GE
Digital Energy

Smallworld™ Water Office

Water Supply and Drainage Integrated GIS Solution

Today's water distribution companies are demanding smarter and more complete geospatial products that deliver business process solutions to efficiently manage their networks, reduce costs, improve customer service, and fulfill increasingly complex compliance and regulatory requirements. GE's Smallworld Water Office solution provides global data models and a suite of integrated applications that are fundamental to geospatial management of water supply and drainage networks.

Smallworld Water Office comes fully integrated with GE's Smallworld suite of geospatial applications, providing a one-source solution for utilities to further leverage their geospatial investments by reducing costly integrations and lowering maintenance costs. Smallworld Water Office supports utility companies with operations, maintenance, and reporting tools to meet the requirements for their water supply and drainage network assets.

Key Capabilities

- Comprehensive data models that support water supply production, transmission and distribution, drainage, cathodic protection, telecommunication and land based documentation. The standard data model allows the flexibility to support multiple data formats and applications, while reducing the effort to build and maintain customer-specific data models.
- Configurable quality framework for on-demand and schedulable tools that dramatically improve data quality and consistency through object integrity check, system connectivity and pertinent business rules.
- The built-in Workflow Manager allows customers to manage their internal workflow and approval processes, minimizing administrative burdens and the potential for violations of internal workflow rules.
- Outage management application provides outage capture, analysis and reporting to efficiently manage the utility's network by minimizing outage duration and increasing customer satisfaction.
- Call Before You Dig (CBYD) capability improves operational efficiency by processing calls as they come through from individual excavators and from centralized call organizations. CBYD can handle most calls automatically, eliminating potential interference by involved parties.
- Water Calculation Interface allows registrations for water transportation, distribution and drainage to be exported to hydraulic calculation software packages.

Value Proposition

- Single environment to access enterprise network GIS assets, managing engineering, operational, maintenance and compliance needs
- Manage the lifecycle of network assets through process and efficiency improvements
- Access to the updated geospatial network repository by the people and systems in the enterprise, from back-office to the field
- Improve the ROI of the GIS by leveraging common GIS business applications
- Drive productivity and standardization throughout the organization with minimal customization

Customer Benefits

- Shorten the design phase by 80% with out-of-the-box capabilities, lowering installation and administration costs
- Increase productivity with supported end-to-end business applications and tools for regulatory compliance
- Maintain network value, maximize asset utilization and drive cost-efficient operation
- Lower the total cost of ownership by minimizing the integration to support business processes
- International standards compliance such as SOA and Geospatial platform for Smart Grid strategies
- Provides a complete view of assets and integrity data from a single source (the record of truth)

imagination at work

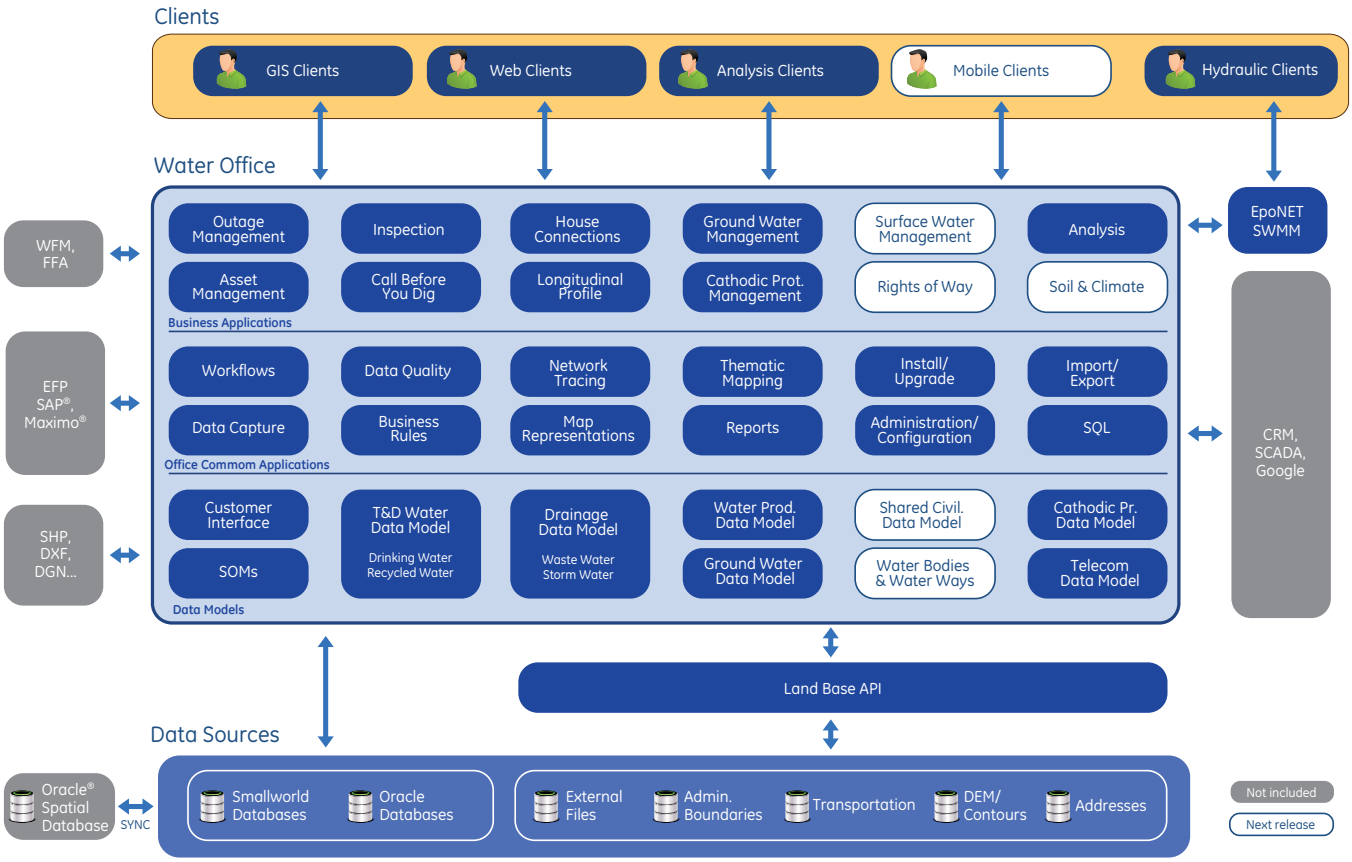
Smallworld Water Office Overview

Customized solutions are difficult and expensive to maintain. In many cases, organizations cut themselves out from innovation because the costs to upgrade their customized solution to a new operating system and to new third party applications and upgrading all interfaces are simply too expensive. Today, in response to these issues companies worldwide are facing, GE has taken the next step in providing value to utilities by offering standard utility geospatial software suites.

Smallworld Water Office provides a standard solution, which is easy to install, administrate and maintain by delivering a comprehensive suite of data models, applications, and integration products. Water Office effectively lowers the cost of ownership for any utility by eliminating the need to develop, test, and maintain a complex collection of applications and interfaces. Moreover, regularly scheduled Office upgrades are straightforward and supported as part of maintenance and support, allowing companies to plan for and successfully incorporate upgrades in order to take advantage of future product enhancements.

- Standard Global Data Models — The Standard Global Data models supply a robust foundation for constructing and maintaining water supply production, transmission, distribution networks and treatment plants. These data models have been developed in conjunction with industry subject matter experts and provide a supported base for the Smallworld Water Office environment, providing the required network connectivity, asset attribution, lifecycle status, and symbology definitions. Anticipating the need for utilities to manage unique combinations of facilities, the Smallworld Water Office data models can be extended according to documented procedures.
- Common Office Suite Components — At the core of every Smallworld Office Suite product is a common layer of productivity applications providing immediate benefits for users and administrators.
- Efficiency is Driven by Data Quality — The level of data quality drives the efficiency of customer business applications to a high degree. The integrity of objects, their connectivity or other key business rules are enforced to ensure a high data quality. Smallworld Water Office improves data quality and consistency through its Quality Manager configurable framework for on-demand and schedulable tools for checking object integrity, connectivity and other pertinent business rules before an alternative is permitted to post.
- Data Management and Data Provision — In addition to the asset data, the spatial database contains a large number of other spatial data sources that have to be maintained in Smallworld Water Office. Water companies provide third parties on different levels with spatial information. Smallworld Water Office can help you with such data as information about hydrants for a fire department and spatial information of the networks for municipalities.
- GIS is Everywhere - It has passed departmental borders and integrates with business processes across the enterprise. Many functions inside an organization need access to geospatial information, not just maps. In many cases, non-GIS experts require this information, which means the information must be easy to access. Because no full GIS client functionality is necessary, this information must be accessed at lowest cost possible.

Water Office Architecture



Addressing Business Challenges

Water and drainage utilities need to support key business processes throughout all phases of the entire network asset life cycle. These processes include planning, design and building of new networks or network changes, commissioning, operating, monitoring, maintaining and refurbishing. Smallworld Water Office and tightly integrated Smallworld applications support critical business processes and improve operational efficiency while keeping integration cost to a minimum.

Network Planning

Planning and design of new networks or renovation of existing segments are done in projects supported by a workflow management system. For each design, different alternatives and scenarios have to be evaluated and compared.

For each alternative plan, a cost calculation, based on material use and effort, is needed. Costs are dependent on the materials used, the surface of the build-up areas, the existing infrastructure and the soil of the underground.

Workflow Management

Following their organizational structure and business processes, utility companies need tools to manage their internal approval processes for typical transmission and distribution operations such as repair, replace, relocate or data updates.

The built-in Workflow Manager allows Smallworld Water Office customers to manage their internal workflow and approval processes, minimizing administrative burden and violation of internal workflow rules.

Inspection, Control and Measurement

On a regular basis, the network is inspected and verified. Hydrants and valves are inspected and drained off. The planning of these inspections and maintenance activities is supported by Smallworld Water Office using the Compliance Manager.

Thematic Data Provision

Smallworld Water Office can provide thematic maps and spatial analyses to support decision process information. Maps and spatial analysis give information about the location, distribution, spatial patterns, cohesion and spatial relations between objects and phenomena. Spatial information gives special insight and extra dimension, sometimes necessary in decisions. Besides maps, Smallworld Water Office can provide reports, lists and overviews of assets.

Outage Management

Supply certainty, water quality, and adequate pressure are important criteria for the customer. Information regarding network maintenance and outages are also of importance to the customer. Water Office can select and inform customers that are dependent on certain network segments.

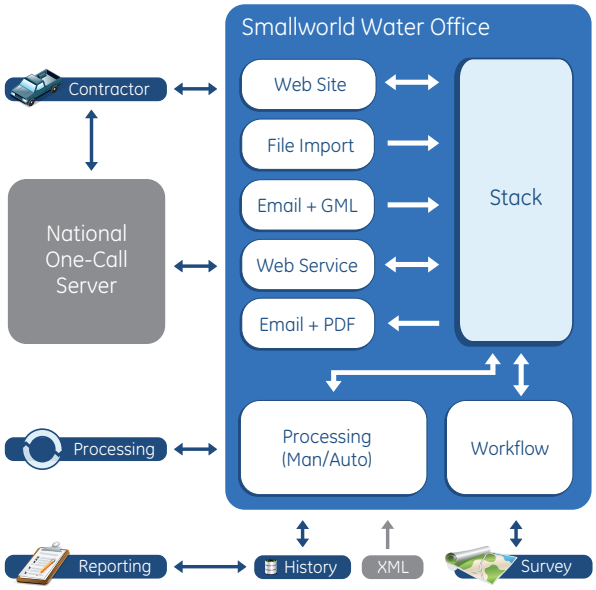
Network outages are registered by a customer support desk. As the rapid settlement of outages is an important and critical process for customer satisfaction, Water Office Outage Analysis provides complete end-to-end business support to capture, analyze and manage supply outages on a water distribution network. These could be either scheduled maintenance of pipe sections or unplanned outages such as required repairs to fix a leak. Service Level Agreements with industrial customers, hospitals, etc. can be stored in Water Office to support planning of maintenance and the impact of outages.

Call Before You Dig

Subcontractors and other people or organizations that intend to dig have to inform utility companies about their activities. The utility company will provide them with information about their network infrastructure.

You can use Smallworld Water Office Call Before You Dig (CBYD) to process calls as they come through from individual excavators or from centralized call organizations.

Based on configurable business rules, tickets that are related to exceptional circumstances (for example, the potential for accidental pipe damage) are detected and routed to the right people within your organizations to allow them to intervene. A large percentage of calls can be handled automatically.



Network Modeling and Optimization

Network calculations provide network engineers with simulation models of the water network. Based on network calculations (e.g., flow, speed, consumptions), a new network can be modelled and dimensioned. On the other side, existing networks can be optimized.

These calculations make use of characteristics of the network that are stored in Smallworld Water Office and can be exported to Hydraulic Modelling software.

Drainage Inspection Management

The companies that are responsible for the maintenance of drainage and sewer networks perform a high volume of video inspections. Smallworld Water Office supports import and display of such regular inspections of the network condition to monitor degradation of the network over time and to support intelligent decision making for network renewal.

New Business Support in Release 4.3

Support for Irrigation Systems

Water management in the agricultural sector is very important in many countries due to its large share of the total water use. Open irrigation is one of the most important aspects for efficient and sustainable agricultural production.

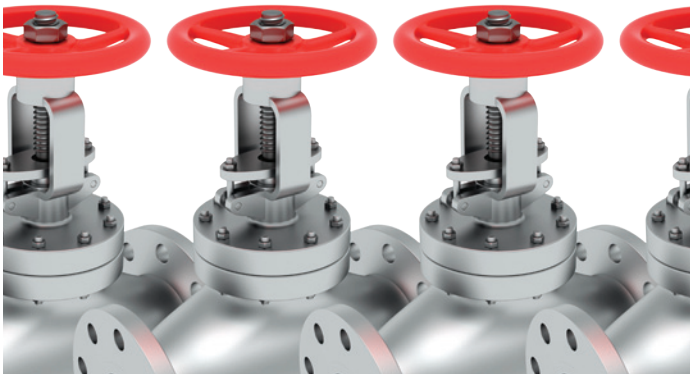
Smallworld Water Office now includes Irrigation network documentation allowing significant savings in costs but also an effective control on the quality.

Organizational and Terrain Management

Different kinds of organizational boundaries such as service and crew areas are managed by water companies and impact the network operations. Other land data like recreational information, land use and sensitive areas are important for public health, and security of these sites is of growing importance. All of this information has spatial characteristics that can now be stored and maintained in Smallworld Water Office.

Asset Life Cycle Management

The utilities industry is asset intensive, so the cost of running and maintaining the network is significant. Smallworld Water Office now supports the concept of functional locations. This separation between role (installation) and device (asset) allows assets to be replaced (i.e., for maintenance purpose at the installation) without altering the network. You can track your installation sites and assets with full history.



Time Series and Diagrams

Water Office Time Series and Diagrams capabilities are now extended to manage not only analog data but also history of changes like pump running time that can drive more efficient asset management. Limit shortfall and diagrams with relative time span (i.e., displaying the last 24 hours of data) will also help you to better understand the network behavior.

Digital Energy
2018 Powers Ferry Road
Atlanta, GA 30339
Tel: 1-877-605-6777 (toll free in North America)
678-844-3777 (direct number)
gedigitalenergy@ge.com

GEDigitalEnergy.com

imagination at work

GEA-12675B(E)
English
120913