standards. The next obvious question is, "Can the AM/FM system be adjusted to conform to the new GPS standard?" The answer is that anything is possible. It will take a major effort. It will require the utility to reconstruct the locations of all the facilities to a new consistent land-base.

The operating manager opts for an independent vehicle tracking system. It is based on a commercially available land data source. No interface or links to the AM/FM system exists. Opportunity lost

The CFO of a major gas utility just closed a deal on a new enterprise resource planning (ERP) system. She wants the plant accounting module of the ERP integrated with the distribution mapping system. Nope. The mapping system is a file based CAD system. The utility never mapped their service pipes. They maintain the corrosion protection system separately in a different set of CAD files. These files don't coordinate with the main system. It will take a major overhaul to link to the ERP.

The CFO abandons the idea. Opportunity lost.

Understanding value

Today most utilities recognize the strategic value of good data. Today good data is a strategic asset for utilities, although many utilities do not, as yet, operate complex infrastructure with an up to the minute understanding of its condition and configuration. Some utilities see GIS as a fast way of making maps, maps they have used for many, many years. So utilities that adopt GIS in this way are only making incremental improvements in the operations. They are making progress. Ho hum.

FIG. 1: "GIS consolidates data from a variety of sources. Utilities get to discover new connections."

FIG. 2: GIS provides the power of intuitive visualization.

FIG. 3: Using GIS, utilities view their assets in relation to their customers.

People define progress as improving upon past accomplishments. Breakthroughs hurl away from the past. Progress is gradual. Breakthroughs are leaps. Breakthroughs require new knowledge. They require seeing things in a different way. Progress solves the problem of how can I make this process work better. Breakthroughs transform the business.

A system in place that could answer this question, "Show me all the places in my infrastructure where a single event could take the system down," is a breakthrough. GIS can do that.

Why is it so tough to shed legacy processes and thinking? Legacy processes work well. They are entrenched into the business. No-one sees they are obsolete. Henry Ford was the pioneer of mass produced vehicles. Mass production was a breakthrough from custom-built production methods. Competitors throughout the world emulated his processes and methods. Large inventories of completed automobiles waited customer orders. This worked for years. More sophisticated manufacturing techniques including robotics and computers improved Ford's process. Ford made progress. Toyota questioned Ford's manufacturing process in a

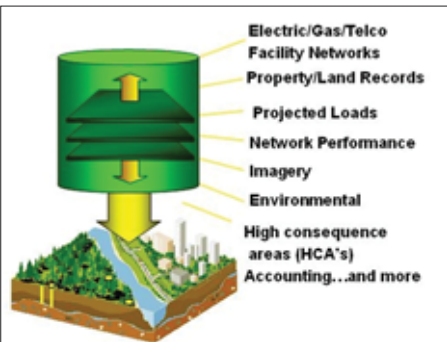


Fig 1

fundamental way by employing Demming's statistical process control for quality and lean methods for minimizing inventory. The Toyota Production System (TPS) broke from the past to produce automobiles that were cheaper to produce with a quantum leap in quality.

Transformation

Toyota's implementation of TPS resulted in nothing short of market domination. It transformed the business.

Like TPS, Enterprise GIS transforms many utility business processes. GIS is not about making maps. It's about creating new knowledge. It's about discovering new things about the business that are not visible using conventional technology. For example, a utility may spend millions on trimming trees based on a standard four-year cycle. But they never thought to use rainfall data in certain parts of their territory to ascertain whether this was the right thing to do. Or they never thought to correlate tree trimming data with reliability data or customer satisfaction data displayed spatially.

So GIS is about discovery. It's not about replicating maps that have been around for years. It's about visualizing trends for better decision making. It's about finding weaknesses in your infrastructure before disaster hits. GIS is most powerful at a utility when it's integrated into the Information Technology infrastructure. This allows utilities to visualize the data in their customer, SCADA, work management, financial and human resource systems in the form of intelligent maps. They can also capture information from outside the utility, like rainfall data as noted above, or wetland areas or sacred burial grounds. Utilities can consolidate this spatial information. This give them new tools for decision making. GIS can transform the way utilities view their customers, their shareholders, their employees and the communities they serve.

Consider this technology and process improvement opportunity.

Opportunities

Let's say the utility is falling behind in meeting

its new requests for service. They have to cancel customer meetings with contractors. They have to reschedule crews over and over again. Employees get hassled by irate developers and customers. Complaints are piling up from the public utilities commission. Managers are busy writing excuse reports. The company is spending a lot on overtime just to keep up with the workload. Each stakeholder is unhappy.

So what's the solution? Add more people? Work people longer hours?

Using GIS for intelligent routing of projects saves ten to fifteen percent on travel time. Organizing work properly by having ready access to GIS facility data shortens design time. Utilities can pre-stage material on location. They learn to make and meet appointments. Customers get their service when expected. Employees feel better about their jobs. The company spends less on overtime and complaints to the public utility commission go down. Executives to managers to supervisors spend a lot less time explaining why things get so fouled up.

A digital mapping system is not an enterprise GIS. As noted in the examples above, utilities run into problems using their digital mapping systems because they have viewed the systems as applications to solve a specific utility problem. They don't see the strategic value of the data to the entire enterprise. Instead, they build a system to keep track of cast iron gas mains. Or they develop a street light maintenance application. Or they implement a stand alone inspection system. Progress. An Enterprise GIS is not a series of spatially enabled or map based utility applications. It is a strategic spatial information platform.

Who cares about making maps faster? Enterprise GIS can transform the business by lowering costs and hassles, greatly improving decision making and communicating to utility executives in ways they have never seen before.

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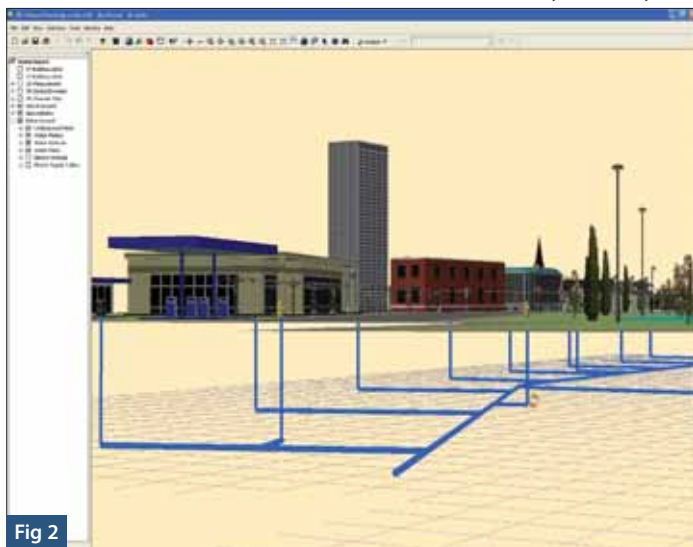


Fig 2

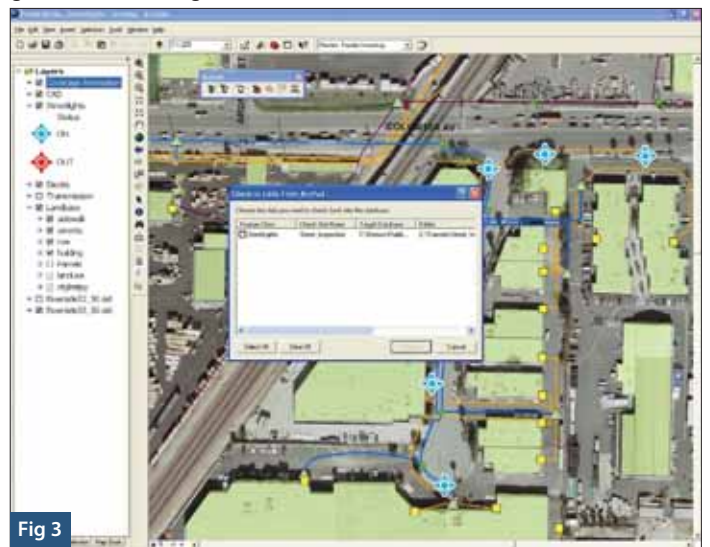


Fig 3