



See the Big Picture

Autodesk Topobase improves infrastructure design and management with centralized data and targeted applications.

Introduction

From finance and planning to maintenance, engineering, and beyond, virtually every department within public infrastructure, telecommunications, and utility organizations uses—and generates—spatial information to carry out day-to-day processes. These processes include engineering projects, mapping, cadastre, land and parcel management, asset-based accounting, emergency management planning, and facility maintenance. With a centralized, enterprise-wide view of spatial information, each of these processes is more efficient, accurate, and cost-effective. Just as important, business leaders can gain insight into the full range of factors impacting the organization's infrastructure so that they can make better asset-related decisions.

Unfortunately, most organizations find it virtually impossible to see the big picture that can be represented only with integrated spatial data. In these organizations, spatial data does not flow smoothly from one process or department to the next. For example, a planning department and a water department managing the same areas routinely need access to each other's spatial data for the correlation of projects. However, these departments often work with different technologies, and the data must be converted from one format to another, which is a time-consuming and error-prone process. This approach results in a number of costly inefficiencies, including:

- Duplicate work for specialists in both departments
- Inaccurate or outdated data driving decision making across the organization
- Unsynchronized systems that may not reflect the most current available data
- Information request backlogs and project delays
- Loss of information, such as precise engineering data, as data moves between formats
- Some departments, such as finance, lacking access to vital asset information

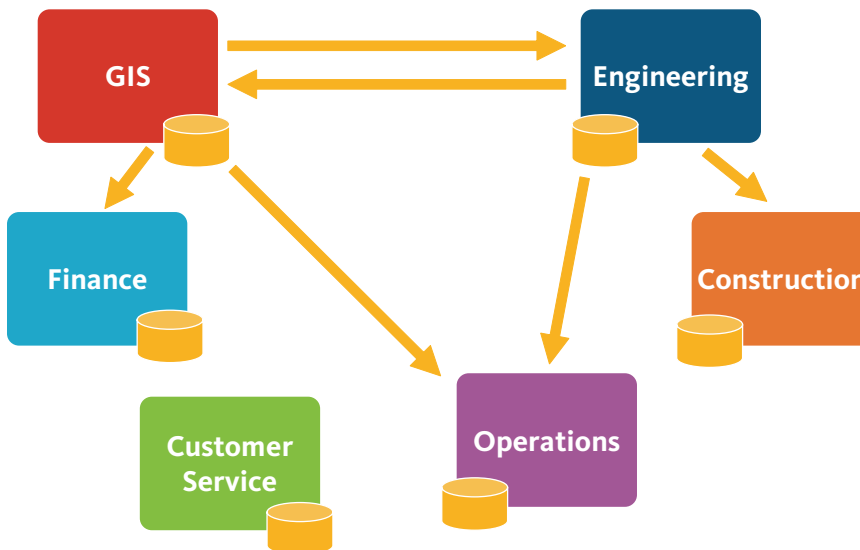


Figure 1: Business processes are inefficient when data is not available, must be duplicated, or needs to be converted between systems.

To overcome the spatial data flow challenge, organizations need to integrate all spatial information into a centralized database and make it available throughout the organization. Autodesk® Topobase™ software is delivering that capability to 500 organizations, including government utilities, mapping and cadastre agencies, and engineering firms. Along with infrastructure asset data management, Topobase offers features that allow departmental domain experts to use advanced CAD and GIS functions to accelerate workflows and increase the integrity of infrastructure data. Autodesk Topobase enables organizations to:

- Gain a more complete view of network infrastructure
- Make vital asset information accessible across the organization
- Reduce data redundancy and duplicate systems while improving data quality by enforcing business rules and data quality standards
- Minimize time-consuming data conversion processes when moving data between departments and job functions
- Maintain engineering design accuracy throughout the project lifecycle from conceptual design to as-built stages
- Share information internally and externally more securely, easily, and cost effectively

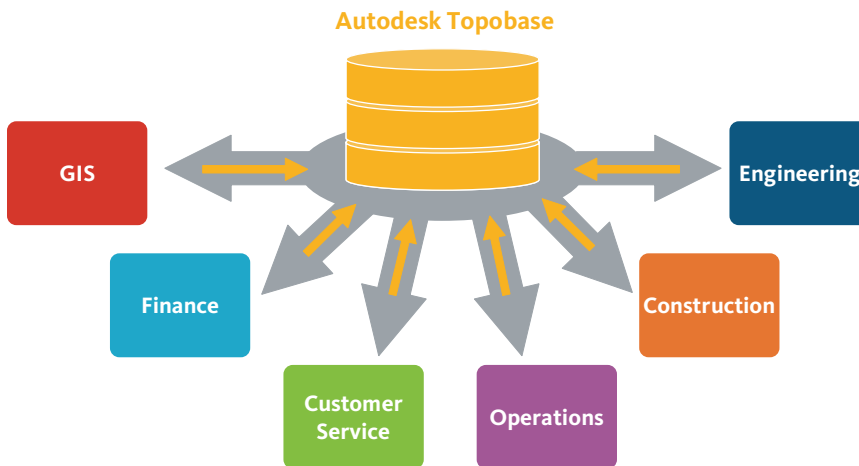


Figure 2: Autodesk Topobase is an infrastructure design and management solution that provides integrated, organization-wide access to spatial information for engineering, GIS, operations, and business processes.

In this white paper, we will explore what Autodesk Topobase is, how it works with current solutions, and the value it delivers to key departments within organizations.

Why Autodesk Topobase?

Autodesk Topobase brings engineering design and geospatial data together in a centralized database environment so that organizations can share and use spatial information more easily. By integrating previously disparate islands of CAD and GIS data into a common, centralized framework, Topobase enables organizations to improve the efficiency of business processes and reduce the redundancy of information. Organizations no longer have to “throw data over the wall” between departments and re-create data due to incompatible formats. With Topobase, data is always available across the organization, and it is always synchronized.

What Topobase Does

Topobase delivers “best-of-breed” CAD and GIS functionality along with an enterprise database. This allows organizations to use CAD tools to design and manage infrastructure. While doing so, organizations automatically create information that contains attribute data associated with assets, which makes engineering design information GIS ready. Infrastructure data is maintained in

an enterprise database that can be securely accessed across the organization and used by business teams in ongoing asset management.

Topobase comes with standard vertical applications that contain the most commonly requested and used industry-specific database structures, including data schema, database relationships, user-definable data constraints, and workflows, that are used for the management of specific kinds of networks and assets, such as water networks and wastewater networks. Additionally, each database structure contains industry-specific business rules to help protect the integrity of spatial information. Topobase integrates all relevant spatial and non-spatial tables in a centralized Oracle® Spatial database with the option to link into other IT and business systems.

With Topobase display model style templates, executives, customer service agents, field crews, and other employees get a view into the organization's spatial data suitable to their work functions using the desktop client or the web-based client. These display models allow users to work with their subset of the enterprise database efficiently. For example, a network engineer might want to access network data while simultaneously viewing in the background land base information, and an operations manager might want to view assets color-coded according to maintenance schedules.

The Benefits of Topobase

Using Autodesk Topobase, organizations gain a comprehensive view of infrastructure assets, which helps to improve decision making and all asset management processes. Organizations enhance efficiency and data quality by using the same applications to create and manage spatial information across departments. When organizations can use the same set of business rules to access and analyze data throughout all departments, they reduce manual and duplicate data entry and reduce data conversion processes. Topobase also streamlines data editing and creation while making those processes more efficient with rule-based design and process automation. Perhaps most importantly, Topobase enables organizations to securely share spatial information with employees, such as field staff and business decision makers, who have traditionally lacked access to this kind of information.

The Topobase Architecture

Topobase is architected to store spatial data in a central database and to integrate with other business systems.

Topobase is built on AutoCAD® Map 3D and Autodesk MapGuide® Enterprise. AutoCAD Map 3D is the leading platform for creating and editing spatial data.

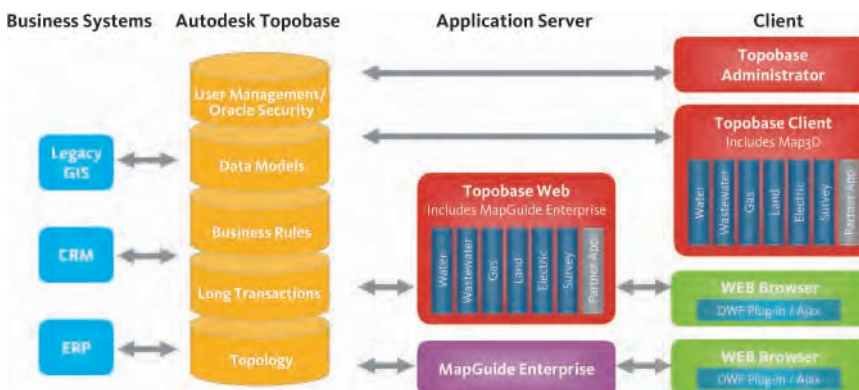


Figure 3: The Autodesk Topobase architecture delivers data integration, sharing, creation, and management capabilities along with superior database performance.

Benefit from the Best Technology with Topobase

Oracle Spatial offers:

- Performance—The fastest database available for spatial data
- Scalability—Superior ability to adapt to many users and a large database
- Reliability and Security—No other database is as secure and reliable

Autodesk MapGuide Enterprise allows you to:

- Share—Make data available through a web browser
- Integrate—Bring together data from disparate IT and GIS systems
- Flexible—View data with DWF/AJAX viewing options and broad OS support

AutoCAD Map 3D delivers:

- Create & Edit—Use of AutoCAD® tools for maintaining spatial information
- Access—Use multiple data formats and databases
- Value—Move data through vector geometries to intelligent geospatial data

It combines the familiarity of AutoCAD®-based design applications with GIS functionality. Autodesk MapGuide Enterprise allows organizations to publish map and design information internally or over the web. Using industry standard development tools, organizations can create online applications that blend spatial and alphanumeric information from business systems on user-friendly maps. This makes sharing valuable infrastructure data with non-CAD and GIS users seamless and cost-effective.

Topobase uses Oracle Spatial, the world's leading spatial database, to store spatial data. Based on open standards, Oracle Spatial provides vendor-neutral GIS capabilities, which allows organizations to use preferred applications to carry out geospatial analysis. It leverages Oracle Spatial's native GIS capabilities for storing spatial data and performing spatial tasks, and it includes Oracle's renowned and proven database management and tuning features that help to ensure superior database performance over time. Organizations can use standard IT tools along with SQL to access information in Topobase for reporting, integration with business and IT systems such as CRM and ERP, and for use in GIS applications from other vendors.

Extending the value and capabilities of AutoCAD Map 3D, Autodesk MapGuide Enterprise, and Oracle Spatial, each Topobase implementation includes a set of standard components:

- Topobase Client—A desktop application that streamlines design within a familiar interface and automatically stores asset data in Oracle Spatial.
- Topobase Web—A web application that uses Autodesk MapGuide Enterprise to share asset information over the web.
- Topobase Administrator—An application that enables organizations to change or extend data structures in Oracle Spatial, create business rules, design user forms and reports, and regulate access to the Oracle Spatial database.
- Industry-specific applications—Modules designed for managing specific types of infrastructure, such as electric, water, gas, waste water, sewer, and land assets.

These components, a powerful architecture, and advanced technical features make Topobase the ideal infrastructure asset management solution for organizations that manage dynamic infrastructure networks. In the next sections, we will explore why.

A Closer Look: The Components of Autodesk Topobase

Autodesk Topobase delivers advanced spatial data creation, sharing, and management capabilities through three basic components: the Topobase Client, Topobase Web, and the Topobase Administrator.

Create and Edit with the Topobase Client

Topobase Client is the desktop component for creating and editing asset data. Built on AutoCAD Map 3D, the Topobase Client delivers advanced GIS capabilities and CAD functionality based on AutoCAD, the world's leading design application. Because AutoCAD Map 3D and AutoCAD are familiar applications, organizations can adopt Topobase quickly and find new employees with relevant skills more easily than when they choose non-standard technology.

The Topobase Client provides streamlined interfaces for connecting with Oracle Spatial, enabling users to design new infrastructure and edit data quickly. Within the Topobase Client data model, specialized symbols represent different object types, such as points, surfaces, and attributes. By selecting an object with a mouse, users create and edit asset data in a form-style interface. Forms can be customized to suit current business processes. Workflows within the Topobase

Stadtwerke Augsburg Streamlines Asset Data Management

An independent public utility, Stadtwerke Augsburg delivers gas, water, and electricity to the 350,000 residents of Augsburg, Germany. In 2002, Stadtwerke Augsburg turned to Autodesk Topobase to make its asset management processes more efficient. The organization chose Topobase for its familiar interface, open data framework, and use of Oracle Spatial to store data.

With Autodesk Topobase as the data management backbone of its integrated solution, Stadtwerke Augsburg has been able to save time, ensure the integrity of its asset data, and improve service to customers. Juergen Biedermann, Stadtwerke Augsburg's documentation and data processing manager, explains, "Previously, customer service agents needed over 30 minutes to answer asset location-related questions for customers, but now it takes less than a minute. We no longer have to maintain multiple data sets, and we have reduced the risk of data entry errors. Our system is definitely helping us to deliver higher quality work, faster."

Client consolidate several multi-step processes into a single step process while ensuring complete and accurate data entry. Users can also utilize spatial parameters to select objects based on attributes, such as all valves of certain age in a specified area. Features of the Topobase Client include:

- Automatic creation of attribute forms based on the data model
- Search and sorting of data based on attributes
- Use of preconfigured or custom formulas to calculate values
- Graphic connection to multiple data formats created by different applications, including those from Autodesk and other GIS vendors
- Posting of all changes and new objects to the central database
- Presentation of all defined objects according to the chosen data and representation model

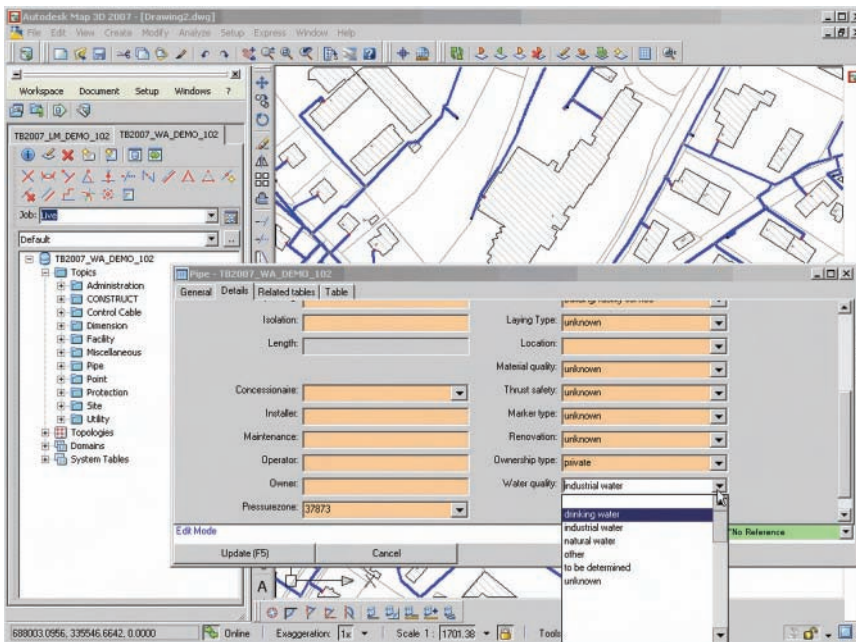


Figure 4: The Topobase Client includes customizable attribute forms to streamline data entry.

Share with Topobase Web

Built on the Autodesk MapGuide Enterprise software platform, Topobase Web is a lightweight interface that enables users to access information in Topobase using a web browser. Authorized users can update attributes through the same browser-based interface they use to view infrastructure maps and other information. Because the web platform incorporates the same business rules and user forms for attributes as the Topobase Client, the same data standards are enforced. The underlying MapGuide Enterprise engine also allows for hybrid data environments where information can be linked with legacy GIS systems as well as integration via the web and/or web services with other business systems.

Topobase Web functionality extends organizations' investments in data creation and collection by making data more readily available. Employees avoid the hassle of combing through outdated paper map books and the delay of requesting location information from busy specialists. Additionally, employees are no longer dependent on specialists to update attribute information. For instance, field inspectors can use online maps to find equipment due for inspection and, after inspection, update equipment status using laptop computers within their trucks.

Features of Topobase Web include:

- Interoperability with other business systems and the ability to access and display spatial data in a wide array of formats
- Interactive mapping with maps that scale, blend layers, and dynamically include information from business systems
- Flexible environment for creating display and attribute entry options tailored to an organization's processes
- Simultaneous connections to multiple database servers, such as Oracle Spatial and databases storing ERP data

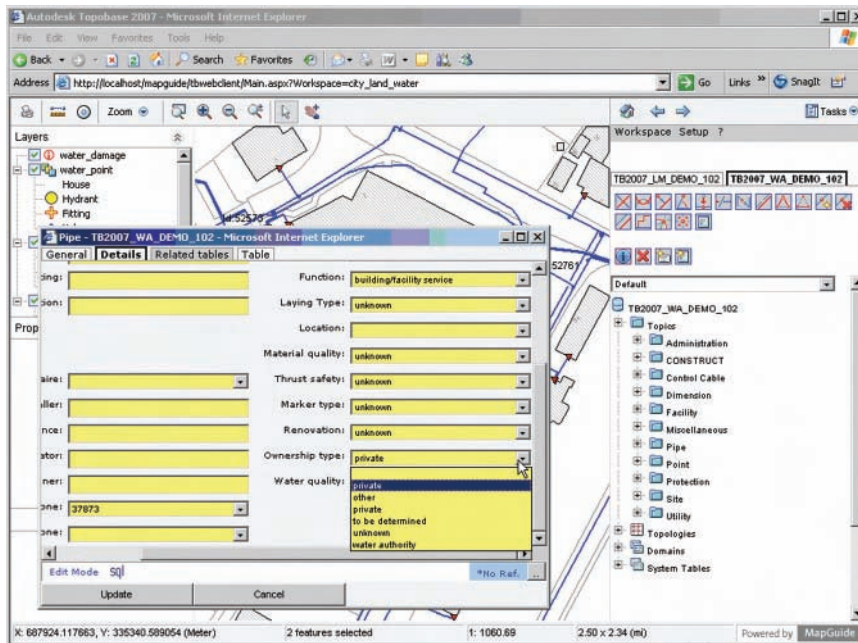


Figure 5: Topobase web provides a browser-based interface with the same rules and standards as the desktop client.

Manage Data with Topobase Administrator

Where Topobase Client and Topobase Web enable organizations to create and edit data, the Topobase Administrator helps organizations set up, configure, and manage their data environment. Organizations can tailor Topobase to specific business processes without the need for programming, and Topobase requires minimal database expertise. Through the Topobase Administrator, authorized users can add to or edit data structures and rules for data stored within Oracle Spatial, modify the dialogue boxes within the Topobase Client, and regulate access to the database. They can also create workflows, create or modify rules, and generate dialogs through the user-friendly administration tools.

Topobase Administrator is the component that allows organizations to get the value of Oracle Spatial without the need for a full-fledged Oracle database administrator (DBA). Although everything is stored in Oracle Spatial, the Topobase Administrator masks the complexity of Oracle by providing easy-to-use tools to manage Topobase while running all complex optimization and database management functions internally. With the Topobase Administrator making Topobase highly configurable, organizations can set up the solution to suit their

Henkel Updates Asset Data Ten Times Faster

Henkel, a Fortune Global 500 company based in Düsseldorf, Germany, offers brands and technologies that make people's lives easier, better, and more beautiful. To keep its facilities and asset management process on track, the company relies on Autodesk Topobase to create, manage, store, and share all its asset-related data.

With Topobase, Henkel manages over 300 tables of data and 1.2 million features. The data covers all aspects of its manufacturing facilities, including more than 250 kilometers of pipes, 500 kilometers of underground cable, and building information. "Our facility is as complex as a small city," says Bernd Loh, manager for GIS and CAFM for Henkel. "We can now update facility information ten times more quickly, but the biggest advantage comes from how we use our integrated data. By integrating different types of asset information, we can manage our complex assets more intelligently."

needs exactly—and easily modify it as needs change. The Topobase Administrator includes tools to:

- Administer multiple database schemas, display style templates, and user groups in a way that allows employees to view data and use software in a manner relevant to their job functions and user profile.
- Edit, create, and manage data models, feature classes, attributes, and feature relationships.
- Create and manage long transaction/job templates, version enable feature-classes, topologies, utility models, and intersections easily.
- Design forms to manage attributes and data constraints associated with feature classes using visual drag and drop functionality.
- Generate custom reports using the built in report designer with visual drag and drop functionality as well as invoke Crystal Report report templates.
- Manage business rules on the client and server, such as the automatic creation of fittings when a pipe object is created.
- Optimize Oracle and manage database procedures and triggers.

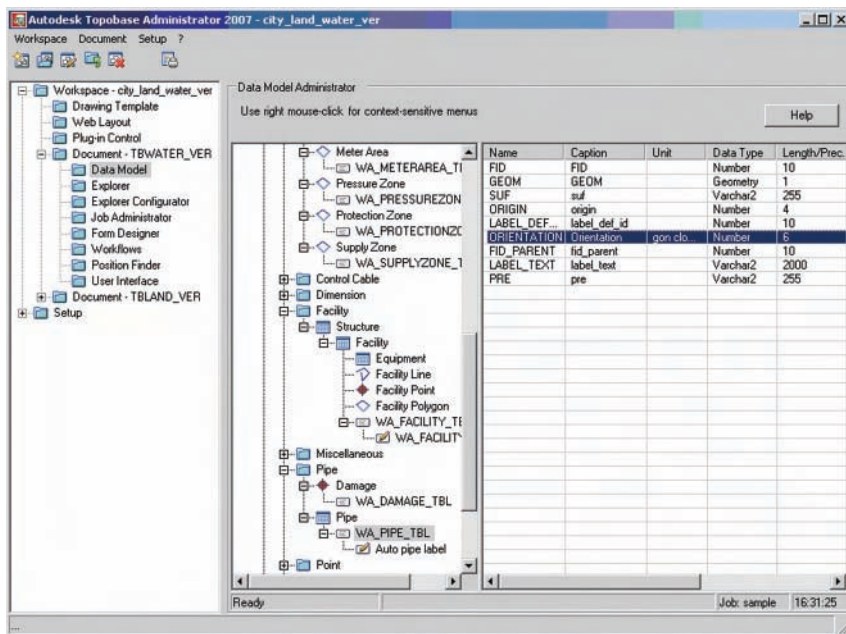


Figure 6: Topobase Administrator allows organizations to manage Topobase easily and does not require advanced Oracle database administration skills.

The Technical Features of Topobase

Autodesk Topobase includes four key technical features designed to support the spatial data needs of infrastructure organizations: Topology, long transactions, business rules, and industry-specific data models. Combined, these features support optimal database performance, facilitate efficient design and data management, and enhance the integrity of network data.

Topology

Topology keeps track of assets, their locations, and their relationships with other objects. Topology is the ability to maintain spatial relationships between areas—such as parcels and infrastructure features—such as a water network. These topologies are called Area Topology and Network Topology. Area Topology is used to model land and other flat surfaces, and Network Topology is used for modeling the way objects are connected to each other in networks.

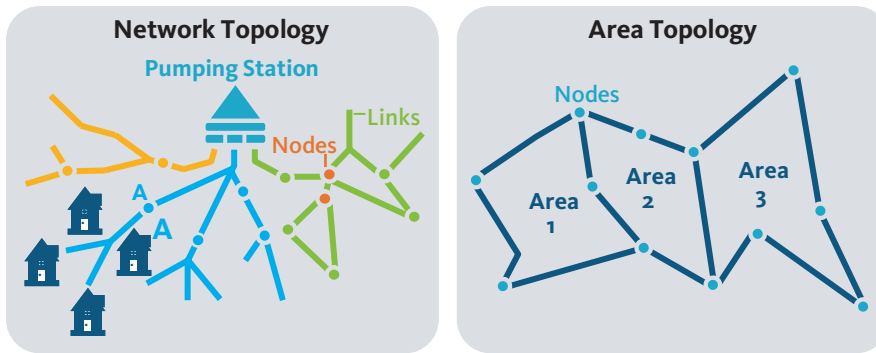


Figure 7: Area and Network Topologies model relationships between geometries.

Organizations benefit from using Topology in a number of common processes. For example, a water organization could use it to run highly accurate traces that determine which houses will be impacted if a particular valve is shut off in the course of maintenance operations. During the trace, Topobase Topology checks the connections and stop conditions based on attributes. For example, in the topology diagram, if a valve were to be shut, the network trace would indicate which specific customer addresses would be affected, allowing the organization to inform customers of the service interruption in advance.

The Area, or Polygon-Topology enables Topobase to be a very effective system for managing land base and cadastral information. With automatic area splitting and merging functionality, coordinate geometry (CoGo) tools that allow precise coordinate geometric calculations, and the Topobase Client's in-built AutoCAD and mapping capabilities, Topobase provides best-of-breed CAD and GIS capability for land management and management of polygon and area based data in general.

“Autodesk Topobase provides a tool and surface for professional users to access all the data within Oracle Spatial ... Using AutoCAD Map 3D, they work with the data in a classic CAD environment that includes all the geospatial visualization and analysis capabilities they need.”

Juergen Biedermann,
Documentation and Data
Processing Manager,
Stadtwerke Augsburg

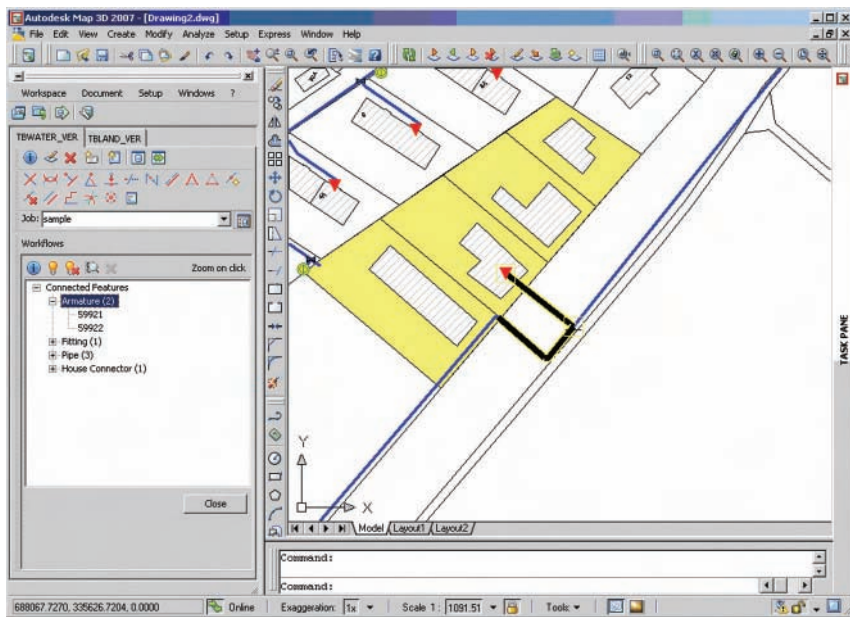


Figure 8: Topobase Topology maintains the relationships between objects as an engineer adds new houses to a network, which ensures network traces will be able to locate all connected points.

With a topology framework that enhances database performance and

responsiveness to changing data, Topobase extends core Oracle Spatial capabilities. It does this by updating the Area Topology and the Network Topology automatically as changes are made. In contrast, the topologies included with many GIS applications do not update on the server-side automatically. Instead, organizations must upload data, a process that can result in the decline of database performance in dynamic environments, such as utilities, where infrastructure asset data is constantly changing.

Long Transactions

A long transaction is a complex project or series of tasks that takes place over time and often includes a number of contributors. Topobase functionality for long transactions, also known as jobs, enables users to select an area of infrastructure that is being built or modified and keep the modifications separate from the base network information until the project is complete. Organizations can establish multiple long transactions on projects, allowing them to evaluate cost and design alternatives. As projects are completed, the Topobase approval functionality provides a streamlined way to update the database.

Long transactions in Topobase delivers the complex project functionality, including 24/7 availability, a multi-user environment, and secure data separation, that infrastructure organizations need. When security features are activated, only authorized users can access data within a current long transaction, which helps to protect the integrity of projects and data standards. All long transactions are archived and preserved in detailed project histories, if required, as projects progress. Then, if engineers want to see how a project evolved, they can use Topobase to view the project at any point in time.

“We have been able to create maps that bring together pipe design and location with information about what every pipe carries. This is useful in maintenance planning, safety, and asset documentation. The maps display real-time information coming out of Oracle, so our employees are able to work from accurate and timely information.”

Bernd Loh,
Manager for GIS and CAFM,
Henkel

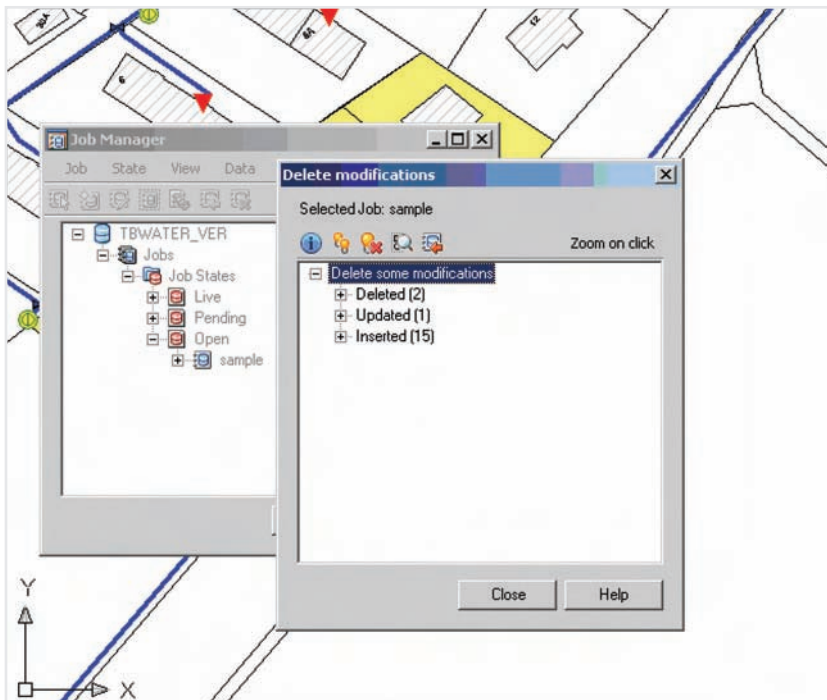


Figure 9: During a long transaction, data goes through multiple stages that are tracked, analyzed, and approved or rolled back.

Business Rules and Workflows

When implementing Topobase, organizations establish business rules and workflows to govern and streamline the way information is entered into the database, helping to enforce data quality. These business rules and workflows are essentially standards based on an organization's current workflows and business processes. Organizations can also predefine sets of materials in addition to data standards. Standards and materials can both be linked to job types, such as adding a new subdivision to the network or replacing old pipe. Once business rules are established, dialogs within the Topobase Client include only valid elements for the designer to select.

Business rules and workflows prevent designers from leaving out required elements, choosing incorrect materials, or including incorrect material sizes. Workflows within vertical industry-specific applications consist of a sequence of procedures or steps that the user is required to follow while performing a task. For example, in the water module, the user is automatically asked to connect the hydrant to an existing pipe while creating the hydrant. The business rule for connecting two pipes ensures that a fitting is automatically inserted at the connecting point. Moreover, because Topobase Client dialogs include business rules, designers are able to work more quickly and efficiently.

"The decision to go with Autodesk Topobase was easy to make. The data model is open-standards based, the database is Oracle, and the software is very flexible. We also like the easy-to-use and powerful data administration interface."

Michael Berteld,
Documentation Manager,
Industrielle Werke Basel

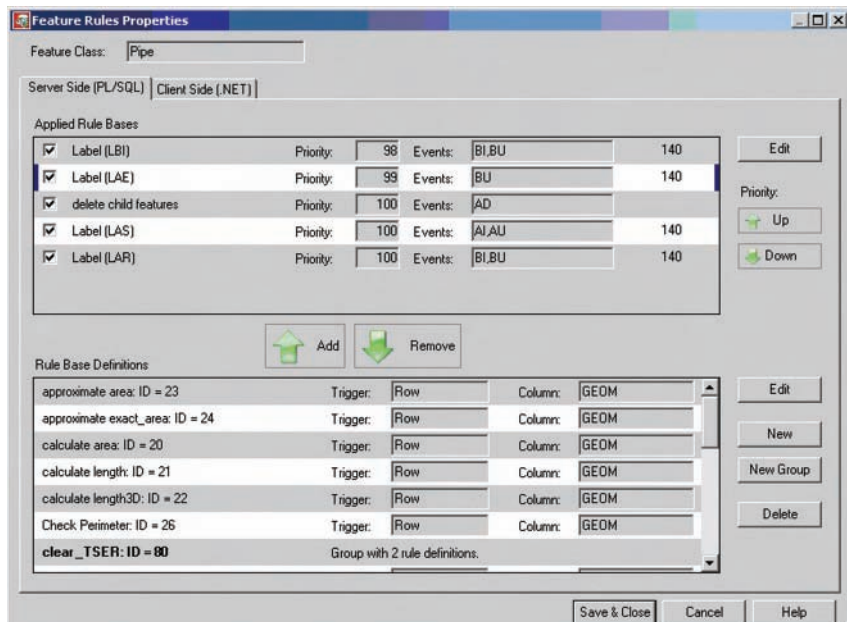


Figure 10: Business rules help to ensure asset information is maintained according to an organization's standards.

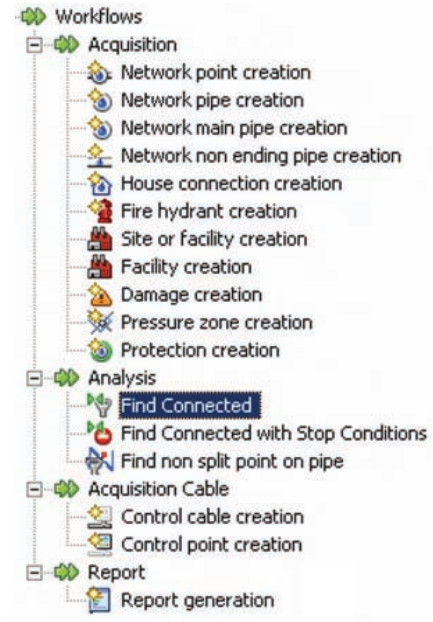


Figure 11: Workflows within the water application.

Industry Data Models/Vertical Modules

Topobase offers standard vertical applications that conform to the needs of organizations that manage different types of infrastructure, such as water, wastewater, and power. These individual applications come preconfigured with industry-specific data models that are designed to capture the exact data needed within an industry. They are also configured to manage attribute information appropriate to assets common in the industry. Additionally, these data models are designed to capture relations between features. For example, the water module is set up to manage features such as pipes, hydrants, and valves, the relationships between those features, and all the underlying attributes relevant to those features.

Data models can be customized with the Topobase Administrator to meet the exact data requirements of individual organizations. The Topobase Administrator includes drag and drop designer and report designer capabilities making it very easy for the system administrator to design custom forms for the data model. These forms are created once and are available to all users both on the client and on the web. Because industry-specific applications come preconfigured based on common needs, organizations typically complete customizations rapidly. This in turn helps organizations to implement Topobase quickly and realize return on investment sooner.

“Because our solution uses open data, we were able to establish a connection to our SAP applications within Oracle Spatial.”

Bernd Loh,
Manager for GIS and CAFM,
Henkel

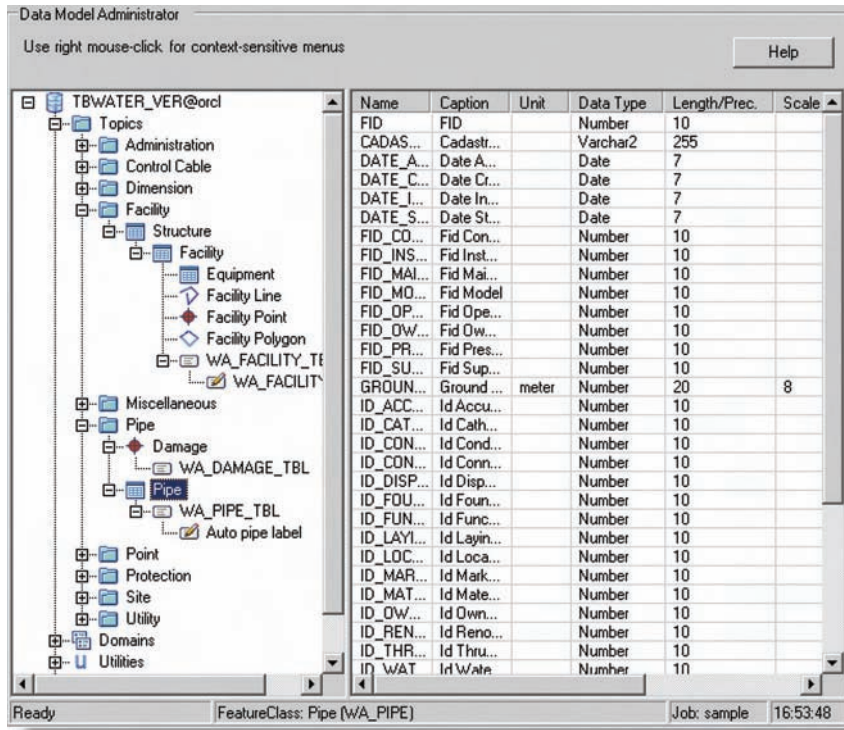


Figure 12: Industry data models support the streamlined management of data related to industry-specific features such as manholes.

Autodesk Topobase Across the Organization

Using Autodesk Topobase, organizations can jettison inefficient processes for sharing spatial information and improve productivity in every department that

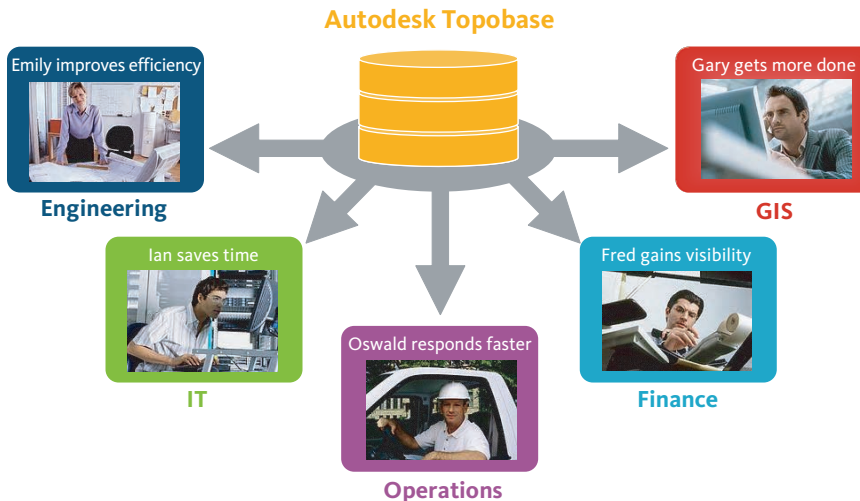


Figure 13: Employees across departments save time, improve productivity, and avoid errors with Autodesk Topobase.

creates, uses, or manages spatial information. Let's look more closely at how departments and individuals within an urban water delivery organization are able to work more efficiently thanks to Topobase.

More Efficient Engineering

The engineering department creates and edits infrastructure information with Topobase in an efficient multi-user environment. Even though engineers are making constant changes, timely information is always available. Topobase Topology automatically stores information-rich engineering data and calculations in Oracle Spatial, and Topobase Web delivers the information on network maps across the organization.

Emily, a senior engineer, finds that Topobase helps improve her productivity. She uses the Topobase Client to add or modify infrastructure designs. Dialogs based on business rules and industry data models help Emily complete tasks quickly and accurately. Emily is also able to work more efficiently because she no longer must convert geospatial data received from the GIS department. And Emily and her colleagues learned Topobase quickly because the Topobase Client is based on the familiar AutoCAD Map 3D interface.

Open Technology Saves IT Time

The IT department uses Topobase to administer spatial data and integrate spatial information with data from business systems. Because Topobase employs open data models, the department is able to integrate systems without middleware. And the data administrator does not have to be an Oracle DBA; the Topobase Administrator makes managing data easier for the department by hiding the complexity of Oracle Spatial behind a straightforward data management tool.

Whenever business needs require modifications to the Topobase data model, interface, or access authorizations, Ian, a systems administrator in the IT department, turns to the Topobase Administrator. He can quickly make needed changes, such as giving the new security chief for the organization access to all safety-related spatial data. With the Topobase Administrator, Ian can also modify the look and feel of the application to suit workflows within individual departments. Ian especially likes the fact that Topobase is based on Oracle's industry standard RDBMS technology because it makes Topobase easier to maintain.

Instant Access to Information Improves Operations

The operations department uses Topobase to deliver accurate, timely infrastructure information to support staff and field crews. Topobase Web allows field crews to use laptop computers in their trucks to instantly access equipment attributes and exact equipment locations. Back at headquarters, maintenance supervisors turn to Topobase Web to locate equipment scheduled for service and to determine optimal service call routes.

Oswald, the foreman of a leak repair field crew, uses Topobase Web to help his team find the exact locations of leaks and valves that need to be turned off prior to repair. At any time and from any location, he can access network and attribute information, helping him to fix leaks faster and more independently. Prior to Topobase, Oswald wasted valuable time combing through paper map books and calling headquarters looking for equipment and parts information.

Integration Increases Financial Visibility

Even employees in the finance department depend on Topobase—without having to leave their financial applications. The department uses Topobase to comply with government regulations that require the organization to report total asset inventory and to streamline asset-based accounting. Depending on why the department needs spatial data, employees can query the information they need through financial tools integrated with Topobase or use Topobase Web to view assets on an online map.

"With Topobase and Oracle Spatial, we no longer have to maintain multiple data sets, and we have reduced the risk of data entry errors."

Juergen Biedermann,
Documentation and Data
Processing Manager,
Stadtwerke Augsburg

Fred, an accountant in the finance department, uses his financial applications to query asset information stored in Oracle Spatial. This allows him to quickly and accurately prepare reports that comply with regulatory requirements. When Fred needs to determine what a project will cost for budgeting purposes, he turns to his familiar costing applications, which in turn are able to access real-time asset information managed by Topobase. If he wants to include a map of the project area in the cost report, Fred uses Topobase Web to dynamically generate a map.

GIS Minimizes Data Conversion

The GIS department counts on Topobase to deliver GIS-ready data without the need for conversion. Although Topobase is a complete GIS environment, the GIS department prefers to continue using its expensive, legacy GIS software for analysis. The open Topobase and Oracle environment allows GIS specialists to do this while leveraging a common database across the organization.

Gary, an analyst in the GIS department, is saving a significant amount of time every day with Topobase. Through Topobase, his GIS tools can read engineering data and incorporate it directly into GIS analysis operations without conversions. When Gary receives new parcel information from the state, he is able to upload the OGC-compliant data into the central database and make it available throughout the organization. For Gary, the benefits of Topobase add up: Topobase Web has almost eliminated ad hoc map requests, he no longer has to convert engineering data, and he is able to incorporate information from outside data sources into the core database more quickly.

Conclusion: Autodesk Topobase Delivers Results

Infrastructure design and management impacts all facets of infrastructure organizations. For too long, organizations have conducted processes using disparate applications that generate data in proprietary formats and store data in independent, isolated databases. This lack of integrated asset management has resulted in duplicate work, increased risk of errors, a lack of visibility into assets as a whole, and a myriad of time-consuming workarounds, such as data conversions. Autodesk Topobase provides the architecture, components, and technology features that enable organizations to overcome these challenges.

By providing centralized access to spatial data and enhanced processes, Autodesk Topobase improves the way vital tasks get done throughout organizations. Employees in every department save time, boost productivity, and are empowered to work more independently. Different aspects of Autodesk Topobase impact each department differently. The operations department benefits from a centralized database that delivers online maps through Topobase Web. Engineering uses the Topobase Client and long transactions to carry out virtually all projects. Thanks to the open Topobase data framework, the GIS department no longer wastes time converting data for use in proprietary tools—and GIS specialists no longer worry about information loss. And finance enjoys instant access to asset information directly within its financial tools. With Topobase, organizations:

- Gain a big picture view of assets
- Minimize data conversions
- Save time by reducing duplicate work
- Improve data quality more automatically
- Share asset data more seamlessly

Find out more about how your organization can benefit from Autodesk Topobase. Visit us on the web at www.autodesk.com/topobase today.

