A Comparative Review of Data Modeling Web Portals
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Executive Summary

This white paper summarizes the results of Edison Group’s evaluation of web portals for viewing and interacting with data models. The web portals evaluated were created for the following data modeling tools: CA ERwin Data Modeler (ERwin), Embarcadero ER/Studio (ER/Studio), and Sybase PowerDesigner (PowerDesigner). The white paper is written to be understood both by IT professionals — such as database architects and designers — and by non-technical business users alike. Comparative evaluations are based on publicly available information on the products from each company and interviews with their respective representatives. Independent hands-on testing of the web portals was outside the scope of this report.

ERwin, PowerDesigner, and ER/Studio each provide a web-based portal interface that stakeholders involved in designing and using databases can use to compare their structures. Business users, modelers, and database administrators can search for specific pieces of metadata or definitions used in the database from the web portal without having to comb through the entire model, which may contain hundreds or thousands of entities.

This paper evaluates the web portals for each of these products in the areas of search, impact analysis, and overall graphical interface.

About Data Models and Portals

Data is the currency of the information-driven business world in the twenty-first century. The ever-expanding volume and complexity of data in today’s information-fueled economy has brought about a new wave of information managers, data modelers, and data architects and with them a panoply of tools. Principal among them is the data model.

A data model is a tool to help guide IT professionals in structuring databases that document and organize the business data and for communication between business and technical people. By showing the data needed and created by business processes in an easily-read graphical format, it facilitates improved communication within the organization. The web-based portals created for products such as ERwin, ER/Studio, and PowerDesigner provide a graphical way to visualize the connections between data structures, the interrelationships between information in the data models, and how
changes may impact conditions, scenarios, or situations. Data architects, database administrators, and business users alike are commonly involved in projects involving data quality, data integration, data governance, and data management. Web-based interfaces provide a link to a visual display of metadata, or the business and technical context behind data, and a means to understand it, in order to support these projects.

**Comparison of ERwin, ER/Studio, and PowerDesigner Web Portals**

**CA ERwin Web Portal**

The CA ERwin Web Portal (ERwin Web Portal) obtains metadata from the CA ERwin Data Modeler product. It provides access to the models for business users who have no need to modify data models directly in order to easily view, in an intuitive way, the technical information found in them. It also provides access for technical users to see detailed technical impact analysis across data models. The ERwin Web Portal allows business people as well as data architects and administrators to visualize the models created with ERwin Data Modeler in a variety of ways, and even to switch them from a spreadsheet-style layout to a logic tree and back with a single click. “What-if” type analyses can be performed from the diagrams to drill down into detailed metadata in order to view definitions, user-defined properties (UDPs), and the like.

**Embarcadero ER/Studio Portal**

The Embarcadero ER/Studio Portal (ER/Studio Portal) is an online tool for reporting and doing metadata queries, providing users with real-time access to data model definitions and objects as well as configurable reports of the data models and metadata on the repository.

ER/Studio Portal’s interface allows browsing through the hierarchical information and drill-downs into the details. Report formats available through the portal are limited to about 20 out-of-the-box reports and reports. Rather than allowing sharing through the portal, a report can be saved as an HTML file and a link posted to it.

**Sybase PowerDesigner Portal**

The Sybase PowerDesigner Portal (PowerDesigner Portal) is a browser-based thin-client product that allows access to the repository where the data models are stored. An upgrade to the PowerDesigner Portal Composer product turns the web interface into a
limited-function editable interface to collaborate around business terms, definitions, and other metadata. It does not provide the full diagramming capabilities and functionalities of the full PowerDesigner client. Changes made via the web create a new version of that object in the repository, which can be accepted, rejected, modified, or changed by the modelers.

The web portals of all three companies are accessible using any of the major web browsers: Microsoft Internet Explorer, Apple’s Safari, Mozilla Firefox, and Google Chrome. The ERwin Web Portal requires a flash-enabled version (IE 8 or 9, Firefox 4, and Chrome 6 or above). For IE 8 PowerDesigner Portal, a plug-in from Adobe is needed; IE9, Chrome, Safari, and Firefox all work without a plug-in.

**Impact Analysis**

The ability to see how model objects relate to one another and/or to understand the consequences of a model change (impact analysis) is an important function for this class of product. Impact analysis helps identify the effects of a given change and helps identify the appropriate solution for that change. It includes understanding where an object is used, as well as how it relates to other models and model objects.

**ERwin Web Portal**

The ERwin Web Portal shows its real power in the area of impact analysis. The Lineage Analyzer function gives users a simple means of seeing the relationships between data objects, such as the interrelationship between conceptual, logical, and physical models, and “where used” analysis to see (for example) which tables are used by a given view or what columns or attributes utilize a given domain. Source-to-target data warehouse mappings can also be easily visualized in a graphical format. Technical users can take advantage of a number of impact analysis views to see how data objects interrelate across the enterprise. The business user is able to look at a business term and see, in an intuitive graphical way, what business units or models are using that term and definition.

**ER/Studio Portal**

The ER/Studio Portal provides some limited capabilities for interactive impact analysis. For example, a procedure or package’s name can be expanded in the data model explorer pane to list the dependent tables. The Dependencies tab in the Table Editor lists the table’s dependencies on triggers, functions, procedures, packages, and views. When the dependent table is highlighted in the explorer pane, it also highlights the corresponding table in the physical model diagram.
PowerDesigner Portal

The PowerDesigner Portal also lays claim to an extensive impact analysis function. The lineage is stored with the object. Clicking on “Impact and Lineage Analysis” while viewing an object’s properties opens a window. Rules for the impact analysis set by the user determine the analysis results, determining the types of objects and the properties that are displayed in the impact analysis. A number of rule sets are provided, or the user can create their own to be shared through the repository. Impact analysis is available throughout all modeling modules. The PowerDesigner Portal distinguishes the predecessors of an object as its "lineage" and uses "impact" to refer to objects affected by the object being changed or deleted.

Search

ERwin Web Portal

The ERwin Web Portal search function relies on an internet-style keyword-based search tool designed to be intuitive and to lead to new discoveries in the course of searching through the information stored in the data repository. Queries can be stored as web links (URLs) that are shareable via e-mail or messaging to facilitate further analysis. A built-in internet-style search function lets users find information used in the database (such as the definition of terms), without having to know where the term is used. Using the Lineage Analyzer tool, the ERwin Web Portal gives users a graphical representation of the interrelationships within and between models, such as which tables are used by a particular query, the columns used by a domain, and the interconnections between conceptual, logical, and physical models.

ER/Studio Portal

With the ER/Studio Portal, users can search for data model definitions and objects in the repository by clicking on a scrollable list of projects and the diagrams contained within each repository project folder. Simple Searching searches text properties of all object types and diagrams for a partial match on the search string supplied by a user. Advanced Searching allows users to narrow their search parameters by using wildcards to identify objects with partial matches, and with customized search terms such as “starts with”, “contains”, “ends with”, or “is an exact match of.” Searches can also be limited to specific object types or diagrams. Users can drill down to the detailed report for each object type.
**PowerDesigner Portal**

The PowerDesigner Portal has a Search page with a Quick Search bar at the top to search directly on names, codes, and other fields of character-strings and text without setting up a query via the Search box in the header. When viewing an element in the PowerDesigner Portal, the user can navigate through hyperlinks to all of its dependencies, look at the diagrams, and click through to the metadata behind the diagram.

**Graphical Interfaces and Diagrams**

**ERwin Web Portal**

The ERwin Web Portal offers desktop-quality interfaces to view information in the Web Portal. Diagrams can be easily rendered, depending on the audience, in a number of different formats, including IE (Information Engineering or “crow’s feet”), IDEF, and UML (Unified Modeling Language). From these diagrams business users can drill down into detailed metadata. Visual Lineage diagrams can also be created to intuitively show the interrelationships between data objects. As mentioned earlier, impact analysis is a strength of the ERwin Web Portal, and the visual display for this, shown below in Figure 1, is a differentiator for this solution.

![Visual Data Lineage in the ERwin Web Portal](image-url)

Figure 1 Visual Data Lineage in the ERwin Web Portal
**ER/Studio Portal**

Users interact with ER/Studio Portal through the Business Information Platform with a “dashboard” which allows users to choose between a number of information panels to be displayed, each with its own distinctive icon. The “Explore” link, for instance, represented by a folder with a magnifying glass, connects to a tree interface for structured browsing, as well as detailed reports for diagrams and models. The person can also view an image of an ER/Studio Data Architect model, submodel or data flow, and ER/Studio Business Architect diagrams.

The ER/Studio Portal provides a means for users to set default colors, line thicknesses and fonts for a model or submodel, and to change style elements for various symbols in the diagrams. Properties to be displayed for symbols on a submodel can also be changed but, but the individual symbols cannot.

**PowerDesigner Portal**

The PowerDesigner Portal provides relies on the concept of a project. A project is a container holding models and other files as a file folder in the Windows file system. Projects provide a unique type of diagram, in which the models in the project are represented as symbols. Models are represented in the display with distinctive icons that allow a user to immediately recognize the type of object being represented, with lines between the icons drawn in and labeled to show the dependencies stored in the respective models.

The display is organized in two windows, with a collapsible-tree Table of Contents in a panel on the left and a tabbed window on the right, displaying tree-views of the data models.

**Conclusions and Recommendations**

All three products evaluated for this white paper have browser-based access to view the data models created using their respective modeling tools. Each, in turn, has chosen different features to emphasize.

The ER/Studio Portal is designed for basic reporting and ease-of-use for users to interface with structured hierarchical information. Rather than providing for a high degree of customization, ER/Studio comes with some 20 or so pre-built report formats out of the box.
The PowerDesigner Portal’s focus is to give portal users the chance to make changes to the metadata included in the models directly, using a second add-on product — PowerDesigner Portal Composer. With Composer, web users are able make changes in the metadata for the model they are looking at. The resulting diagrams are stored as new versions in the repository so that changes can be accepted, rejected, or altered at a later time.

The ERwin Web Portal is all about impact analysis and visual display. The ERwin Web Portal does not include the ability to update metadata directly by design, partly for governance reasons. Most large companies that prefer ERwin want the business users to discover the things that need to be changed, and then issue requests to update the repository. The ERwin Web Portal is therefore more properly viewed as a communication tool.

With its emphasis on impact analysis and visualization, and the nearly infinite ways that diagrams and reports can be customized, either according to the preferences of the user or to focus on the parts of the models relevant to a particular audience, the ERwin Web Portal provides the right information to the right users in the ways they can use it best. Its familiar internet-like approach to search is more intuitive and natural than the approaches used in the competitors’ products. Edison found that the CA ERwin Web Portal was the superior solution among the three compared in this paper, based on its superior impact analysis capabilities, ease of search, ability for customization, and its intuitive visual interface.

An overall ranking of the three tools is listed below in Table 1.

**Product Rating Comparison**

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<thead>
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<th>Table 1 Product Rating Comparison</th>
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<td><strong>Graphical Interface</strong></td>
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