



# Technical Solutions Document

## Interoperability

Symology recognises that the provision of innovative software products is often only one element in the creation of a successful business solution that delivers effective and efficient benefit and value to our customers.

Clearly the provision of software represents the core of our business and we are committed to continuing to deliver our best-of-breed products. However, we fully recognise that interoperability is also a key issue, since it measures how well software, data and solutions reside alongside one another, and how well they share information or functionality in a way that provides more value than single, stand-alone products.

Symology is committed to ensuring that its products and solutions interoperate with each other and third-party solutions.

### Interoperability with IT Platforms & Network Architectures

Insight offers a cost-effective and high performance solution for any network architecture, whether the requirement is for operation across a WAN or LAN, using conventional links, Internet access, or wireless connection. Similarly, whatever the chosen server and operating system strategy, Insight provides appropriate "thin client" and "thick client" options, including the ability to launch the application via a web browser. Any combination of Microsoft, UNIX and Linux operating systems is accommodated.

### Interoperability with leading Databases

Symology's policy is to allow access to all data in the Insight application, regardless of which database management system (DBMS) is handling the data. Symology's support of both vendor specific and vendor independent data access standards provides our customers with the richest and most flexible array of options. When purchasing Insight, customers can be assured that their investment will complement their existing and future information technology infrastructure.

Symology's commitment to using open non-proprietary standards extends to how Symology's applications and reporting tools access data.

Symology utilises widely supported data connectivity standards such as ODBC, JDBC, ADO, XML, and OGC's GML. Symology also supports vendor specific technology such as OCI (Oracle) and ADO.NET (Microsoft), as these provide additional database options to our customers.

By using standard connectivity, Symology offers the distinct advantage of ensuring that data can be accessed "in place" wherever it sits within your enterprise, without the need for middleware or proprietary formats.

### Interoperability with leading GIS Systems

Comprehensive mapping functionality is provided within the Insight product suite, utilising .NET technologies to interface seamlessly with the latest releases of world-leading GIS products from ESRI and Cadcorp. These facilities provide synchronised bi-directional connectivity, with full enquiry and updating capabilities.

The ESRI-specific option exploits the full capabilities of the world's leading GIS. Cadcorp's SIS (Spatial Information System) comes with the ability to directly read and display 150 (write to 40) native GIS, CAD, graphic and database formats on-the-fly, without translation, including MapInfo's TAB and MIF formats. Any ODBC, DAO or ADO compliant database or file format is also supported including Microsoft Access, Microsoft Excel and Microsoft SQL Server.

Direct database support for corporate spatial databases includes Oracle Spatial, ESRI ArcSDE, ESRI Personal GeoDatabase, Intergraph GeoMedia Access Warehouse, Oracle 10g GeoRaster, Oracle 10g Network Model, PostGIS, and any other OGC compliant database schema, without the need to purchase additional middleware.

Both ESRI and Cadcorp are active members of the Open Geospatial Consortium (OGC). As a result both companies are committed to OGC standards such as WMS, GML and WFS.

### Interoperability with MS Office

Insight provides full integration with MS Office products by utilising embedded ActiveX/OLE technologies.

MS Word is utilised for the production of high quality documents. Results of all in-built system enquiries and reports can be exported directly into MS Excel.

### Interoperability with Reporting Tools

The output from on-line enquiries may be displayed in a grid, with user selection of the precise columns of data required. The results displayed in the grid can be exported directly into Crystal Reports. The embedded report layout designer provides seamless access to further filter the grid results, format the display, introduce graphics, produce totals/sub-totals, and collate and sort the data in any way required. Obtaining information in the required form is quick and easy, without a need to understand the database structure or have any knowledge of SQL. Reports produced can be exported in XML, PDF, Word or Excel formats and can be distributed by printing, as a file, or by e-mail or fax.

In the unusual situation where the above mechanisms do not enable the required output to be produced, ODBC technology may be employed. An on-line gateway to the data is provided, with a comprehensive database schema including defined data relationships. This may be used in conjunction with any ODBC-compliant reporting tool, including Crystal Reports, which enables SQL queries to be generated. The main database may be accessed directly, or downloaded into a separate RDBMS specifically to support the reporting processes.

## Interoperability with Corporate Systems

Symology has vast experience and a range of options for interfacing with corporate systems such as central finance systems, customer relationship management systems, external contractor systems, and in the utility sector with corporate works management systems.

Standard XML/CSV based interfaces with central finance and contractor systems have been provided as part of the system for many years.

In the areas of CRM and Utility Works Management Systems, bi-directional real-time interchange of data is achieved through Symology supplied Web Service APIs, which run under Microsoft's IIS web server. Data is transferred using SOAP over HTTP, allowing the third-party systems to communicate with the Insight business logic.

## Interoperability with Mobile Devices

Symology's extensive range of mobile data collection software encompasses options for satellite positioning, map display, digital photography, and remote wireless connection. As the software operates under the Microsoft .NET Framework, theoretically any mobile device that supports this environment should be able to operate the software.

All collected data is fully validated on the external device by Symology's mobile data collection software. The import and export of data is driven entirely from the mobile device, using parameters set in the main Insight system. Data is transferred through a Symology supplied Web Services API, which runs under Microsoft's IIS web server.

Data is transferred using SOAP over HTTP allowing the mobile device software to communicate with the Insight business logic. As the API is web services based, XML is used as the message format. Communication can be achieved using a GPRS card attached to the mobile device, using Bluetooth technology or by placing the devices in a cradle that is connected to a PC with connectivity to the IIS web server.

## Interoperability with external Digital Objects

Facilities are provided throughout the system to link any kind of digital file to specific Assets, Inspections, Defects, Customer Service requests, Condition Surveys, Street Works notices and Licence applications. Photographs, videos, CAD drawings, and Word documents are all accommodated, together with an in-built facility to scan documents.

## Interoperability with the Web

Symology's "Open Systems" approach enables information to be disseminated easily to members of the public via the web. The available array of data access methods allows easy access to data for display on public websites or indeed internal Intranet systems.

In the area of Street Works/Traffic Management, Symology provides a Web Service API, which allows real-time access to the data stored in the system. This Web Service includes the capability to make spatial enquires via web-based mapping products.

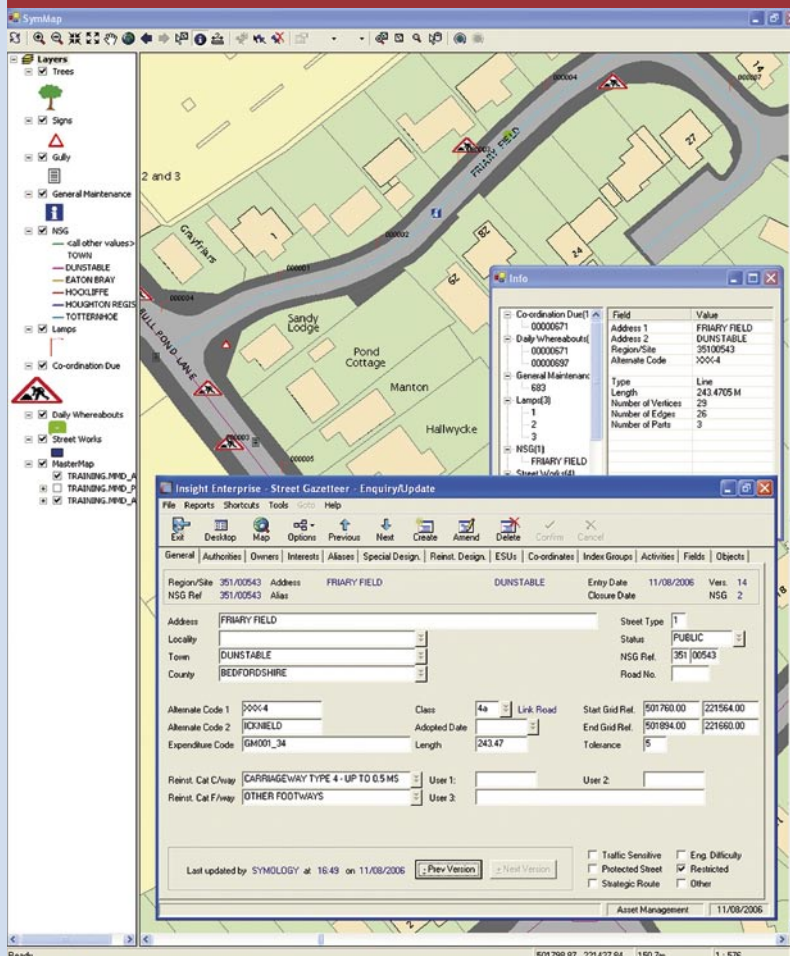
In addition, report output from the on-line system in the form of a grid, can be exported to generate an XML file, with an associated XSL stylesheet, which enables the XML file to be viewed in any modern web browser.

## INSIGHT PRODUCT OVERVIEW

Based on leading-edge technologies, Symology's Insight product range offers advanced software products that address the diverse and yet specific needs of infrastructure asset management.

Our specialist software engineers and solution architects continually push forward boundaries to build a product range that maximises on the continued advances in technology.

These technologies, combined with our unrivalled business knowledge and understanding, allow us to develop applications specifically designed to meet both the departmental and corporate needs of your organisation. This, in turn, provides you with the tools to improve your organisation's effectiveness, efficiency and productivity.



## User Interface

The Insight suite employs an intuitive Graphical User Interface (GUI), which maximises on the potential offered by all available options. The system dialogue standards provide clear, intuitive navigation, universally throughout the system, easing training effort and winning early user acceptance.

Accessibility features include the ability to operate with screen reading software, such as JAWS, to assist the visually disabled. The Insight system can be operated without the use of a mouse by using keyboard shortcuts, thus aiding people with motor impairments. Facilities are also provided on a user-by-user basis to change the font sizes used throughout the system and to change colour schemes. These facilities are provided to help those with disabilities such as colour blindness and/or poor eye sight.

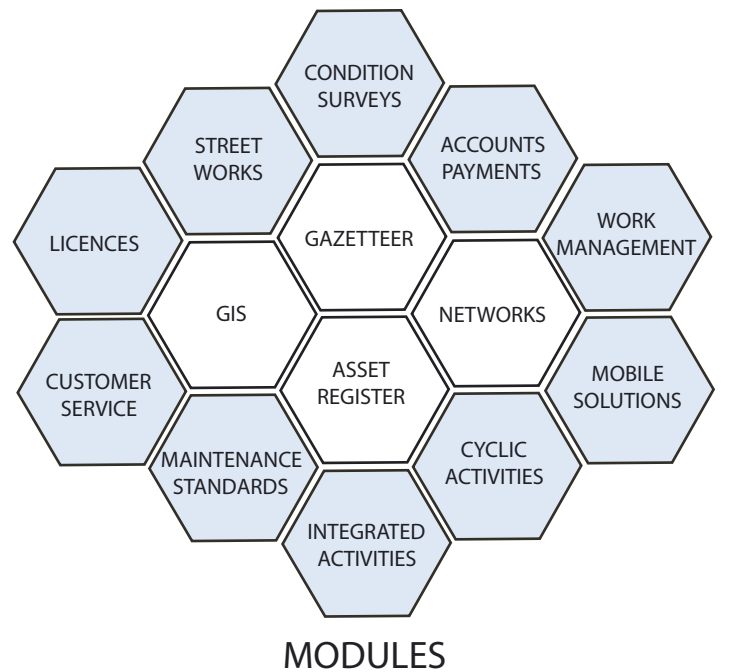
The provision of the above mentioned facilities are in line with the requirements of the Disability Discrimination Act and the W3C's Accessibility Initiatives.

Insight comprises a range of highly integrated modules that can be used in various combinations, to provide individual solutions for the areas shown on the diagram in beige.

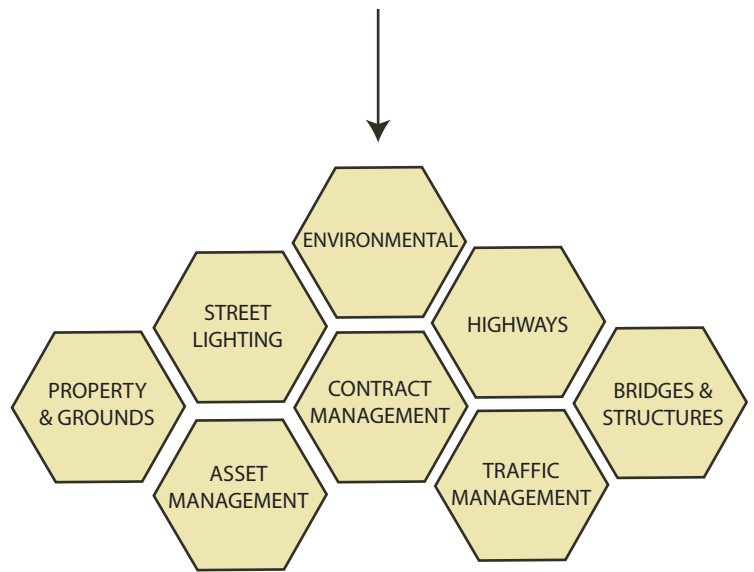
In total, the system provides the capability to manage ALL of these solution areas as part of a single integrated system.

This offers the opportunity for cost and efficiency savings (in line with the Gershon review), by streamlining operational practices and reducing the number of systems used to manage these areas.

Further savings can also be realised since only one set of interfaces are required to be established and maintained with external and corporate systems.



MODULES



SOLUTION AREAS

↑  
WEB SERVICES (XML & SOAP)  
COM and ODBC



CORPORATE/EXTERNAL SYSTEMS

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