BIOGRAPHICAL INFORMATION

Brimmer Sherman
Vice President
Intergraph Corporation

Specific Responsibilities

As vice president of the Global Utility and Communications Solutions Group at Intergraph Corporation, Brimmer Sherman and his staff are responsible for supporting an international team that focuses on selling and marketing Intergraph's Geospatial Resource Management (GRM) solution. This involves providing industry consulting, technical support and services, bid and proposal management, and product planning. GRM is the term Intergraph uses for its integrated suite of utility and communications applications, which includes: geofacilities management (GIS), outage management (OMS), mobile workforce management (MWFMS), and inside plant management systems.

Past Experience

Brimmer Sherman has been with Intergraph since 1984 in a variety of roles, including marketing/demonstration positions, sales, corporate marketing and pre-sales support, which included worldwide strategic product planning, industry application planning, marketing communications, and demonstrations and benchmarks.

When Intergraph entered the outage management and mobile workforce management markets in 1999, he became responsible for the bid and proposal group, which supported North America and Intergraph's international subsidiaries and distributors. This role involved setting solution strategies and pricing.

Educational Information

BS, Aerospace Engineering, University of Colorado, 1973
MS, Bioengineering, University of Colorado, 1975

Professional Memberships

GITA (AM/FM International)
DistribuTECH conference committee

THE BENEFITS OF INTEGRATED WORK MANAGEMENT AND GEOSPATIAL DESIGN: COMPANY PROFILES

Brimmer Sherman
Intergraph Corporation
170 Graphics Drive, Madison, Alabama 35758
brimmer.sherman@intergraph.com

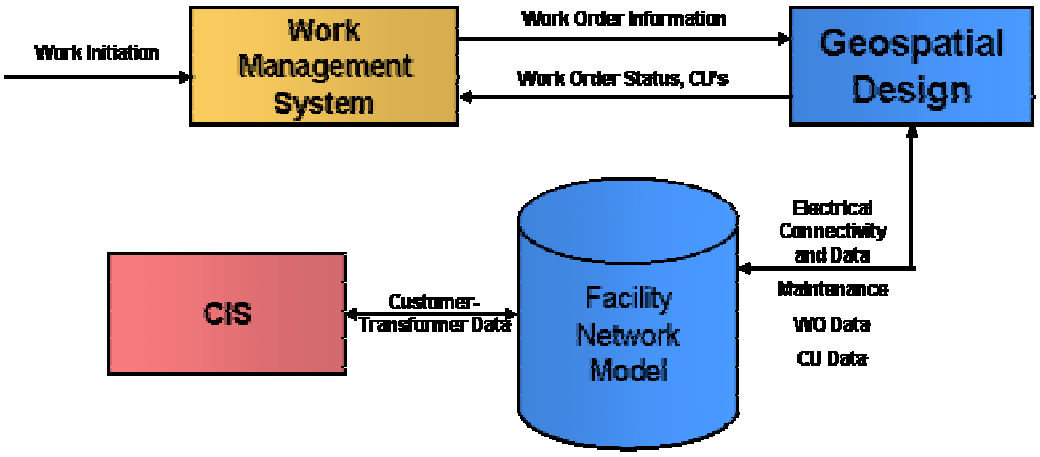
ABSTRACT

By itself, geospatial technology provides only moderate benefits. However, when geospatial technology is incorporated into the utility work order process, it delivers tangible cost savings. Integration of work management and geospatial graphical design functionality into a seamless workflow gives utility designers and planners a highly productive system. This presentation will profile two utility companies and will describe the system level integration, integration points, and workflow process from the utility perspective, as well as attained benefits and productivity increases.

INTRODUCTION

The industry is now starting to experience fourth generation deployments of geospatial enabling technology. The industry mandate is to deliver and employ workflow applications or solutions that reduce costs, improve productivity, or increase customer service. The issue is that a single workflow process crosses many departments, people, and requirements. Moreover, it is serviced by many independent and distinct IT systems. These systems must be integrated at the user interface level in order to achieve the stated business goals.

Geospatial technology alone provides only moderate benefits. However, when incorporated into the utility work order process, it delivers tangible cost savings. Tight integration of the work order process and geospatial design functionality into a seamless workflow gives utility designers and planners a highly productive system. The workflow diagram below is a general representation of integration points and process data flow.



The distribution business unit of a utility will typically have the following major systems that participate in the work order process.

- Customer Information System (CIS) or Customer Support System
- Work Management System (WMS)
- Material Management and Maintenance System
- Enterprise Resource Planning (ERP) System
- Outage Management System (OMS) - electric utility
- Mobile Workforce Management System
- Financial System

The central process in the market, and the one that is the focus of this paper, is the work order process. Both utility companies and the vendor community are pushing to improve the automation of the end-to-end workflow. The work order process is comprised of the following components:

- Work order initiation and tracking
- Scheduling
- Geospatial design
- Optimization and analysis
- Estimating and pricing
- Work order package distribution
- As-built posting
- Job closing

There are several different architectures and approaches being used to automate this process. One is integration of the geospatial technology with the Work Management System (WMS). Another is integration of the geospatial technology with the Enterprise Resource Planning (ERP) system.

Integration with the Work Management System

In the first architecture, the process consists of the job or work order being initiated and managed in the WMS. These systems are mature applications that have been deployed in most of the utility companies. They can be developed in-house or purchased from commercial vendors, such as Logica, Worksuite, DirectIT, and MRO.

The work order is the primary key and integration point. Once the construction job is created, the next step is to use an integrated geospatial application to design the job. Key to the success of these applications is tight integration between the geospatial technology and the WMS. In this step, the compatible units are used to build the job, and subsequently to produce the bill of materials and cost estimate. Ultimately, a work package is produced, containing all the maps, drawings, reports, and estimates required by field personnel.

Depending on the sophistication of the system, paper documents or mobile computers are used by field crews to capture field data. The as-built and other job information comes back from the field and is posted into the system, thereby closing the job and ending the process.

Many companies have implemented this architecture and have captured desired productivity improvements. Oncor, Illinois Power, and Indianapolis Power and Light have implemented this workflow and have achieved tangible benefits. Utilities can expect to significantly reduce the time to process a typical job – improvements 5 to 10 times faster are not uncommon.

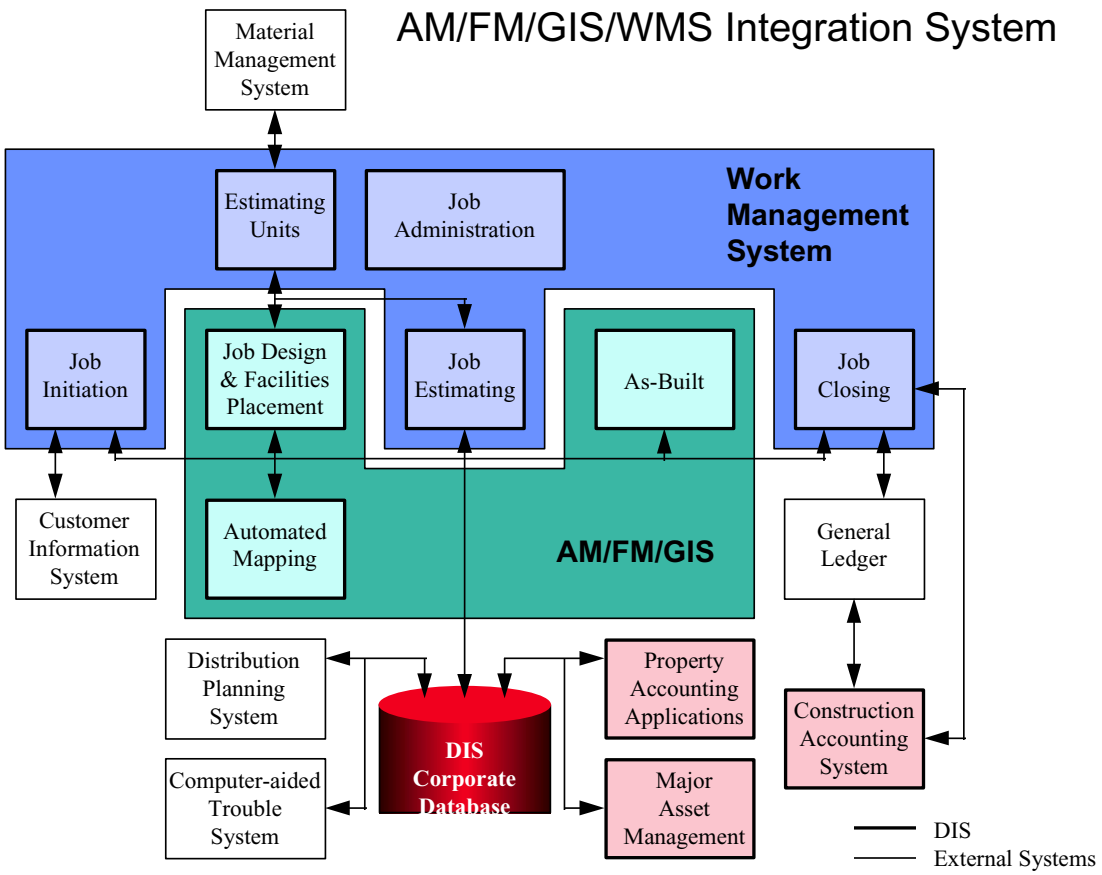
Oncor clearly saw the benefits of an automated work order process that includes updates of stores inventory, assignment and dispatch of personnel and equipment, logging of worker hours, and tracking of in-service facilities. Furthermore, the facilities database is updated upon completion of each job so that all changes are immediately available company-wide.

The application has achieved Oncor's goal of creating a single geospatial interface that enables hundreds of users to access all of the utility's major information systems and applications without recognizing that multiple systems are in use. Project-related tasks are executed seamlessly in the automated environment throughout the project life cycle.

Oncor employees' daily productivity improved immediately. Other benefits include the following:

- Reduced training time for system users.
- Reduced time and costs for facility design and installation.
- Improved resource management.
- Better and more consistent customer service.
- More efficient business processes, resulting in a 9% cost reduction for serving a typical customer.
- Close control over construction operations.
- Reduced service center build-out and warehousing.
- Improved planning, budgeting, accounting, and tax-accounting processes.
- Personnel reduction made possible by increased efficiency.
- Reduced supplier costs because of materials standardization and component reduction.

A system diagram shows the interface points between the integrated systems and the overall workflow.



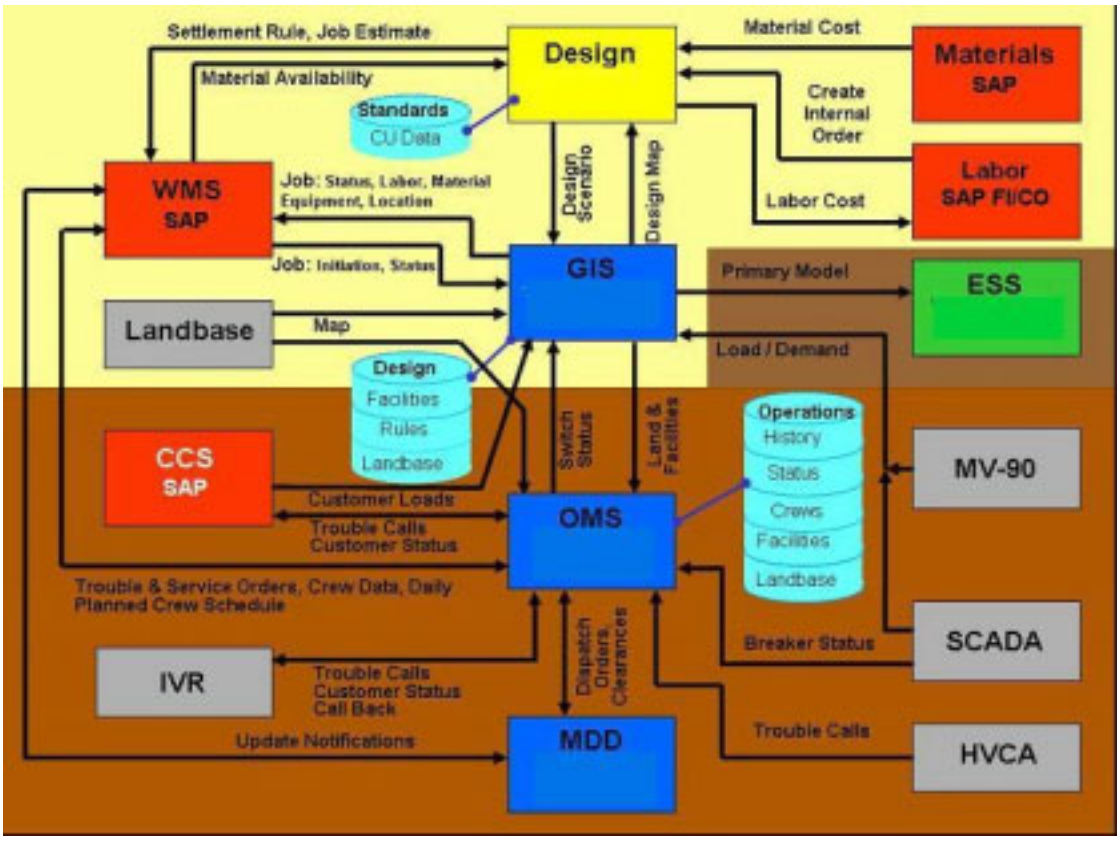
Integration with the Enterprise Resource Planning System

Another type of architecture used to automate the work order process supports tight integration between ERP systems and geospatial technology. In this case, there is no stand alone WMS. Work initiation, work order management, and scheduling are handled by ERP, which might or might not contain the compatible units. Design and estimating is done in the geospatial environment and work closing is done in the ERP.

Sacramento Municipal Utility District is one company that has successfully deployed this architecture. They have captured the following benefits:

- Speedy reviews. Designer can see his/her own work queue online.
- Automated creation of the job cost estimate, bill of materials, and job packets. Standardizes the materials list.
- Standardized construction drawings and GIS mapping.
- Automatic materials order.
- Location of jobs, both pending and in progress, to all employees.
- One draw of jobs, and the network model is updated without redraw.
- Financially optimized designs. Network is designed to the "optimally minimal." Allows review of multiple scenarios.
- Optimized designs from both the structural and electrical engineering perspectives. All mapping scales are created with one data entry.
- One call resolution for meter and service customers.
- Available land-base (new subdivision) information in the GIS when the job is started. No need to draw land features as a backdrop to the design.
- Enhanced navigation capabilities.
- Use of field-generated work orders.
- Eliminated paper maps for on-demand work.
- Safety promotion. Crews have visibility of other crews.
- Speedy line clearance requests and approvals.
- Improved execution of switching orders. Reduced errors.

The following diagram shows the interface points and workflow process.



SMUD field crews now have very accurate records and information about the facility network and are able to respond faster to customer outages. They have a pole inspection program, and the information that is collected in the field is automatically downloaded into the system, directly into the SAP ERP.

Thematic reports on meter density give them valuable decision support information that enables them to prioritize where to utilize limited resources. These thematic maps are also used in overhead replacement programs where customers and the company can see the impact of using underground facilities.

SUMMARY

In summary, there are several architectures being used to automate the work order process and deliver the required business benefits. Which architecture option a utility company chooses to adopt is usually influenced by the current state of the art in the IT and vendor community as well as the company's existing IT systems and corporate policies. Regardless of the architecture, when work order process automation is achieved, significant benefits are realized.