

ENVISION VIP

Version: 8.6

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Web: www.future-tech.com Email: LStucki@Future-Tech.com**1. Product Overview**

ENVISION VIP is an enterprise modeling and knowledge integration tool. It can be configured to visually access any enterprise resources, tangible or intangible, as “Intuitive Business Objects.” Appropriate stakeholder views provide ready access to, and analysis of, a range of processes, systems, assets, and structures as well as any additional disparate corporate information and knowledge. ENVISION creates a powerful consolidated enterprise knowledge base – a “Management Control Center” available to all stakeholders.

Envision = Management Control Center [E = MC²]

Table 1 gives an overview of the ENVISION VIP product. The key to ENVISION VIP’s power and flexibility is an object-oriented (OO) repository combined with an intuitive interface that allows users to create and store models as well as dynamically link these objects to a variety of business information – including documents, text, pictures, sound, and video. In addition, users can apply filters and rules to manage and analyze these objects using various techniques, ranging from spreadsheet-like Matrix Analysis and document formatting tools to SQL query facilities. Users can also export models and other information maintained in ENVISION’s repository to other productivity applications, such as word processors, report writers, presentation packages, spreadsheets, and databases. ENVISION also tightly integrates with other Windows programs like Excel, Notepad, Microsoft Project, and PowerPoint.

As a metamodeling tool, companies can configure ENVISION to suit their project requirements. Indeed, ENVISION’s strength lies in its adaptability to different business needs. Companies can model their organization using OO analysis and design methods, structured analysis, and design methods, or their own proprietary techniques. ENVISION’s customization capabilities are comprehensive, enabling organizations to develop their own data repository, data interfaces, queries, and data matrices. Users can also directly publish sophisticated documents or generate Web sites based on modeling and other information maintained in ENVISION.

With the addition of an optional simulation module, ENVISION supports time and motion studies for process models and evaluations.

As an information/knowledge integration environment, ENVISION functions as a model-based enterprise information portal (EIP) to an organization. It facilitates the integration of virtually any type of existing information and knowledge, whether already modeled in existing tools or contained in different documents, applications, or databases. As a result, ENVISION can be used to make stunning, yet easy-to-understand presentations to project stakeholders at all levels – from executives and managers to business analysts and IT personnel.

The typical ENVISION user is a consultant or corporate analyst. They use ENVISION for a range of projects including

- Business process management and improvement

- Enterprise architecture
- Enterprise risk management
- IT asset management
- Requirements management and tracking
- Organizations, systems, and procedures modeling
- Data modeling
- Network modeling
- Document management
- Graphical information/knowledge management systems
- Systems analysis and design
- Model based training

Table 1, Overview of ENVISION VIP

ENVISION VIP	Agile enterprise modeling tool and knowledge integration environment that is highly configurable to support a wide range of modeling methods and notations; also serves as a model-based EIP for integrating disparate corporate knowledge and information. Features an OO repository and intuitive GUI tools for creating, storing, accessing, searching, and publishing models and associated information used for BPM, enterprise architecture, risk management, systems analysis, and a range of other projects and applications.
Repository	Supports development and maintenance of business models using the OO paradigm. Designed from the ground up to support team/workgroup development and interaction. Features check-in/check-out facilities for model management and security.
Simulation	Optional animation/simulation plug-in for conducting time and motion studies and for identifying critical paths. Features VCR-like controls that allow an analyst to define and animate a sequence of processes on a diagram to study the effects of various scenarios through the process sequences defined.
Pre-built Models & Templates	Supports numerous existing frameworks including Zachman, the Rational Unified Process (RUP), Process Renewal Group, DODAF, TOGAF, and several SOA frameworks. Domain specific models have been developed for several industry areas, including Manufacturing, Retail Sales, Health Care, Financial, and Government. Sarbanes-Oxley support has been developed and can be made available across a series of industries. Training includes customization of a typical set of templates for a given customer interest area.

2. Product Architecture

2.1. Architecture Overview

Figure 1 provides an overview of the ENVISION architecture. ENVISION operates in the Windows environment. Future Tech Systems, Inc. designed ENVISION to work both as a stand-alone or LAN-based client-server application. ENVISION supports single and multiple concurrent users and ships with an OO repository that runs on either a PC or server. The ENVISION repository supports the development and maintenance of all types of business models.

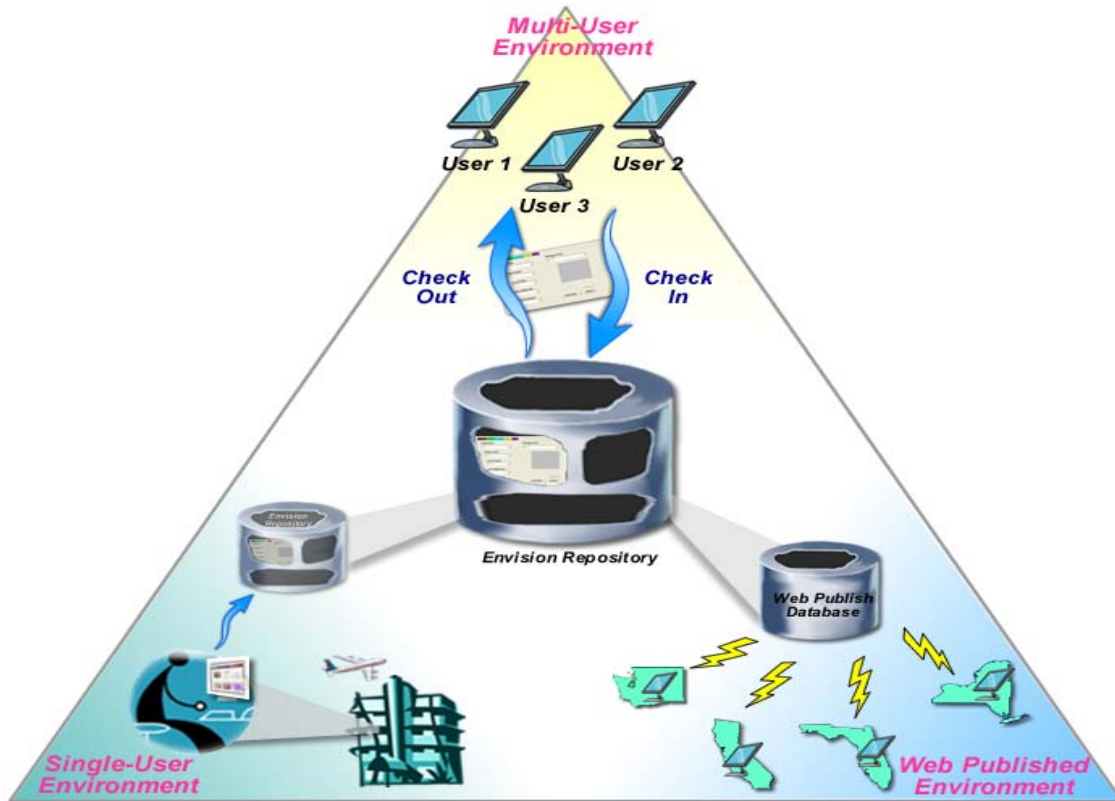


Figure 1. Overview of ENVISION VIP Architecture

Powerful import and export capabilities, including extensive XML capabilities, coupled with persistent check-in/check-out capabilities support the control and sharing of information within and between various stakeholder workgroups and classes of users. The repository provides attribute level security settings to expose or hide various classes of information to/from various stakeholder groups.

- Automatic website generation is provided in addition to unlimited customized reporting capabilities. Different websites can be generated to support differing stakeholder groups and expose differing levels of detail.
- The highly adaptable ENVISION repository readily captures and presents all types of enterprise information. Stakeholder interests can be easily accommodated and directly linked to canonical repository data objects. Presentation of the information can be customized to facilitate communication with various stakeholder groups.
- Existing data such as Access database tables, Excel spreadsheets, and Word documents can literally be dragged and dropped into Envision. Classes, attributes, and instance objects are automatically created and added to the repository by simply dropping them into Envision.

Figure 2 shows the ease of customizing and creating your own custom enterprise or business view.

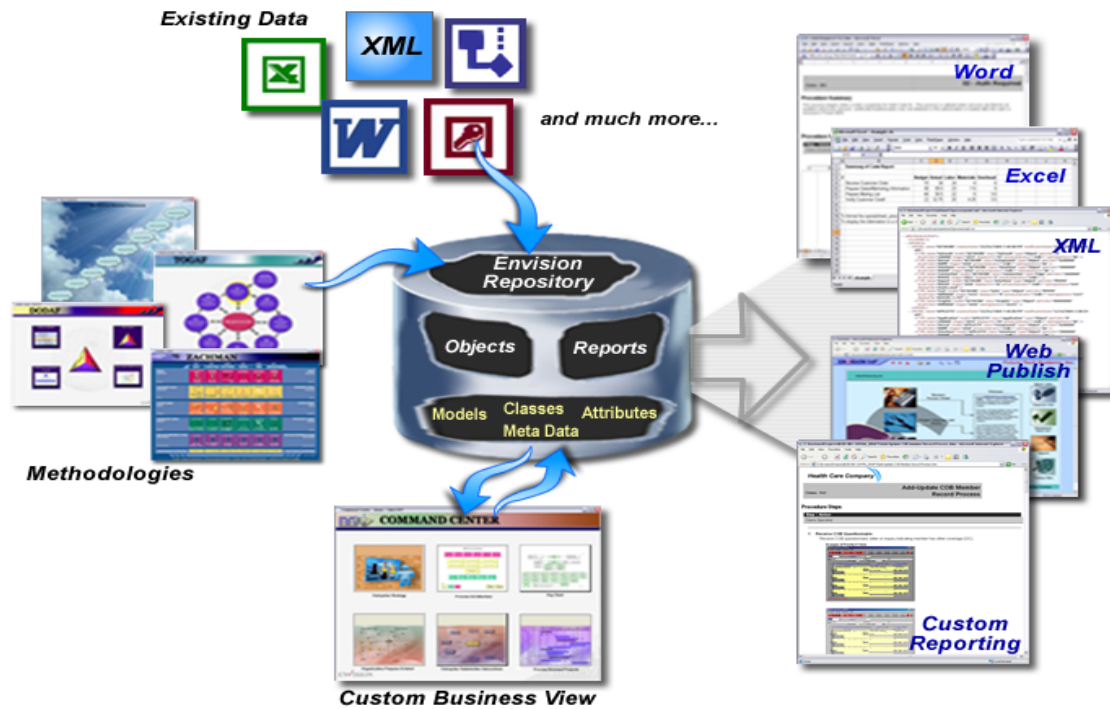


Figure 2. Overview of the ENVISION Repository

2.2. Usability and User Interface

Figure 3 gives an example of the ENVISION GUI. In addition to providing standard Windows GUI components – tool bars, menus, and accelerator keys for rapid access to functions – the tool’s interface makes use of colors and fonts to indicate the status of on-screen items as well as work in progress (e.g., check-out models, etc.)

Diagramming and data entry is simple and intuitive. Creating diagrams, for example, resembles creating a PowerPoint presentation; however, users are provided with vastly more functionality. For example, users can draw an unlimited number of diagrams and easily transverse between diagrams (i.e., parent to child diagrams or peer-to-peer diagrams). Users can also draw an unlimited number of objects and connectors on a diagram using drag-and-drop techniques or mouse/touch pad drawing techniques. And users can access multiple items and diagrams at the same time.

ENVISION supports configurable views. Users can adjust the diagram view (zoom in, zoom out, and reset full view, etc.) as well as move the window view using scroll bars and drag window features.

ENVISION provides considerable capabilities for creating, maintaining, and associating objects. For example, you can duplicate any object with or without its attributes, name an object or connector using a new or established name, rename any object or connector individually or globally, and access an object’s or connector’s specification sheets through a diagram. Users can also move individual objects and connectors as well as groups of objects within a diagram, without losing any connections, as well as change the visual appearance of any object to any drawable object or picture.

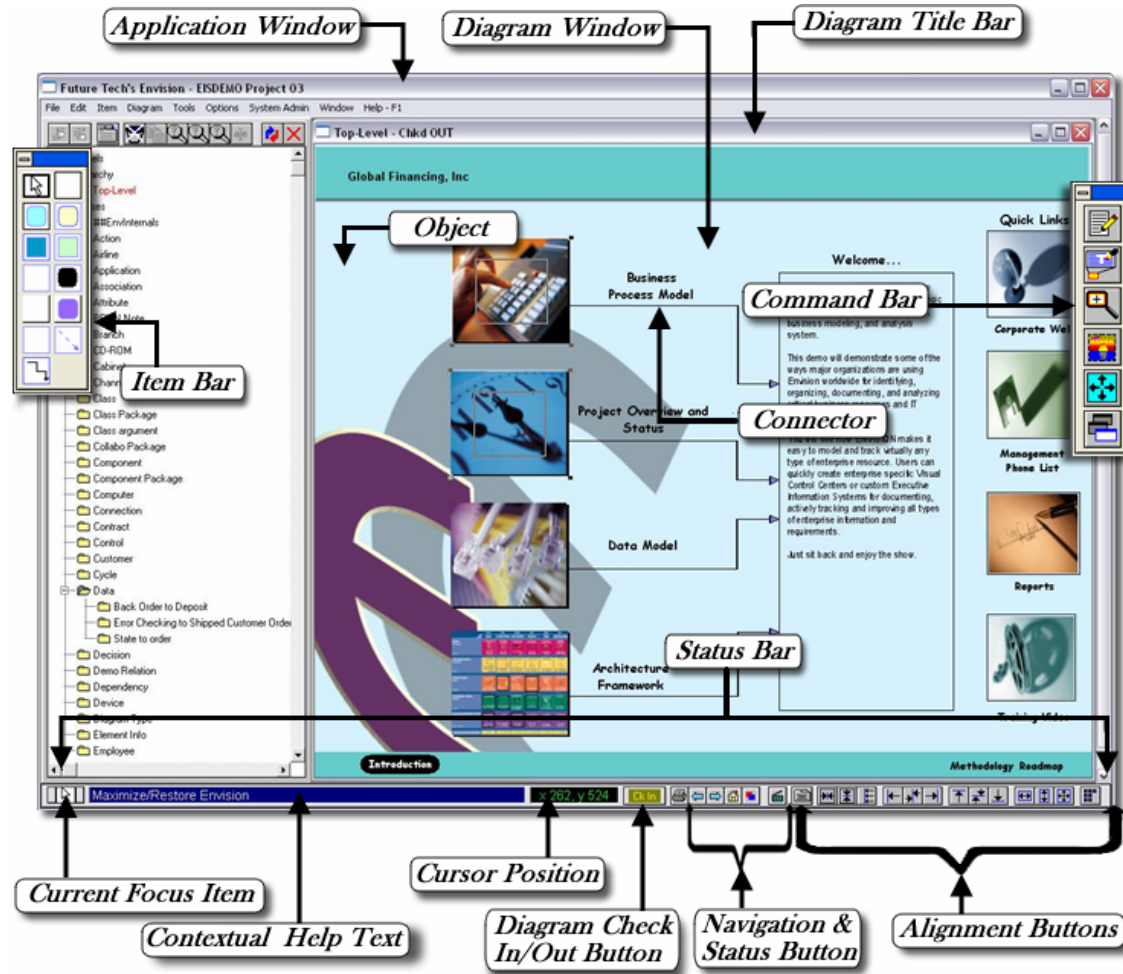


Figure 3. ENVISION GUI

ENVISION also provides built-in functionality for creating and maintaining documents. For example, support is provided for locking and unlocking a diagram to make changes and to prevent other users from changing the diagram at the same time.

Print capabilities are considerable as well. Users can print an individual diagram, a group of diagrams, or all diagrams. In addition, ENVISION automatically scales to the paper size and to print over multiple pages. All information maintained in the ENVISION repository can be published to the Web with a minimum of effort.

ENVISION features a sophisticated internal RTF text editor. The text editor facilitates direct linkages between items and attributes in the data repository and any other textual documentation. The links enable global name changes or attribute value changes. The name or attribute value changes are instantaneous and can be global for all diagram and textual references. In addition, the linked items act as a hypertext type link to the repository properties for the linked item. The RTF features include support for embedded tables, charts, lists, graphics and all types of font and formatting options. A spell checker built in real-time is also included.

2.3.Repository Options/Team Development

Figure 4 provides an overview of the ENVISION repository, based on the OO paradigm (i.e., object/class/attribute/inheritance concept), which supports development and maintenance of business models. The repository is key to allowing ENVISION users to create, view, and manage a

wide diversity of business objects such as resources, goals, procedures, projects, tasks, and other relevant data. Once an object has been defined it (and its associated information) is maintained in the repository where it can be used and reused by multiple models in many contexts and across different projects. In short, the repository maintains all artifacts associated with a project, including objects, attributes, diagrams, metadata, spec sheets, queries, matrices, and reports. In this manner, ENVISION can support different project stakeholder views (executive, manager, analyst, IT, etc.), which all link to the same, common underlying models and data.

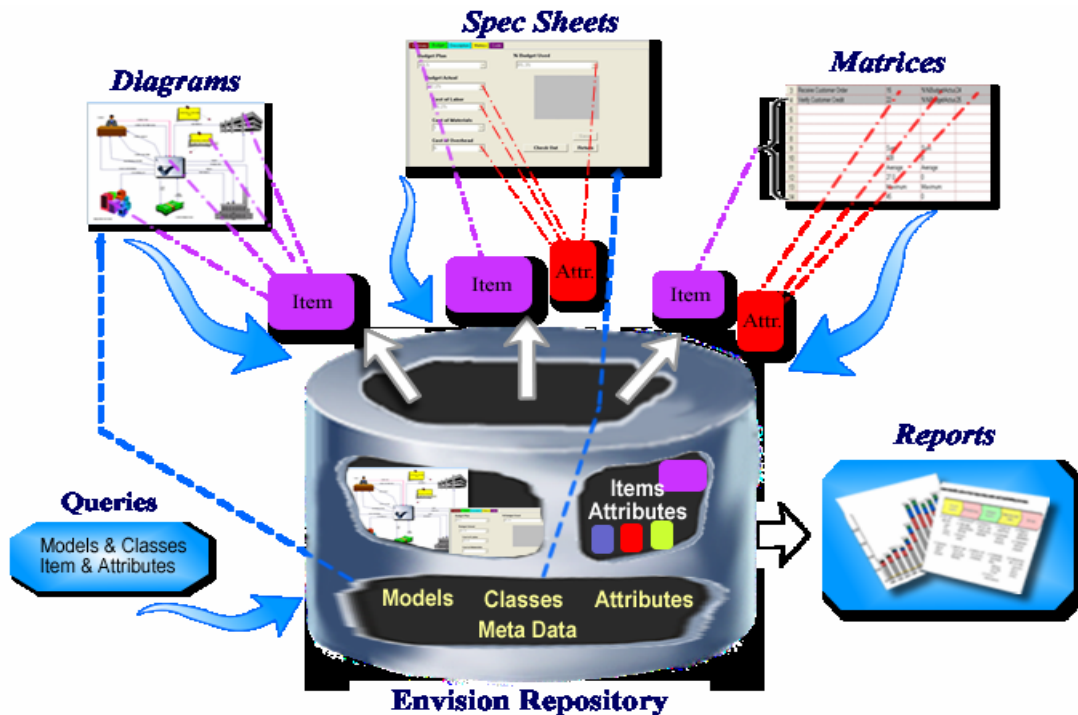


Figure 4. The ENVISION Repository

The ENVISION repository supports multi-user team development and features a multi-user Check-Out/Check-In facility. One and only one user can make changes for an individual item in the repository at any one instance in time. However, all other users can freely access the latest “published” view of that same item while another user is modifying it.

Intuitive visual clues show that items are checked out, and just a mouse click will tell you who has it checked out (checked-out objects have black labels; no background label color implies objects are not checked out, etc.). This check-out status is persistent across user sessions, and work in process does not have to be published before it is ready. This facility also has the added feature that when one is done working on a “checked out” item the user has the option to Save or Discard the changes. This simple yet elegant check-out mechanism helps to avoid many of the pitfalls common to other systems where managing models can cause database corruption when multiple users vie for access to common database objects.

ENVISION’S check-out status is also available to use in all forms of reporting.

2.4.Integration with Other Products

ENVISION offers a number of features that support interoperability with other products along with the use of standard import/export formats.

ENVISION can reference almost any existing modeling tools and methods companies may already be using in house as well as access information from diverse sources. In effect, it allows

“encapsulation” of other development and productivity tools under a common interface. For example, ENVISION can execute with passed parameters, other Windows programs including Excel, Notepad, Microsoft Project, and PowerPoint (Figure 5). This includes the ability to attach existing word processing documents or almost any other type of Windows document, video, or picture, to items in the ENVISION repository. This is an important feature because many companies’ current documentation is in the form of word processor documents, Excel files, or simple modeling/drawing programs like Visio.

ENVISION provides an XML import export facility together with other “Smart Import/Paste” capabilities to facilitate exchanging of data. The “Smart Pasting” capabilities enable the dragging of information from external sources directly into the ENVISION repository. Classes and attributes can be automatically created from existing spreadsheets, word processors, or database systems. For example, Visio diagrams can be automatically inserted into ENVISION. The resulting diagrams together with their associated metadata are all brought in and incorporated into the appropriate objects in the ENVISION repository.

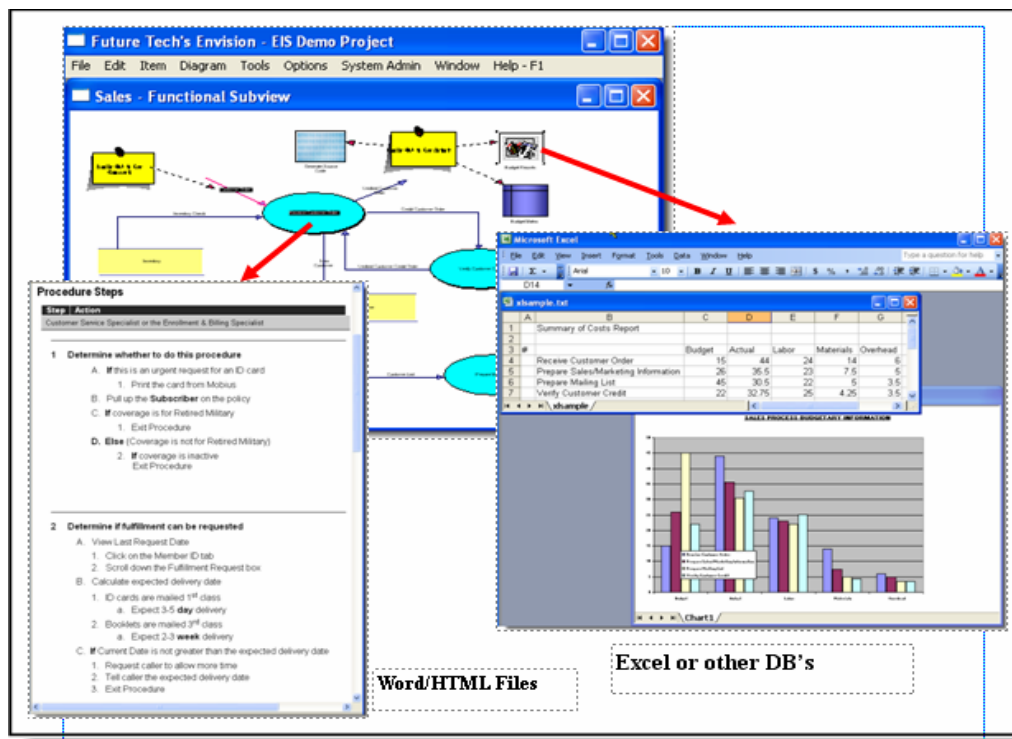


Figure 5. ENVISION integrates tightly with a wide range of tools, applications, and databases.

3. Analysis and Process Modeling

ENVISION supports standard techniques like BPMN and UML for business process modeling and analysis; however, it is important to understand that ENVISION is an agile Object Oriented (OO) modeling tool that can be extended to support a considerable range of modeling methods and frameworks. In fact, the real beauty of ENVISION lies in the ability to easily customize its OO metamodels.

When a company purchases ENVISION, Future-Tech typically works with the customer (through consulting and training sessions) to customize the tool in order to develop a highly tailored solution designed to fit the organization’s specific needs.

As a highly agile tool, ENVISION provides the ability to rapidly adapt to a project team's changing needs as a project progresses through its lifecycle. The team can invent new models, add new modeling objects to existing models, and change and refine documentation and modeling techniques on the fly. Teams do not have to redesign databases or resort to programming to make changes to their documentation and modeling approaches.

In short, ENVISION provides the ability to

- Add, delete, or modify the objects and connectors that can be used in a project
- Classify and group items
- Add, delete, or modify item attributes
- Define attributes (which can be defined as fixed length, pick list, textual RTF, link, relationship, executable, date and time, template, subviews, or specification sheets)
- Provide inheritance of attributes between similar items
- Define rules for items
- Modify the appearance of an item
- Create custom GUIs for item specification sheets without any coding
- Add custom context sensitive help text to Item specification sheets
- Create any number of relationships between objects (peer to peer and parent to child)

ENVISION provides various tools and facilities to create, access, and change items and diagrams quickly.

Direct Access through Diagram Objects

Diagrams, like road maps, make it easy for the user to navigate through very complex systems and trace requirements from the business requirements to the implementation. The Diagram Picker shown in Figure 6 lets you view diagram thumbnails in their appropriate hierarchy. Double clicking on a thumbnail opens a diagram in a separate window. You can also jump between diagrams or view them concurrently in multiple windows.

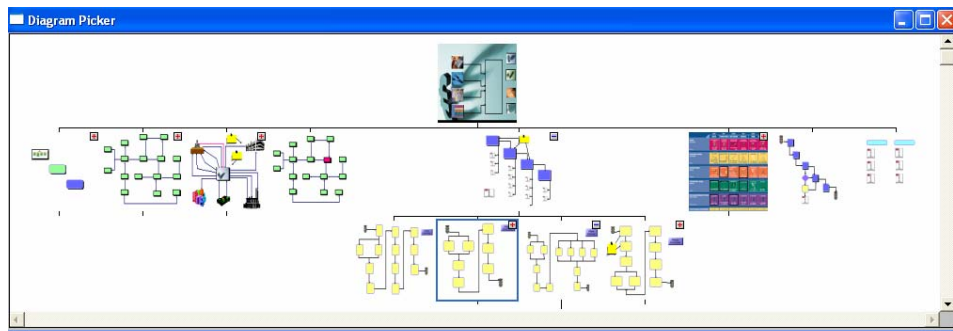


Figure 6. Diagram picker roadmap

Access through a Repository Browser

The browser provides the ability to look at the repository and access repository items in a manner that is similar to using Window Explorer folders and documents (Figure 7). In addition to being able to view all repository items in a structured directory tree, you can view all references of an item throughout a project as well as make changes to items.

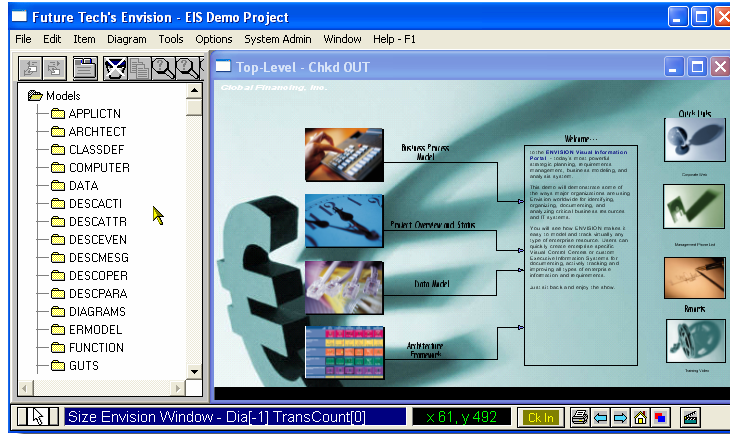


Figure 7. ENVISION repository browser

Spreadsheet-like Matrix

The Matrix is a feature – similar to a spreadsheet in functionality – for querying, filtering, sorting, entering, displaying, and accessing repository information. Matrices provide a clear, easy-to-use method for compiling data from the repository (Figure 8). Matrices can also be used to perform analysis and for data entry.

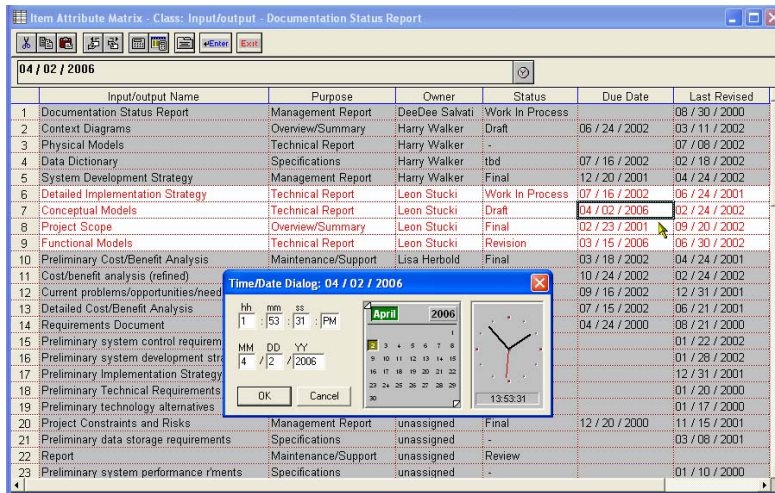


Figure 8. Spreadsheet like Matrix for accessing ENVISION repository

Repository Query

This facility allows users to quickly query repository items. When using repository query tools or matrices, the user can filter out items based on the item's class, type, unique ID, and other item's attribute values (Figure 9).

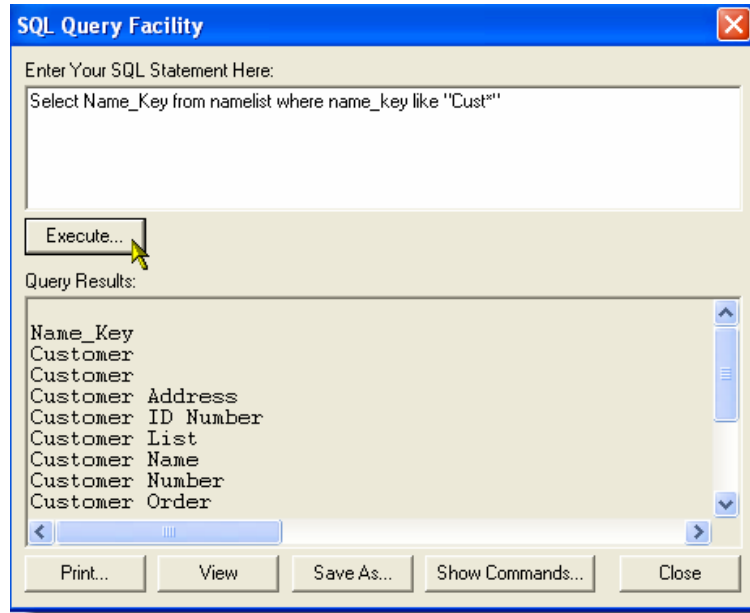


Figure 9. Repository query facility

3.1. Enterprise and Organization Models

ENVISION provides a powerful modeling environment that can be used for a variety of enterprise architecture projects including process, systems, technology, information, data networks, and services.

Enterprise Architecture Models

Because ENVISION is based on a metamodel approach, end-user organizations can customize the tool to support different enterprise architecture models and methodologies – either standard approaches (BPMN, UML, etc.) or their own.

Any object within an ENVISION diagram can have an unlimited number of subviews. This provides users with the ability to create numerous layers within an enterprise model. In addition, different views can be created for different disciplines, such as executive, IT, marketing, accounting, traders, legal, etc. (For more on creating and managing subviews, see Section 3.3).

Organization Models

ENVISION provides the ability to model organizations by providing a high-level overview of facilities all the way down to people, equipment, etc., and the roles they play in the organization. All organizational diagrams can be linked to an unlimited number of subviews as well as to specification sheets (spec sheets or property sheets) that provide further information. In addition, ENVISION provides special support for creating org charts in the form of an “org-chart insertion mode” whereas diagrams will automatically position themselves correctly – including their connections to other diagrams and objects – on screen.

Resource and Cost Modeling

ENVISION provides techniques for modeling resource categories such as equipment, systems, people, roles, salaries, consumables, facilities, services, organizations, and so on. These include spider and other diagrams that can be linked to spec sheets as well as other documentation (e.g., reports, manuals, etc.), pictures, and other files to provide further supporting information.

ENVISION provides capabilities to create metrics, such as cost, identify various risk factors, performance, throughput and elapsed time between start and finish dates, for tracking and reporting.

It uses computational attributes to accomplish this. There are no restrictions on the number of calculated attributes you can define.

Users can also apply calculations to modeling diagrams at the individual object level or in the form of matrices. As an example, spider diagrams could be used to model relationships between resources, requirements, and equipment, and so on. Clicking on a resources plan diagram that is tied to an equipment list could bring up the associated data from a Matrix Analysis spreadsheet or spec sheet showing cost, etc., for each piece of equipment used at a particular manufacturing site, base, or other location. Figure 10 shows an example of a Matrix Analysis, which, among other things, offers detailed Cost/Benefits Analysis information to users.

Once again, ENVISION is also extensible, allowing users to define their own stereotypes for diagram styles, user-defined properties, and more for modeling resource categories such as costs of processes, salaries, equipment required, and so on.

ID	Name	Purpose	Owner	Status	Due Date	Last Revised	File Name	Doc Template
1	Conceptual Models	Technical Report	Leon Stucks	Draft	04 / 02 / 2006	02 / 24 / 2002	intro ppt	Doc Template
2	Context Diagrams	Overview/Summary	Mary Ann	Draft	06 / 24 / 2002	03 / 11 / 2002	context.pdf	context.doc
3	Cost/Benefit analysis (refined)	Management Report	Lisa Herbold	Review	10 / 24 / 2002	02 / 24 / 2002		
4	Current problems/opportunities/needs	Maintenance/Support	Lisa Herbold	Revision	09 / 16 / 2002	12 / 31 / 2001		
5	Data Dictionary	Specifications	Harry Walker	tbd	07 / 16 / 2002	02 / 18 / 2002	datadict.pdf	datadict.doc
6	Detailed Cost/Benefit Analysis	Management Report	Lisa Herbold	tbd	07 / 15 / 2002	06 / 21 / 2001		
7	Detailed Implementation Strategy	Technical Report	Leon Stucks	Work In Process	07 / 16 / 2002	06 / 24 / 2001		
8	Documentation Status Report	Management Report	DeeDee Salvati	Work In Process		08 / 30 / 2000	DocsList.mcr	
9	Functional Models	Technical Report	Leon Stucks	Revision	03 / 15 / 2006	06 / 30 / 2002		
10	Physical Models	Technical Report	Harry Walker	-		07 / 08 / 2002		
11	Preliminary Cost/Benefit Analysis	Maintenance/Support	Lisa Herbold	Final	03 / 18 / 2002	04 / 24 / 2001		
12	Preliminary data storage requirements	Specifications	unassigned	-		03 / 08 / 2001		
13	Preliminary HW/SW/Network requirements	Specifications	unassigned	-		12 / 31 / 2001		
14	Preliminary Implementation Strategy	Technical Report	unassigned	-		12 / 31 / 2001		
15	Preliminary system control requirements	Specifications	unassigned	-		01 / 22 / 2002		
16	Preliminary system development strategy	Technical Report	unassigned	-		01 / 26 / 2002		
17	Preliminary system performance r/ments	Specifications	unassigned	-		01 / 10 / 2000		
18	Preliminary Technical Requirements	Technical Report	unassigned	-		01 / 20 / 2000		
19	Preliminary technology alternatives	Technical Report	unassigned	-		01 / 17 / 2000		
20	Project Constraints and Risks	Management Report	unassigned	Final	12 / 20 / 2000	11 / 15 / 2001		
21	Project Scope	Overview/Summary	Leon Stucks	Final	02 / 23 / 2001	09 / 20 / 2002	C:\ES\Envsndb\Process Model	
22	Report	Maintenance/Support	unassigned	Review			C:\ES\Envsndb\	
23	Requirements Document	Specifications	Terry Straeter	Final	04 / 24 / 2000	08 / 21 / 2000		
24	Selected system implementation solution	Technical Report	unassigned	-		10 / 23 / 2001		
25	System Development Strategy	Management Report	Harry Walker	Final	12 / 20 / 2001	04 / 24 / 2002		
26	System mission and business objectives	Management Report	unassigned	Final	06 / 21 / 2000	02 / 21 / 2003		
27	Test Context Diagrams	Overview/Summary	Harry Walker	Draft	06 / 24 / 2002	03 / 11 / 2002		context.doc

Figure 10. ENVISION Matrix Analysis

Mapping Organization Strategies to Performance Measures

ENVISION’s modeling capabilities are well suited for documenting performance strategies and goals and for associating performance strategies and goals to a process activity. ENVISION can be used to document

- Principle stakeholders (and what they are concerned with)
- Mission, objectives, and goals
- Key performance indicators (KPIs)
- Critical success factors/issues
- Trace success factors (e.g., relationship of goals to activities, or systems to roles, etc.)

In addition, diagrams representing organizational strategies and performance measures can be linked with other diagrams (and supporting documents) that represent the associated systems, managers, etc., required (responsible) to achieve an objective or goal. For example, the goal “Increase Repeat Business” could be linked to “Increase Customer Satisfaction.”

Managing Process Portfolios

ENVISION provides various model management facilities that can be used to manage processes and process portfolios. These include facilities for accessing, navigating, querying, filtering, and publishing process modeling and associated information maintained in the ENVISION repository, as discussed in more detail in Section 3 under Analysis and Process Modeling.

ENVISION also provides project management capabilities. Using the various repository browsers, you can explore the status of a project and create any level of reports you want. ENVISION also works with third-party project management tools like Microsoft Project.

3.2. Defining Processes

Defining Processes

As noted previously, ENVISION can be customized to support a wide range of modeling methods and frameworks, or you can use standard techniques like BPMN and UML activity diagrams. In addition, users can also combine more than one method within a model. This allows users to visualize and communicate business processes and systems at the level of detail best suited to their audience and modeling goals.

Process Information Storage and Integrity

ENVISION provides model/process consistency through its pre-defined modeling languages, which include controls for enforcing model and object behavior. In addition, the ENVISION repository provides various mechanisms to support and enforce model/process integrity. These are discussed in Sections 2.3 (Repository Options/Team Development) and 9 (Systems Administration and Security).

ENVISION supports real-time diagram rule checking and provides real-time spell checking for RTF attributes very similar to MS Word. User specific terms can be easily added to the dictionaries also on the fly.

The Envision modeling philosophy can be summed up as “The best way to eliminate modeling errors is to avoid allowing them to be entered in the first place!”

Also unique to ENVISION is a “container reference capability” that easily finds and associates common terms from any entered or imported text with their underlying formal definitions in the repository. This allows direct linkage to basic repository definitions from embedded textual references as well as diagrams and matrices.

Graphical Notations

Using ENVISION, companies can tailor any graphical notation to meet their needs or use standard notations such as BPMN or UML. Users can also include their own custom shapes, clip art, and video clips to enhance models and support high-quality presentations.

3.3. Subprocesses and Activities

Handling Subprocesses and Activities

There is no limit to the amount or type of information ENVISION can capture. ENVISION is fully customizable by project. In addition, each item you capture can be related to other items in your repository through subviews or connections providing full traceability. There is no limit on the number of subviews that can be created. Rules governing the behavior of subviews can be defined by the ENVISION system administrator and are therefore specific to the organization.

Defining Activities

ENVISION allows detailed information to be associated with the activities that are performed in the context of processes and process areas.

Various techniques can be use to support such associations, including

- The ability to link related items (internal or external) to a model. This can include documentation (e.g., reports, procedures, policies, training aids, etc.) and access to supporting systems.
- User-defined property groups can be associated with individual activities and classes of activities to provide information relating to resource consumption, activity duration, cost, capability requirements, and so on.
- Activities can be related to data structures, such as business document definitions and supporting system interface definitions, to assist in data flow, forms design, and requirements specifications, etc.

Documenting Decision Rules

Decision rules are documented in spec sheets, which are used to codify specific rules.

Rules Entry

Rules are stored as text within spec sheets, which in turn are stored in the ENVISION database/repository.

Activity Costs, Resources, and Time Data

Any type of information such as cost, resource, risk, and time data can be collected and stored at any level and accumulated from lower levels to the top level. In addition, information can be captured at a global or individual item level.

3.4.Simulation

Simulation Capabilities

Future Tech offers an optional animation/simulation plug-in tool that can be used with ENVISION to perform time and motion studies and identify critical paths. The Simulation plug-in allows an analyst to animate a sequence of processes on a diagram to study the effects of various scenarios through the process sequences defined. A series of “Pre-Conditions, Actions, and Post-Conditions” are defined for each process on a diagram via a set of associated tables. Various cases, visual tokens, and behaviors can be defined with appropriate distributions given for their relative frequency of occurrence. The simulation model will then run the simulation for the desired time period, and various reports are available for analysis and subsequent study. Figure 11 shows an ENVISION workflow design simulation and analysis running in simulation mode.

Analytic Capabilities

Matrix analysis is available to study the observed behavior and identify various critical processes and sequences of behavior. The data can be sorted in various ways to investigate and identify various areas of concern and interest. Again referring to Figure 11, a visualization/animation of the simulation shows tokens moving between the various processes. A VCR type set of controls provides a very easy to use user interface for controlling the simulations. Critical path analysis reporting features are available whenever the simulation is paused and stopped. Valuable data, including the identification of duplication of effort or diagnosing the length of a process, can be discovered through a simulation.

Real-time Data Utilization

Envision allows for service time data to be provided in the form of a file of hypothetical or actual values. These actual or hypothetical process time points allow ENVISION to simulate any type of distribution desired or actual past historical behavior.

Currently the simulation is driven from individual sets of data. Future versions will add access to real-time data feeds.

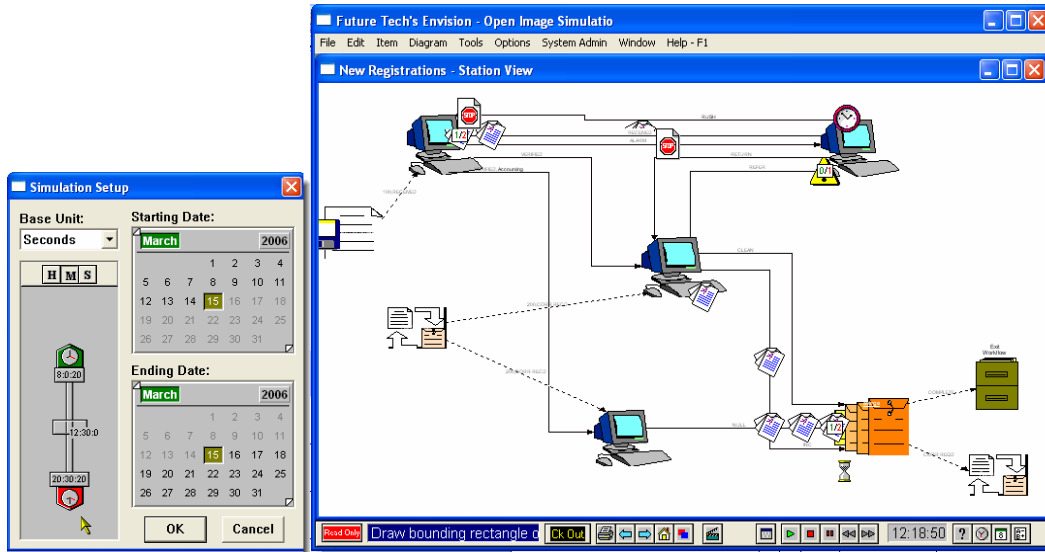


Figure 11. ENVISION simulation plug-in option

Model Distribution and Simulation on Enterprise Networks

Users can run and display ENVISION simulations over a network for viewing by different stakeholders. The dynamic movement of the various simulation “tokens” may be somewhat jumpy over the web or LAN. However, the simulation can be paused at any point of time and easily examined by all to identify any observed bottlenecks and look at the history of service times and dead time associated with the various activities being simulated. The critical path analysis can also be incrementally observed as the simulation progresses.

Statistical Fit/Data Analysis

Information and data captured during simulation can be exported to Excel and other programs to perform further statistical analysis.

Capture and Reporting of Simulated Metrics

Simulation data is captured and presented as a spreadsheet Matrix. Data can also be exported to Excel and other programs.

4. Business Process Methodologies

4.1. Business Process Methodologies

ENVISION was developed to accommodate different types of methodologies and modeling approaches, including Zachman, TOGAF, DODAF, FEA, SAD, and OOD UML (Figure 12). Its metamodeling capabilities provide the ability to evolve modeling methods beyond current standards and to adapt to new approaches. Users also have the ability to mix and match documentation approaches and to develop their own if desired.

ENVISION supports virtually any current or future methodology, including object-oriented analysis and design (OOA&D), service oriented, and structured analysis and design. ENVISION models are available for many different frameworks and environments including these techniques.

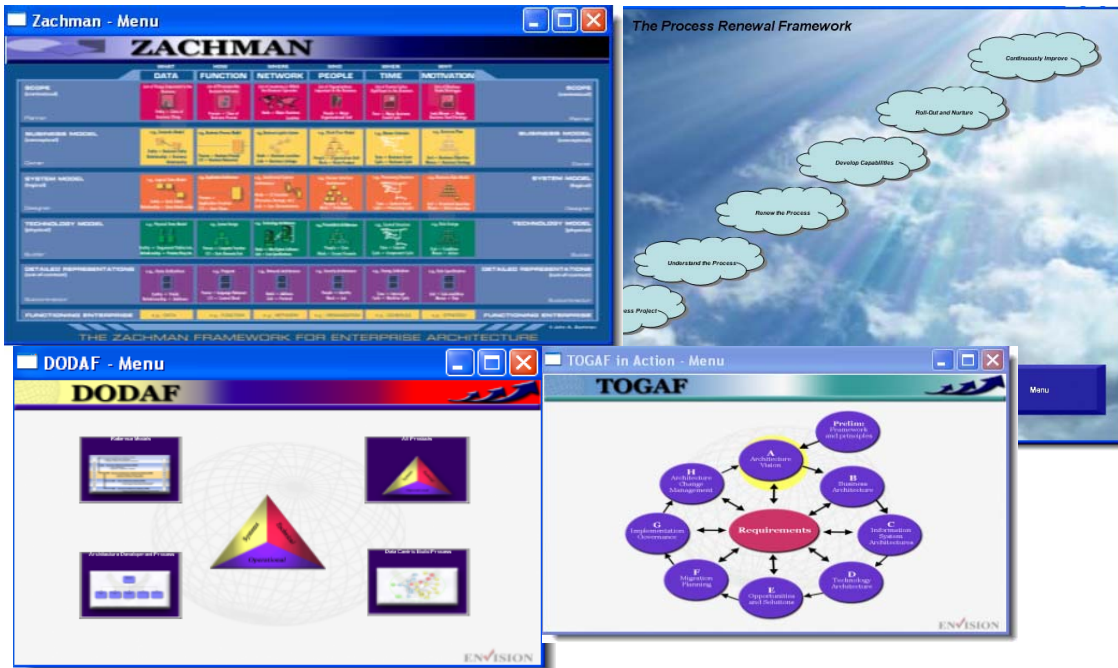


Figure 12. ENVISION can be configured to support a wide variety of modeling methodologies and frameworks.

4.2. Six Sigma Support

ENVISION is built upon the premise and structure of “projects,” which is a key supporting factor for any Six Sigma initiative. ENVISION is particularly suited for implementing the DMAIC

(Define-Measure-Analyze-Improve-Control) methodology of Six Sigma and provides multiple mechanisms to provide the Report step that completes this methodology. However, out of the box, ENVISION currently has no specifically predefined templates for Six Sigma.

5. Report Generation and Document Management

ENVISION’s document generation and management facilities let users create, save, and re-run any type of report, including status/progress reports. In addition, ENVISION’s Matrix Analysis facility provides the ability to create, save, and re-run any type of matrices, including status/progress reports. It also provides various import and export capabilities, including XML import/export features for both data and metamodel information.

ENVISION’s report generation and document management capabilities include the ability to

- Develop custom templates for layout of report items and their attributes (properties)
- Design large documents that contain such things as parts, chapters, and subchapters
- Add headers and footers with logos and other graphics
- Control the order in which items appear in a document by sorting on an item’s attribute
- Publish final documents directly, or in HTML for passing on to Word or other final documentation programs; with proper template setup, Tables of Contents and Index sections can also be added

ENVISION lets users send any report or query to a printer, a file, word processor, spread sheet, or literally any other existing target program. It also features the ability to print or export any part or all of a report. In addition, ENVISION works with Acrobat or any other PDF generation program to produce complex PDF documentation for reporting or inter/intranet publishing of models and reports.

ENVISION's Web publishing feature allows users to publish models and their associated information (diagrams, item data, reports, matrices, etc.) to the web using a "Save as Web Page" feature. This allows users to create fully linked, read-only web content. Online users are able to view and traverse all diagrams. And diagram behavior is similar to that of the native ENVISION environment. Double click behavior and linkages are supported, as well as reports, matrices, and selected "right-button" mouse operations.

An add-on option is also available to enhance ENVISION's standard Web publishing capabilities. This option, in the form of a Web plug-in, allows online users to use the data browser to locate and view diagrams, items by class, matrices, and documents. It also allows access to all published diagrams, item properties, matrices, documents, and linked associations. Finally, it provides a search feature for the quick look up of items, item references on diagrams, and contextual keyword searches of diagrams, items, and requirements.

For an example of ENVISION's Web publishing capabilities visit

<http://www.infomgtsolutions.com/EISDemo/envision-index-t.html> . This project combines facets of the Zachman framework along with the Rational Unified Process. It also demonstrates some of the many modeling capabilities available in ENVISION.

6. Development Environment

6.1. Language of Tool

ENVISION is primarily written in C++ and is built using Microsoft Visual Studio .NET. Future Tech Systems uses source code control to track all changes. A number of newer capabilities are being developed using the C# .NET environment and SQL Server. Selective additional reporting capabilities use other development technologies including Visual Basic, HTML, Java, J-Script, and Adobe / Macromedia Flash.

ENVISION is designed to be interoperable with virtually any existing or future reporting programs or data sources, and XML capabilities facilitate interoperability with virtually any other data source.

Finally, specialty import capabilities have been built to directly load existing data from specific accounting programs, SQL databases, and other programs including Visio.

6.2. Product Support, Maintenance, and New Versions

Future Tech Systems provides maintenance on an ongoing basis. Customers under maintenance receive normal updates as well as expedited updates for any problems they might encounter. Major new versions are normally released on an 18-month to 24-month schedule. Minor updates and enhancements are provided more often, and often in direct response to existing customer needs and requests. New versions are made available to the central support organization at our customers; they, in turn, determine the frequency of the end user rollouts.

7. Software Modeling and Code Generation

Bi-directional UML to C++ and Java code generation capabilities are available through a partner [CASE France – Paris France] of Future Tech Systems via an optional plug-in module.

Native ENVISION VIP code generation capabilities can also be used to generate other pseudo-code, code, and script output.

7.1.UML Model Generation

ENVISION supports the creation of UML models, including Class diagrams, Use Case diagrams, Context diagrams, Collaboration diagrams, Sequence diagrams, Activity diagrams, State/Transitions diagrams, and Deployment diagrams. The Envision UML->C++/Java plug-in generates code and running applications, using information from the Logical view (Class diagrams) – Components view – States/Transitions diagrams.

7.2.BPEL Generation

Although ENVISION has multiple generation capabilities, it does not presently support the BPEL specifications or generation capabilities.

8. Templates and Frameworks

ENVISION does not impose a single specific predefined framework or methodology but is designed as a multi-use modeling and visualization environment. As such, it provides numerous templates and frameworks for industry best practices and business domains. Support for industry frameworks include: Zachman enterprise architecture, Process Renewal Group, DODAF, TOGAF, and several Service Oriented Architecture (SOA) frameworks. ENVISION also provides domain specific models which have been developed for several industry areas, including Manufacturing, Retail Sales, Health Care Insurance, Financial Services, and various military systems.

Additionally, ENVISION provides Sarbanes-Oxley support that can be used in conjunction with any of the business domain models.

A powerful report generation capability is available to produce all types of highly customizable enterprise specific reports, documents, and interchange data feeds (including XML) to/from other enterprise systems, both current and future.

Envision UML->C++/Java support is available for a specific type of graphically based Design Patterns.

Training and initial consultation includes customization of a typical set of templates for a given customer interest area.

9. Systems Administration and Security

ENVISION system administrators have the ability to assign users as well as define their access rights based on a variety of criteria, including projects and security levels. Various levels of security controls are available, including user login if a project requires password protection.

No access to the ENVISION repository is allowed until specifically granted by the system administrator. ENVISION controls by project which users are allowed to read or write within a project. Users with “read only” privileges cannot make any changes to a project. Users and projects both have security level settings. Users without the proper security level cannot be assigned any access to projects with a security level beyond their own.

ENVISION provides for users that do have write privileges the ability to lock down individual fields depending on the user’s level of security; this includes hiding fields, and making fields read only.

ENVISION supports multiple user access using a locking mechanism that prevents more than one user from updating an item or diagram at the same time. All database updates are committed by transaction. If a power failure, hardware, or user error of any type should occur while in the middle

of a transaction, the database will not be damaged in any way. Incomplete transactions are not committed to the database. Thus, interrupted work sessions will not result in database corruption or loss of data.

Assigned systems administrators have the capability to manage and change models, add projects and users, and perform database maintenance. Models can be evolved throughout the life of a project.

10. Scalability

ENVISION was designed for large multi-stakeholder enterprise-level projects. It can support very large projects (i.e., store an almost unlimited number of repository items and their associated attributes). Repository items may include data dictionary definitions, screen items, field descriptions, process items, task items, function items, and planning document items.

ENVISION can also generate very large project documents with no limitation on the number of pages.

ENVISION provides a tiered level of access to project data, which also includes the ability to publish various internet/intranet versions of the project to various stakeholder audiences. Attribute level security controls with levels of detail are provided to the various stakeholder groups.

11. Platforms

ENVISION VIP runs on Windows platforms. It can operate stand-alone or as a LAN-based smart client-server application.

12. Pricing

ENVISION pricing varies based on the number of installed seats. The list price for a full single System Administration Version with Web Publishing capability is US \$8,000. The Web publishing capability included with the System Administration Version allows for unlimited access to the basic project(s) via the standard Internet Explorer.

The list price for a single Analyst Version is US \$6,000. Prices include the first 12 months of maintenance.

In-house training and solution development services are available for US \$2,000/day plus expenses.

An active web server with collaborative capabilities is also available for an additional charge.

Enterprise discounts are available.

13. Company, Product Positioning, and Support

13.1. Company Background Information

Future Tech was founded in 1985 by Dr. Leon Stucki. The company is privately funded and held and has no outstanding debt.

Future Tech customers include a number of US, Canadian, and European government agencies include the Social Security Administration, the US Navy, the Canadian Department of National Defense, and SNCF – the French Train System. Commercial customers include a number of large corporations in the health care, medical, manufacturing, transportation, banking, and retailing industries, including such well known names as Blue Cross Blue Shield, Varian Medical, Motorola, Best Buy, Olivetti, AT&T, J.P. Morgan/Chase Manhattan Bank, Nationwide Bank, and Manulife Financial.

13.2. Positioning

ENVISION is a metamodeling tool that can be configured to support a range of modeling and information/knowledge integration tasks, including

- Enterprise architecture modeling and analysis
- Compliance and risk
- Business performance improvement
- Requirements Management and Tracking
- IT asset modeling
- Business Procedure Documentation, Analysis, Control, and Publishing
- Human performance improvement initiatives
- IT support/systems requirements and fulfillment/software re-engineering
- Supply chain management

13.3. Product Training

Future Tech provides both onsite and offsite training. There are two tracks of training: End-user Training (three-days) and Systems Administration Training (five-days).

Initial training of end-users takes 2-3 days. Future Tech representatives estimate that it takes the non-technical user from one to two weeks to become fully productive.

Through a network of consulting companies, Future Tech can provide onsite and offsite training, consulting services, software and modeling customization, and software and model maintenance.

13.4. Business Process Consulting

Custom consulting and assistance in model development and enterprise solution development is available through both Future Tech Systems, Inc. and its affiliated partners. See section 15 below for some of the contacts.

14. Case Study: Health Care Provider Corporate Balancing Project

A major health-care provider has been using ENVISION for the last two and a half years. Future Tech consultants began working with them on a Corporate Balancing project aimed at attempting to document and reconcile the key processes and data models employed by three major corporate systems. This was subsequently followed by several more increasingly ambitious projects aimed at building an Enterprise Risk Management System, and actually building a procedure management system for an initial set of internal business procedures that is being used to support call center access to a new centrally controlled procedure knowledge base.

Each of the above-mentioned projects is increasingly larger in terms of the number of users involved. This particular organization has recently acquired an enterprise license and is exploring many new potential applications of this adaptable technology.

ENVISION VIP has also recently been selected to help manage the requirements for a new generation of trains by a major European country-owned transportation company. The intuitive presentation of the various models and support for multi-user access to this large body of information was key to the company selecting ENVISION for this project.

15. Company Office**Future Tech Systems, Inc.**

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