Yphise

Software Evaluation Process

SOFTWARE EVALUATION REPORT

UML modeling tools

EXECUTIVE SUMMARY

The EXECUTIVE SUMMARY is a component of the Yphise Software Evaluation Process. It condenses all the results of the corresponding DETAILED EVALUATION volume.

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FULL DETAILED REPORT
"UML Modeling Tools"

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Contents

Foreword

## Objective of the EXECUTIVE SUMMARY

This volume is a component of the Yphise Software Evaluation Process (see chapter Yphise Software Evaluation Reports).

It condenses all the results of the corresponding DETAILED EVALUATION volume. It provides the top/down ranking of the software products evaluated.

About the Charts

The charts in this volume aggregate all the results, criterion by criterion, established in the corresponding DETAILED EVALUATION volume.

- Sorted Aggregated Table. The products (lines) and chapters (columns) are both sorted so that the best notes appear at the top left as much as possible. This chart provides a ranking of the products in descending order from top to bottom, and a best-to-worst ranking of the chapters from left to right.

- Ranking chart. The best product on a dimension has the highest ranking.

  - This does not mean it is excellent. This is the reason the icon representing the note obtained by the best product is drawn at the end of each dimension.

  - An identical gap between products does not have the same significance for each dimension. On a dimension where the best application is average, a product can be ranked as being clearly better than another one just because it has a "little something" more.

- Strength and Weakness List.
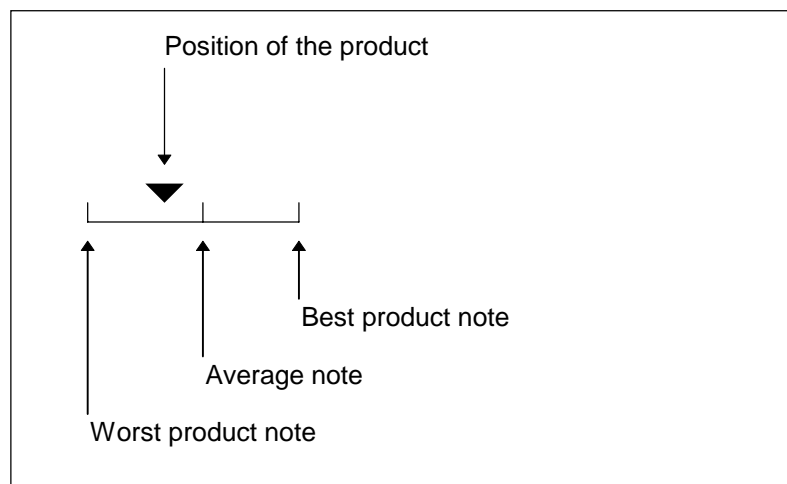
UML modeling tools

Object overview

UML as become a standard for modeling object applications, whatever the size of the development project. The application department must design models accurately matching the business requirements of users. Enterprises are tooled to develop applications, but, since the UML standard has now attained maturity, they can now adopt a modeling tool to increase the quality of application design and to improve modeling and development productivity.

A modeling tool helps designers master model quality, because it controls the homogeneity, coherence and consistency of models. The design team also requires a tool that is easy to adopt, in order to be productive and to be able to start projects more quickly. The design environment must be user-friendly and easy to configure, in order to adapt to the specific requirements and methods of the enterprise.

To be suitable for corporate projects involving numerous designers, the design tool must also be robust, secure and avoid conflicts. Quality and productivity are improved, as the tool retains information from one step to the next during the development cycle. This is possible thanks to integration with corporate tools and languages, and with functions allowing round-trip development and comprehensive documentation features. The UML modeling tool helps the enterprise identify its requirements and specify its applications accurately. It implements most UML concepts and may complement the standard to model additional requirements.

Evaluation dimensions

- Mastering the model quality. Controlling the homogeneity of the model by defining and checking the naming and notation rules. Maintaining model consistency by checking the impact on modifications and by applying the proper corrections. Checking model coherence in relation to the UML standard and providing simulation functions.

- Ease of adoption. User-friendliness of the design environment. Improving designer productivity. Facilitating environment customization. Incorporating scripting features. Easily incorporating existing code and components with reverse engineering.

- Managing teamwork efficiently. Securing modeling by managing users and privileges. Tool robustness in allowing concurrent access by several designers. Avoiding conflicts due to multiple use, by interfacing with configuration managers and locking the model.

- Retaining information from one step to another. Generating the languages used by the enterprise and interfacing with specification, development and testing tools. Adapting to round-trip development by synchronizing the code and the model. Generating comprehensive and accessible documentation.

- Modeling comprehensiveness. Respecting the UML standard in terms of diagrams and

concepts. Complementing the UML standard by introducing other types of modeling and allowing the metamodel extension.

Products evaluated

All the evaluated products allow UML modeling and implement UML diagrams. It is possible to distinguish three families of products, based on the type of repository and administration functions:

- Rational Rose and Objecteering rely on specific files in the file system. This facilitates specific administration functions, as privileges depend on the system security. This also eases integration with configuration managers. However, the use of configuration managers is strongly advised for these tools, as they do not integrate versioning.

- CoolJex, GD Pro, Select and Paradigm Plus rely on commercial databases. This means enhanced openness, to track activity, for example. It also implies the need for an administration tool to manage users, privileges, projects and the database. The quality of these tools varies from one product to another.

- Isoa relies on a proprietary repository, which limits its openness (although a Visual Basic API is provided). However, it provides the appropriate administration functions expected for corporate projects.
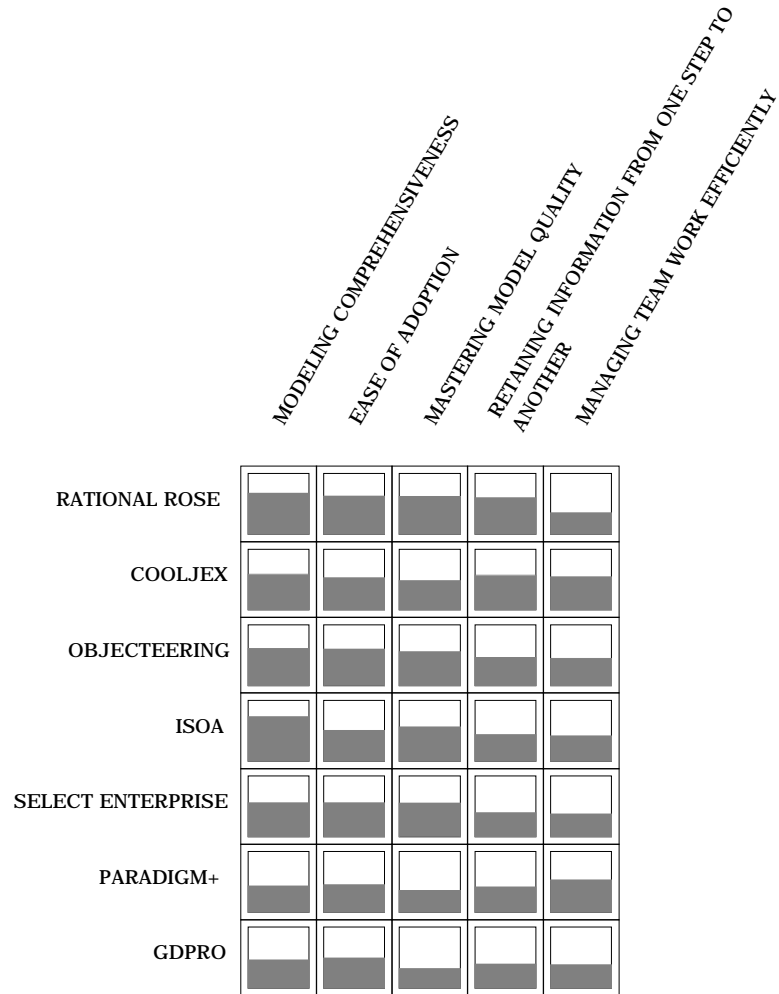
Another distinction can be made according customization.

- CoolJex, Isoa and Objecteering provide fairly graphic customization features. This means that these products are more suitable for a corporate use that federates modeling rules across projects, as they are easier to set up.

- Other tools also provide customization, but this requires more scripting. They should be used for projects with simple customization requirements.

Rational Rose and Select Enterprise are also suitable for technical modeling, as they incorporate simulation functions, while other products do not.

Yphise did not evaluate Rhapsody and STP, as these tools only target the UML modeling of technical applications (hardware).

UML modeling tools

	MODELING COMPREHENSIVENESS	EASE OF ADOPTION	MASTERING MODEL QUALITY	RETAINING INFORMATION FROM ONE STEP TO ANOTHER	MANAGING TEAM WORK EFFICIENTLY
RATIONAL ROSE					
COOLJEX					
OBJECTEERING					
ISOA					
SELECT ENTERPRISE					
PARADIGM+					
GDPRO					

Sorted Aggregated Table

Overall ranking

Comments on the overall ranking

- UML modeling tool maturity is good. Most areas of UML modeling are covered, and the user-friendliness is convenient. There are still some lacks in terms of quality controls, but UML modeling tools are valuable for operational projects.

- The first four products provide more comprehensive features and are suitable for corporate projects. The last three products lack maturity on certain points such as quality control or user-friendliness, which explains their ranking. The difference between both groups is marked. GD Pro is a product lacking maturity, while Paradigm+ and Select Enterprise are mature products that have not evolved enough.

- The interface with commercial tools (development, testing) and the supported languages are differences that affect ranking on several dimensions (retaining information from one step to another, managing teamwork efficiently, ease of adoption). As the enterprise only requires support for certain languages and tools, these differences may not be critical. However, a tool that supports many languages and tools is a mature product, as external software support depends on past projects involving the tool.

1. MASTERING MODEL QUALITY

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1. Mastering model quality

Overview

- Standardizing the notation. An added-value component of UML is notation standardization. All designers use the same graphic notation for requirements and specifications, which improves model legibility and enhances collaboration within the design team. The UML model may employ naming rules in order to have meaningful names, by using prefixes, for example.

- Maintaining model integrity and comprehensiveness. Model integrity must be maintained whenever a modification is made. This guarantees a comprehensive model, with no missing element or link, and with comprehensive information. Integrity problems may prevent or alter code generation and lead to contradictions. Integrity should be checked online when designers edit the model, or offline with impact analysis functions.

- Guaranteeing model consistency. Even if designers have UML training, checking for consistency is necessary to help them produce a quality model. The tool prevents designers from using improper modeling elements or links that may lead to nonsensical modeling. Simulation functions allow the designers to check diagram meaning.

Comments

- Rational Rose and Select Enterprise include simulation functions, which explains their ranking on guaranteeing model consistency. This kind of feature makes it possible to check modeling accuracy in certain diagrams and to "debug" the UML model. However, these functions are implemented for technical projects, as model consistency is often validated by a prototype for business applications.

- Objecteering is responsive in terms of checking consistency and integrity. One of its strengths is its capacity to easily define comprehensiveness rules and to adapt to a methodology, which explains its ranking in the area of maintaining model integrity and comprehensiveness.

- GD Pro and Paradigm+ lack quality control functions. These can be implemented by using scripts, but this requires additional effort.

2. EASE OF ADOPTION

	EASE OF USE	MODELING THE EXISTING CODE	SIMPLIFYING THE CUSTOMIZATION
RATIONAL ROSE			
OBJECTEERING			
SELECT ENTERPRISE			
COOLJEX			
ISOA			
GDPRO			
PARADIGM+			

Sorted Aggregated Table
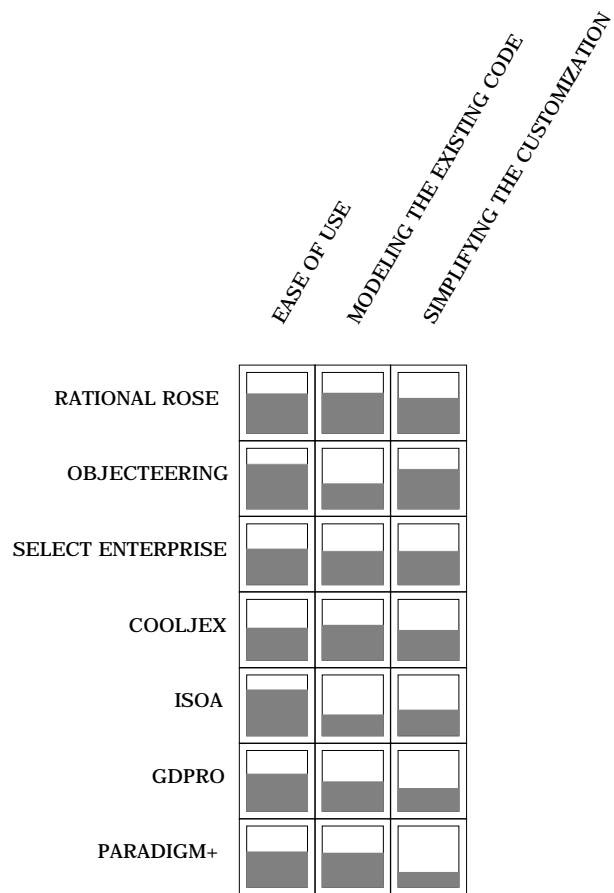
2. Ease of adoption

Overview

- Ease of use. In order to start projects more rapidly, the enterprise requires a tool easy to use. Ease of use implies user-friendliness but also features to increase designers' productivity. An easy-to-use tool improves the comfort of designers and favors the integration of new designers in a team.

- Simplifying the customization. The enterprise needs to tailor the environment to its specific requirements. The design interface should be customized. Naming, consistency and integrity rules may be added or refined to suit the quality requirements of the enterprise. Code generation and reverse engineering must be adapted to development standards in order to gain productivity. This customization must be facilitated, as the enterprise wants to set up the design tool rapidly.

- Modeling the existing code. The enterprise wants to avoid the remodeling of existing code and components. Even with new projects, existing or off-the-shelf components or code must be incorporated into the new model. The tool automates this by providing reverse engineering features which provide a more accurate model. It deduces a model, based on analysis of existing libraries and components that designers can refine and complement.

Comments

- Rational Rose shows maturity in terms of ease of adoption. It is user-friendly (wizards), quite customizable and can reverse a wide range of languages and component formats of existing applications, which simplifies the modeling of applications based on existing code.

- Objecteering simplifies customization thanks to its Profile Builder module. It makes it possible to graphically define quality control rules or customize the environment. Objecteering's ranking is only affected by reversed languages, as only C++ and Java are supported.

- Isoa provides advanced query functions compared with other products, which improves productivity and ease of use. However, environment customization is poor, and few languages are supported, which offsets ease of use.

- The graphic environment of Paradigm+ lacks customization options, which explains its ranking. Also missing are some user-friendly basic functions, such as contextual help.

3. MANAGING TEAM WORK EFFICIENTLY

AVOIDING MULTIUSER CONFLICTS
ACCESS TO MODEL SUITABLE FOR EACH RESPONSIBILITY
SUITABILITY FOR CORPORATE PROJECT

COOLJEX

PARADIGM+

OBJECTEERING

ISOA

GDPRO

SELECT ENTERPRISE

RATIONAL ROSE

Sorted Aggregated Table

3. Managing teamwork efficiently

Overview

- To be used at a corporate scale, the tool must be robust enough. It relies on a robust repository, is available on robust platforms, and its architecture allows the collaboration of several servers. As the enterprise manages several business models, the tool unifies their design and allows these models to share basic modeling elements, thereby enhancing reusability.

- Suitability to corporate project. As several designers access the model at the same time, conflict management is required to avoid integrity problems due to multiple access. Modifications to the same modeling elements or diagrams may lead to an inconsistent model. The modeling tool interfaces with configuration managers, allows the locking and the versioning of the model with the expected granularity and reconciles the updates performed by multiple users.

- Avoiding multi-user conflicts. Access to model suitable to each responsibility. Projects may involve several levels of designers. Some of them may traduce business requirements by designing use cases while others specify the application functions. The tool must be able to handle these various levels of responsibility and secure access to the model. This limits the view of the model of users according to their skills and the functional domain in which they work.

Comments

- CoolJEX provides comprehensive user management functions. The privileges that are defined in the model can be precise. This makes it the product valuable for large teams where responsibilities are distributed (e.g. creation, refining, control and deletion).

- Isoa provides comprehensive user management functions. However, its ranking is lowered due to the absence of Unix support and due to its proprietary repository.

- Rational Rose does not implement functions that should be supported by interfaced configuration managers, such as locking or versioning. Yphise recommends the use of a commercial configuration manager jointly with UML modeling tools for enterprise projects.

4. RETAINING INFORMATION FROM ONE STEP TO ANOTHER
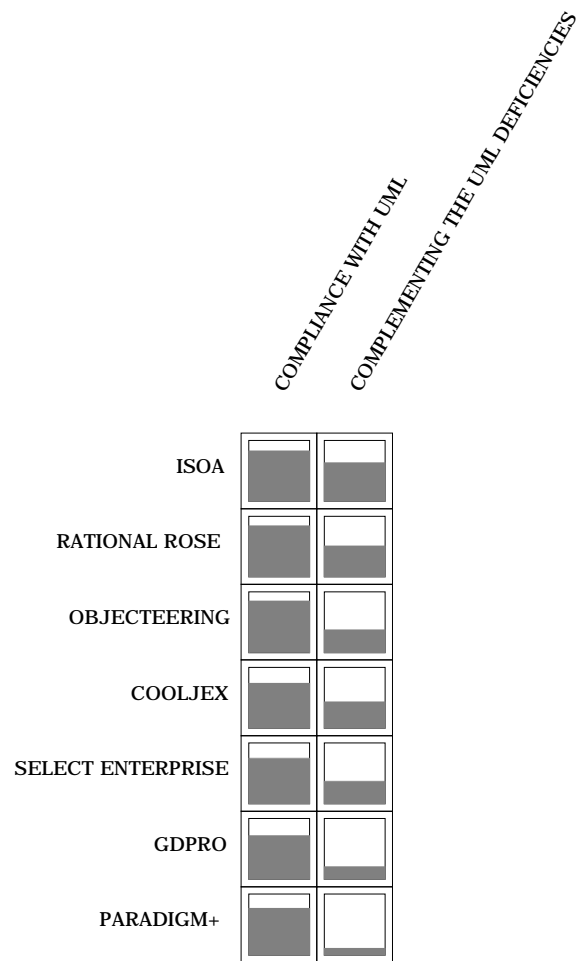
4. Retaining information from one step to another

Overview

- Guaranteeing tracking. In the development cycle, information can be lost from one step to another, from requirement management to development and testing, which alters the quality of applications, as they no longer meet the initial requirements. The tool guarantees tracking and retains information between steps by interfacing with all tools involved in the development cycle and in code generation.

- Suitability for round-trip development. Round-trip development is a convenient methodology to guarantee that the model and the code match and that information is retained during the stages between application design and development. Modifications made in the code are reflected in the model and conversely. To accommodate round-trip development, the tool must not only provide reverse engineering but also synchronize the model and the code.

- Automating the documentation. The entire development team works from common documentation, in order to improve collaboration and to avoid losing any information. The tool must automate the documentation generation and produce comprehensive reports tailored to enterprise expectations. The documentation generated is rich and accessible.

Comments

- Information is retained properly by most tools. The major drawback is the lack of interfaces with testing tools (only CoolJEX, Rational Rose, and Select Enterprise provide some). Documentation automation is quite well covered. The main differences relate to guaranteeing trackability (generated languages and interfaced tools).

- Rational Rose can generate many languages and interfaces with many tools. This may be explained by Rational Rose's market leader position and the development of partnerships.

- Isoa lacks round-trip development functions, compared with competitors. There is no synchronization of the code and the model, although reverse engineering is provided. This makes Isoa unsuitable for small rapid development projects.

- GD Pro's ranking on trackability is explained by the lack of database structure generation. This feature can be provided, but with an interface from a third-party database design tool.

5. MODELING COMPREHENSIVENESS

	COMPLIANCE WITH UML	COMPLEMENTING THE UML DEFICIENCIES
ISOA		
RATIONAL ROSE		
OBJECTEERING		
COOLJEX		
SELECT ENTERPRISE		
GDPRO		
PARADIGM+		

Sorted Aggregated Table
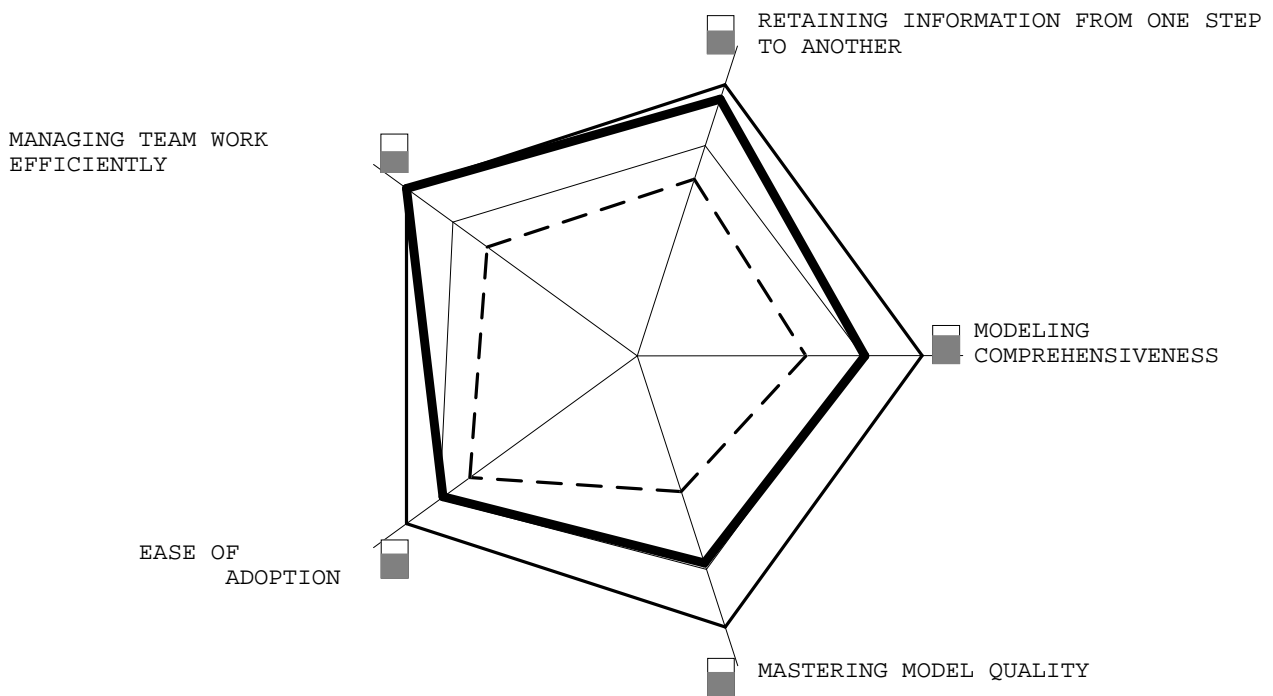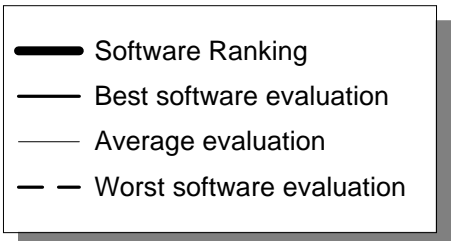
5. Modeling comprehensiveness

Overview

- Compliance with UML. As UML has become a standard, the tool must closely follow UML specifications and concepts. This improves the modeling richness and allows the designers to identify the requirements and specifications more accurately. Compliance with UML is also conducive to integration of new designers skilled in this language and to cooperation with external providers.

- Complementing the UML deficiencies. The tool may also complement UML deficiencies by providing extension not yet available in the standard. You can add concepts or diagrams, provide design patterns or extend the metamodel for the enterprise.

Comments

- There is little difference in the area of UML coverage. The main concepts are covered, and most common requirements are met. All tools support all the diagrams, except Objecteering and Select Enterprise, which do not support the activity diagram (process modeling).

- The ranking depends on how tools complement UML to meet additional requirements. This explains the ranking of GD Pro and Paradim+, as both do not allow extension of their metamodel in order to add concepts or relationships.

- Objecteering's ranking is affected by the lack of an activity diagram and of business process modeling for this purpose. Therefore, the product needs to be complemented by a specialized tool in order to model the enterprise processes, until activity diagram is supported.

COOLJEX

RETAINING INFORMATION FROM ONE STEP
TO ANOTHER

MANAGING TEAM WORK
EFFICIENTLY

MODELING
COMPREHENSIVENESS

EASE OF
ADOPTION

MASTERING MODEL QUALITY

——— Software Ranking

——— Best software evaluation

——— Average evaluation

— — Worst software evaluation

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Ranking Chart

CoolJEX

Opinion

- CoolJEX is suitable for corporate projects, because it provides features in order to share and reuse models and modeling elements and because it allows distributed architecture using several servers. Security options are quite complete compared with competitors. The repository structure helps in structuring the projects, as items are organized into steps, which facilitates management of complex projects.

- CoolJEX is completely customizable, as it provides a script language. However, it differs from other products such as Rational Rose, in that most of the customization is graphic and does not require programming.

- CoolJEX was recently acquired by Sterling software (the former name was Objecteam). Integration within the Sterling range of products has not been achieved. However, CoolJEX already provides interfaces with other modeling and development tools.

Presentation

- Developer   Sterling Software
- Version   4.1
- Date of first sale   94/09
- Web site   www.sterling.com
- Development laboratory   Plano (United States)
- Hot Line   United States, United Kingdom, Germany, Belgium
- Users club   ISSOG in Europe and CONNECT in the United States
- Recent developments   Doc-Injexion (HTML publishing)
                               Browser Explorer look and feel
                               Activity diagrams
                               OLE Server support
- Announced functions   improved interface with MS repository, Continuus
                               synchronization of comments
                               support of JDK 1.2 and Java2 plaform

Main modules

- Model Manager. Repository based on a relational database. It can handle several projects.

- Repository browser. Allows modelers to browse the repository structure and to filter, lock and organize modeling elements. This module also incorporates use management and all customization options.

- Modeling editor. Allows editing every model.

- Add-ins. Add-ins allow code generation and reverse engineering or provide interfaces with other tools.

- Doc-IT. Incorporates into Word to generate Word reports.

- Doc-Express. Generates Word, Interleaf and Framemaker reports based on templates. Includes a template editor to structure the documentation.

- Doc-Injexion. Generates HTML or PDF documentation.

Outline of the main environments available

For a detailed analysis of the environments available, see the DETAILED EVALUATION volume.

- Repository format. Informix and Oracle under Unix, Sybase under Windows NT.

- Supported platforms. AIX, HP UX, Sun Solaris, Linux, Windows NT.

- Generated code. Ada, C++, Cobol, Java, Smalltalk, Delphi, Forté, Powerbuilder, Visual Basic.

- Reverse engineered code. Ada, C++, Cobol, Java, Smalltalk, Delphi, Forté, Powerbuilder, Visual Basic.
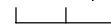
COOLJEX

UML modeling tools
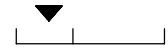
MASTERING MODEL QUALITY

STANDARDIZING THE NOTATION

MAINTAINING MODEL INTEGRITY AND COMPREHENSIVENESS

GUARANTEEING MODEL CONSISTENCY

EASE OF ADOPTION

EASE OF USE

SIMPLIFYING THE CUSTOMIZATION

MODELING THE EXISTING CODE

MANAGING TEAM WORK EFFICIENTLY

ACCESS TO MODEL SUITABLE FOR EACH RESPONSIBILITY

AVOIDING MULTIUSER CONFLICTS

SUITABILITY FOR CORPORATE PROJECT

RETAINING INFORMATION FROM ONE STEP TO ANOTHER

GUARANTEEING TRACKING

SUITABILITY FOR ROUND-TRIP DEVELOPMENT

AUTOMATING THE DOCUMENTATION
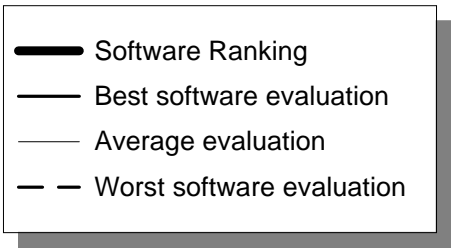
MODELING COMPREHENSIVENESS

COMPLIANCE WITH UML

COMPLEMENTING THE UML DEFICIENCIES

Strengths and Weaknesses List

GDPRO

RETAINING INFORMATION FROM ONE STEP
TO ANOTHER

MANAGING TEAM WORK
EFFICIENTLY

MODELING
COMPREHENSIVENESS

EASE OF
ADOPTION

MASTERING MODEL QUALITY

Software Ranking

Best software evaluation

Average evaluation

— — Worst software evaluation

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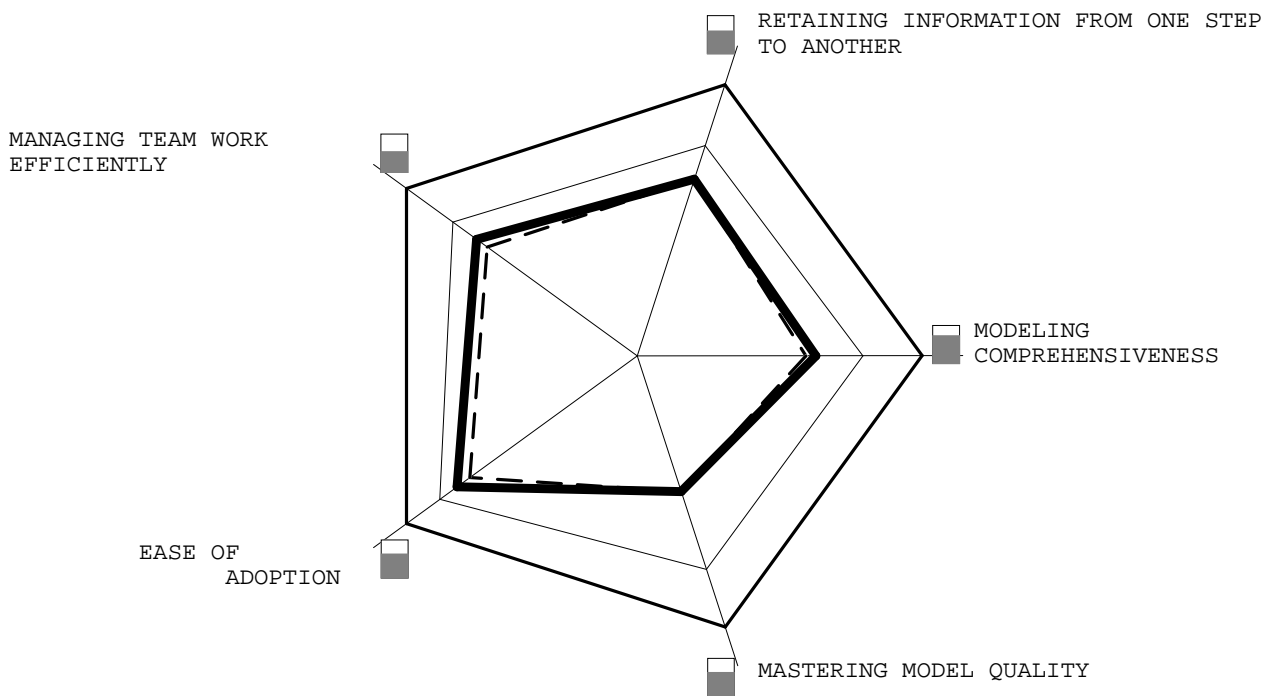
Ranking Chart

GD Pro

Opinion

- GD Pro does not generate markers in the code, which improves code legibility. This is a a benefit for round-trip development.

- GD Pro can refresh the model dynamically when several designers work on the same diagram. This makes it suitable for collaboration in whiteboard mode, which may be used at the beginning of project involving remote users.

- GD Pro lacks customization functions. There is a scripting language to customize or add controls (e.g. naming rules), but there is no graphic assistance at all. This means that Perl and Visual Basic programming skills are required for customization.

Presentation

- Developer   ASTI
- Version   4.0
- Date of first sale   99/09
- Web site   www.gdpro.com
- Development laboratory   Littleton (United States)
- Hot Line   Littleton (United States), 5 people
- Users club   no
- Recent developments   no disclosed
- Announced functions   XMI support
                             report customization features
                             Enerprise Java Beans generation

Main module

- Modeling tool. It incorporates all the modeling functions. All UML diagrams are defined by using toolbars or the model browser tree view. C++, Java and IDL generation is built in this module.

- Documentation generation. This module produces documentation.

Outline of the main environments available

For a detailed analysis of the environments available, see the DETAILED EVALUATION volume.
- Repository format. Poet object database.

- Supported platforms. Sun Solaris, Windows NT.

- Generated code. C++, Java.

- Reverse engineered code. C++, Java.

GDPRO

UML modeling tools

MASTERING MODEL QUALITY

   STANDARDIZING THE NOTATION

   MAINTAINING MODEL INTEGRITY AND COMPREHENSIVENESS
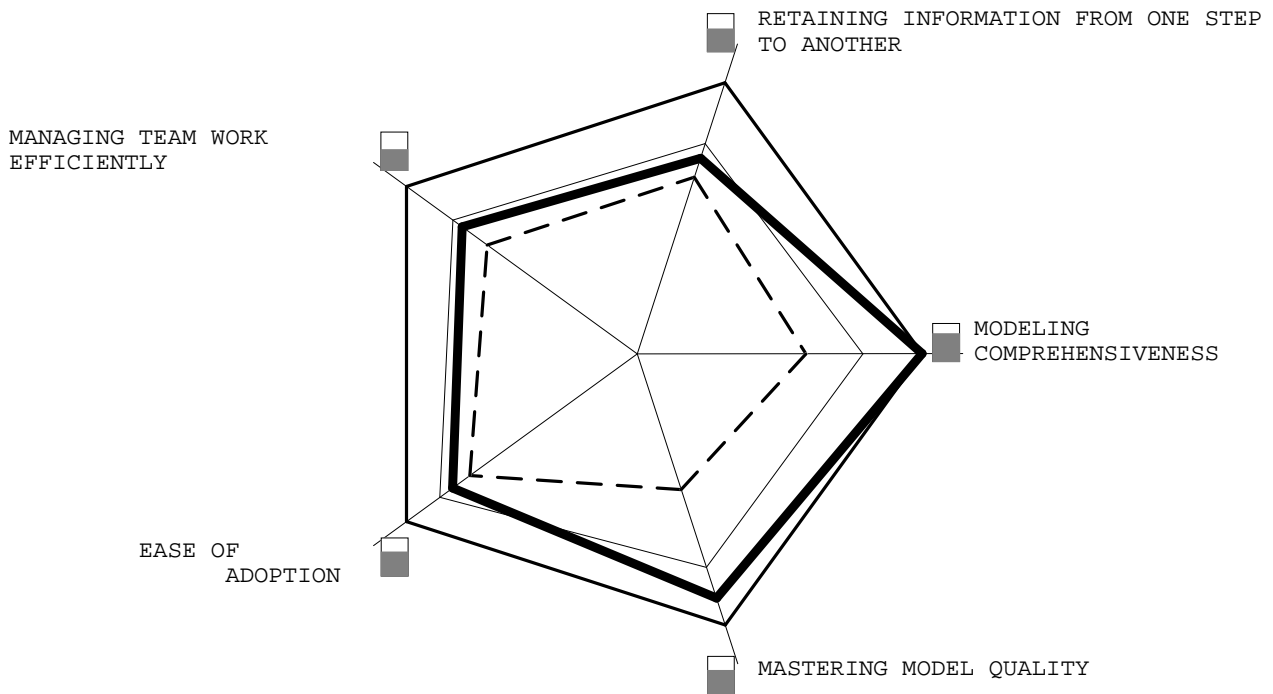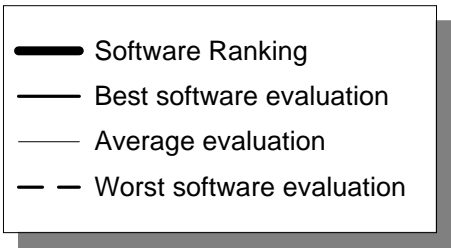
   GUARANTEEING MODEL CONSISTENCY

EASE OF ADOPTION

   EASE OF USE

   SIMPLIFYING THE CUSTOMIZATION

   MODELING THE EXISTING CODE

MANAGING TEAM WORK EFFICIENTLY

   ACCESS TO MODEL SUITABLE FOR EACH RESPONSIBILITY

   AVOIDING MULTIUSER CONFLICTS

   SUITABILITY FOR CORPORATE PROJECT

RETAINING INFORMATION FROM ONE STEP TO ANOTHER

   GUARANTEEING TRACKING

   SUITABILITY FOR ROUND-TRIP DEVELOPMENT

   AUTOMATING THE DOCUMENTATION

MODELING COMPREHENSIVENESS

   COMPLIANCE WITH UML

   COMPLEMENTING THE UML DEFICIENCIES

Strengths and Weaknesses List

ISOA

RETAINING INFORMATION FROM ONE STEP
TO ANOTHER

MANAGING TEAM WORK
EFFICIENTLY

MODELING
COMPREHENSIVENESS

EASE OF
ADOPTION

MASTERING MODEL QUALITY

Software Ranking

Best software evaluation

Average evaluation

— — Worst software evaluation

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Ranking Chart

ISOA

Opinion

- Isoa integrates with other types of modeling tools. It belongs to a suite that also incorporates database design and business process Modeling. All these tools share the same repository and do not require import/export. This integration means better tracking between development steps.

- Isoa provides comprehensive customization features. The metamodel can be graphically extended. This makes this tool suitable for specific modeling requirements involving specific rules. However, there is no integration with a configuration manager yet, which affects teamwork operations.

- Isoa user management is advanced. Several levels of access privileges to the model can be defined. Therefore, Isoa is suitable for corporate projects involving many designers with various skills.

- Isoa includes advanced search functions. Designers can query elements in the repository according to properties, which facilitates impact analysis or massive corrections.

Presentation

- Developer

  Mega International
  404 Wyman Street
  Walham, MA 02451
  Phone 781 890 3442
  Fax 781 890 3103

- Version — 4.5
- Date of first sale — 96/10
- Web site — www.mega.com
- Development laboratory — Paris (France)
- Hot Line — Paris (France, 6 people, in French, English, Italian, German
- Users club — AUMEGA. Available on the Web site.
- Recent developments — Generation of XML schemas and DTD
- Announced functions — Generation of XML adapters
  integraion with Continuus
  integration with San Francisco

Main module

- Integrated editor. It integrates all UML modeling. Designers access the model as a tree view and can drop elements in diagrams. This module also includes consistency or integrity checking.

- Repository Explorer. This module can be used to navigate models and to identify references and dependencies between objects.

- Repository administration. This module is used to administer the repositories corresponding to projects. It includes customization features that allow metamodel extension and graphic user management.

Outline of the main environments available

For a detailed analysis of the environments available, see the DETAILED EVALUATION volume.

- Repository format. Proprietary.

- Supported platforms. Windows NT.

- Generated code. Java, Visual Basic.

- Reverse engineered code. Java, Visual Basic. Smalltalk, Delphi and Powerbuilder with tier plug-ins.
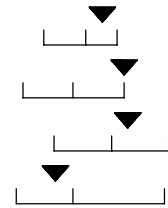
ISOA

UML modeling tools

MASTERING MODEL QUALITY
- STANDARDIZING THE NOTATION
- MAINTAINING MODEL INTEGRITY AND COMPREHENSIVENESS
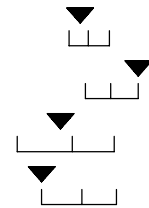- GUARANTEEING MODEL CONSISTENCY

EASE OF ADOPTION
- EASE OF USE
- SIMPLIFYING THE CUSTOMIZATION
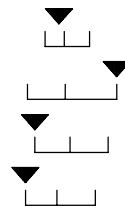- MODELING THE EXISTING CODE

MANAGING TEAM WORK EFFICIENTLY
- ACCESS TO MODEL SUITABLE FOR EACH RESPONSIBILITY
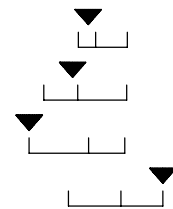- AVOIDING MULTIUSER CONFLICTS
- SUITABILITY FOR CORPORATE PROJECT

RETAINING INFORMATION FROM ONE STEP TO ANOTHER
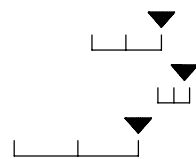- GUARANTEEING TRACKING
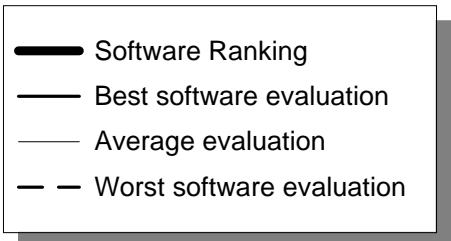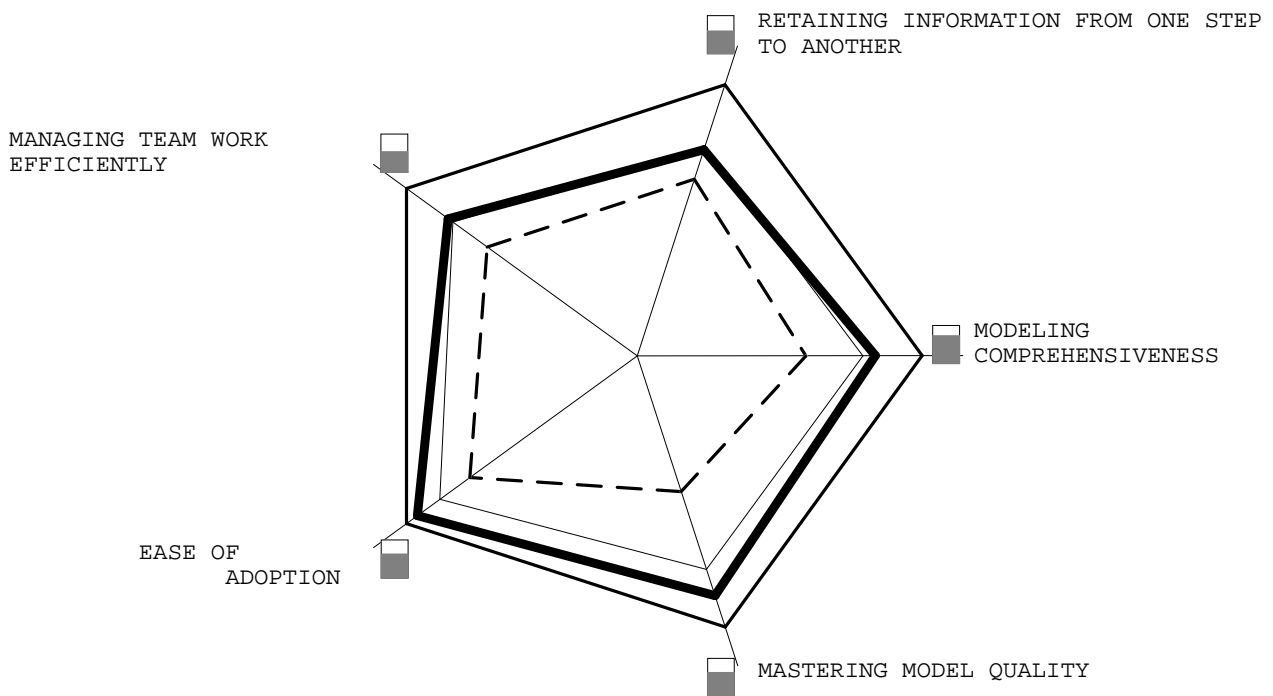- SUITABILITY FOR ROUND-TRIP DEVELOPMENT
- AUTOMATING THE DOCUMENTATION

MODELING COMPREHENSIVENESS
- COMPLIANCE WITH UML
- COMPLEMENTING THE UML DEFICIENCIES

Strengths and Weaknesses List

OBJECTEERING

RETAINING INFORMATION FROM ONE STEP
TO ANOTHER

MANAGING TEAM WORK
EFFICIENTLY

MODELING
COMPREHENSIVENESS

EASE OF
ADOPTION

MASTERING MODEL QUALITY

Software Ranking

Best software evaluation

Average evaluation

— — Worst software evaluation

Ranking Chart

Objecteering

Opinion

- Objecteering's main quality is its capacity to check and maintain model quality. Consistency checking is performed online. Contrary to competitors, it includes tools to customize the naming or integrity rules. This makes it valuable for beginner designers.

- Objecteering includes an advanced customization module. The Profile Builder eases the definition of quality rules, the interface and documentation generation. This simplifies the setup of Objecteering.

- Moreover, the customization options can be attached to use profiles and vary according to the user or the project step. This makes Objecteering particularly valuable when users with several levels of skills are involved in a project.

- Objecteering only generates C++ and Java languages, which explains its ranking. This is not a drawback, as these languages are quite popular. Support of other languages is possible but requires advanced customization.

Presentation

- Developer Softeam
- Version 4.3
- Date of first sale 91/12
- Web site www.softeam.com or www.objecteering.com
- Development laboratory Saint Quentin en Yvelines (France)
- Hot Line Paris (France)
- Users club no yet
- Recent developments Profile Builder
  UML metrics
  XMI import/export
- Announced functions XML and component generation

Main module

- Modeler. This is the model editor. It integrates a model browser that can present the steps of the project. It integrates checking, documentation generation and some customization features (selection of use profiles).

- Generator. These plug-ins allow C++ or Java generation.

- SQL and IDL package. This allows the generation of data structures and component interfaces.

- Profile Builder. This module allows graphic customization of checking rules. Scripts can be customized by browsing the repository contents. Documentation generation is also customizable by associating tags (RTF, HTML) with modeling elements.

Outline of the main environments available

For a detailed analysis of the environments available, see the DETAILED EVALUATION volume.

- Repository format. File system.

- Supported platforms. AIX, HP UX, Sun Solaris, Windows NT.

- Generated code. C++, Java.

- Reverse engineered code. C++, Java.
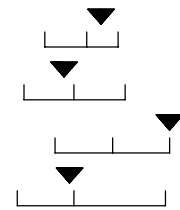
OBJECTEERING

UML modeling tools

MASTERING MODEL QUALITY

STANDARDIZING THE NOTATION

MAINTAINING MODEL INTEGRITY AND COMPREHENSIVENESS
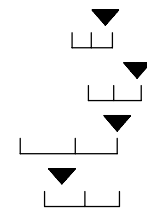
GUARANTEEING MODEL CONSISTENCY

EASE OF ADOPTION

EASE OF USE

SIMPLIFYING THE CUSTOMIZATION
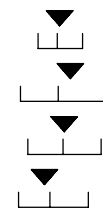
MODELING THE EXISTING CODE

MANAGING TEAM WORK EFFICIENTLY

ACCESS TO MODEL SUITABLE FOR EACH RESPONSIBILITY

AVOIDING MULTIUSER CONFLICTS

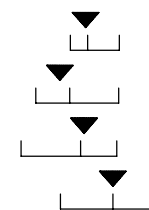SUITABILITY FOR CORPORATE PROJECT

RETAINING INFORMATION FROM ONE STEP TO ANOTHER

GUARANTEEING TRACKING
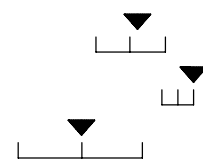
SUITABILITY FOR ROUND-TRIP DEVELOPMENT
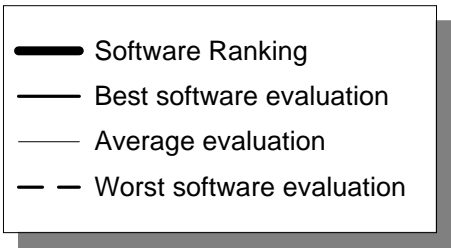
AUTOMATING THE DOCUMENTATION

MODELING COMPREHENSIVENESS

COMPLIANCE WITH UML

COMPLEMENTING THE UML DEFICIENCIES

Strengths and Weaknesses List

PARADIGM+

RETAINING INFORMATION FROM ONE STEP TO ANOTHER

MANAGING TEAM WORK EFFICIENTLY

MODELING COMPREHENSIVENESS

EASE OF ADOPTION

MASTERING MODEL QUALITY

Software Ranking

Best software evaluation

Average evaluation

Worst software evaluation
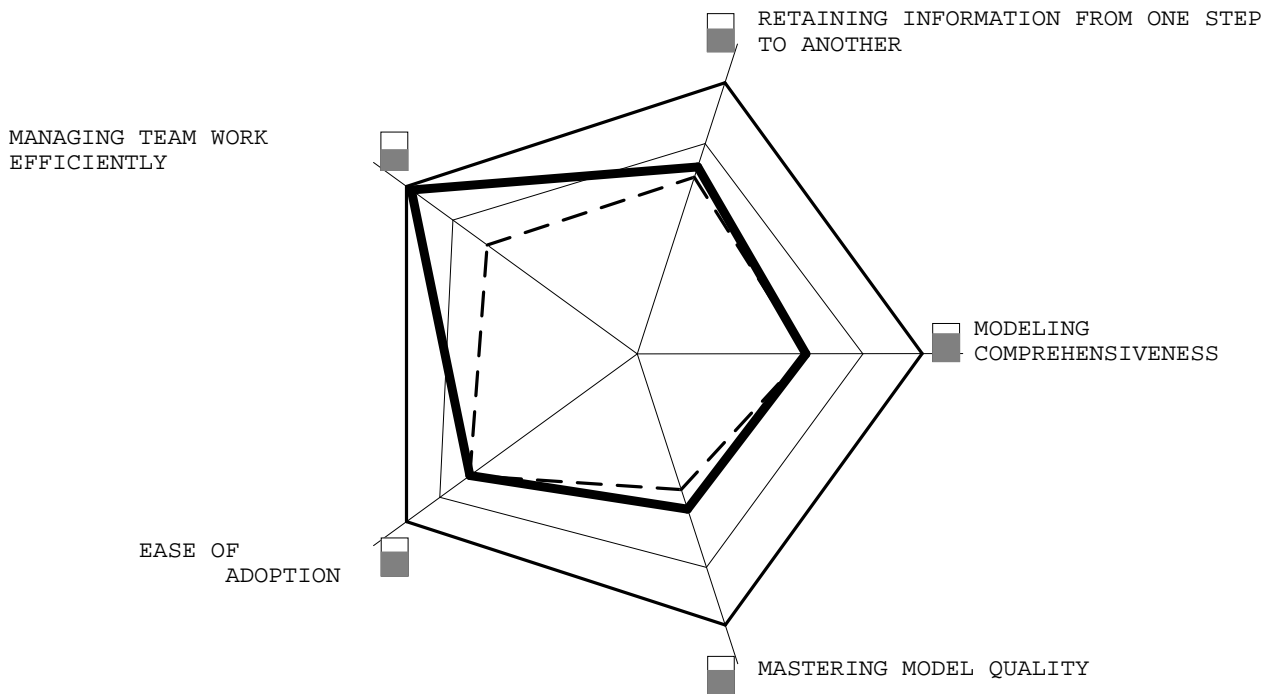
Ranking Chart

Paradigm+

Opinion

- The main strength of Paradigm+ is its suitability for teamwork. The security options are quite comprehensive, and Unix platforms are supported, which increases availability.

- Paradigm+ provides appropriate connectivity, as many languages are supported. This is due to the maturity of this tool.

- Paradigm+ interface lacks user-friendliness. Some basic functions are missing. The help system is not contextual. This makes it unsuitable for beginner designers.

- Paradigm+ also lacks standard quality controls, such as incorporation of naming rules. This can be complemented by scripting but limits the ease of setup.

Presentation

- Developer   Computer Associates
- Version   3.6
- Date of first sale   1991
- Web site   www.cai.com
- Development laboratory Houston (United States)
- Hot Line   United States, Europe and Singapore
           Saint Albans for Europe (United Kingdom), 70 people
- Users club   Plat/Forum - CA/World
- Recent developments support of Catalysis mehodology
           support of activity diagrams
           integration with Visual Café
- Announced functions incorporation with Jasmine

Main module

- Paradigm+. This is the main module, incorporating all the design functions.

- Paradigm Publisher. This module automates documentation generation. The module can be incorporated into the Paradigm+ modeling tool.

- Advisor. This is the supervision module. It integrates metrics to evaluate model quality.

- Repository. The repository is an Objectstore database and does not require an administration tool.

Outline of the main environments available

For a detailed analysis of the environments available, see the DETAILED EVALUATION volume.

- Repository format. Objectstore object database.

- Supported platforms. AIX, HP UX, Sun Solaris, Windows NT.

- Generated code. Ada, C++, Cobol, Java, Smalltalk, Delphi, Forté, Powerbuilder, Visual Basic.

- Reverse engineered code. C++, Java, Smalltalk, Forté, Powerbuilder, Visual Basic.

PARADIGM+

UML modeling tools

MASTERING MODEL QUALITY
STANDARDIZING THE NOTATION
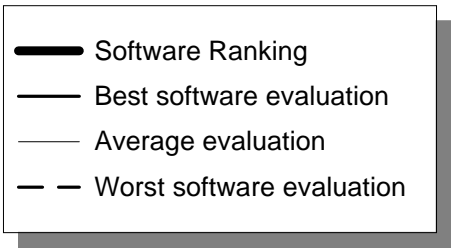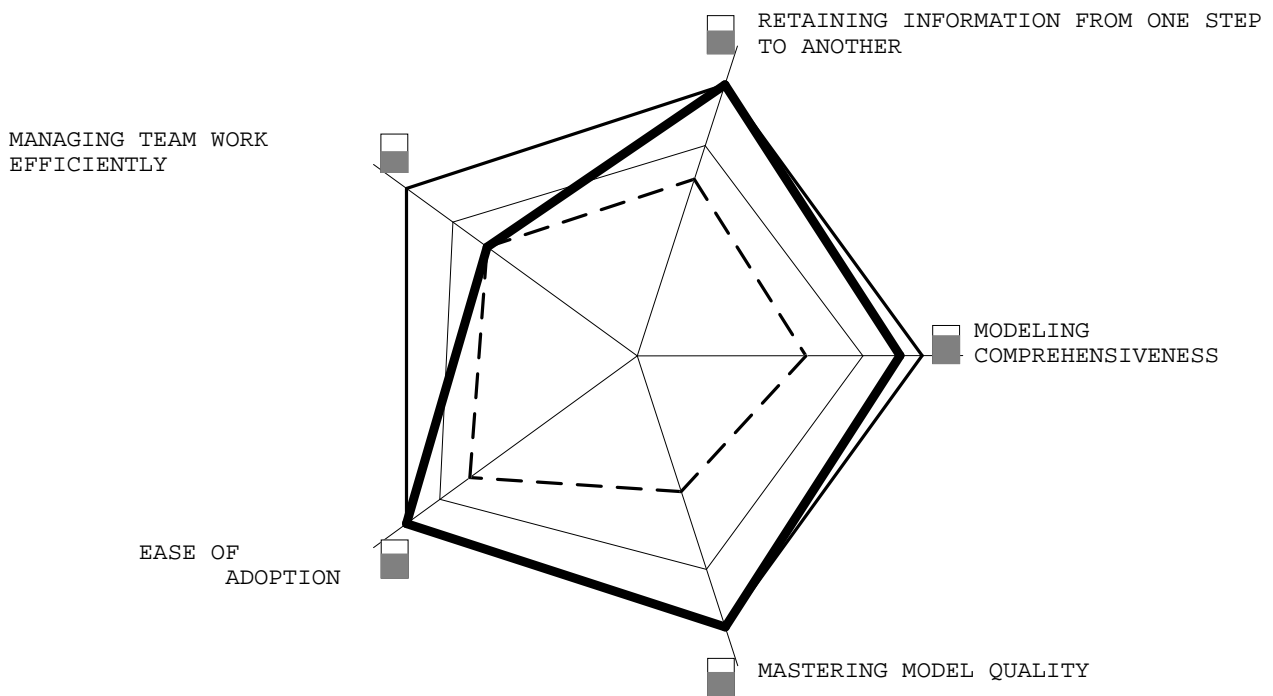MAINTAINING MODEL INTEGRITY AND COMPREHENSIVENESS
GUARANTEEING MODEL CONSISTENCY

EASE OF ADOPTION
EASE OF USE
SIMPLIFYING THE CUSTOMIZATION
MODELING THE EXISTING CODE

MANAGING TEAM WORK EFFICIENTLY
ACCESS TO MODEL SUITABLE FOR EACH RESPONSIBILITY
AVOIDING MULTIUSER CONFLICTS
SUITABILITY FOR CORPORATE PROJECT

RETAINING INFORMATION FROM ONE STEP TO ANOTHER
GUARANTEEING TRACKING
SUITABILITY FOR ROUND-TRIP DEVELOPMENT
AUTOMATING THE DOCUMENTATION

MODELING COMPREHENSIVENESS
COMPLIANCE WITH UML
COMPLEMENTING THE UML DEFICIENCIES

Strengths and Weaknesses List

RATIONAL ROSE

RETAINING INFORMATION FROM ONE STEP
TO ANOTHER

MANAGING TEAM WORK
EFFICIENTLY

MODELING
COMPREHENSIVENESS

EASE OF
ADOPTION

MASTERING MODEL QUALITY

───── Software Ranking

───── Best software evaluation

───── Average evaluation

─ ─ ─ Worst software evaluation

©Yphise

Ranking Chart

Rational Rose

Opinion

- Rational Rose is the leader in the UML modeling market. It incorporates comprehensive modeling features (such as simulation).

- This leadership position stems from good integration with other software tools. Rational Rose integrates with configuration managers, development environments and specification design. Rational Rose also supports many languages compared with competitors.

- Rational Rose lacks user and privilege management features. Use of an interfaced configuration manager is strongly recommended for corporate projects. Rational Rose provides interfaces with commercial configuration managers. For enterprise projects, Yphise strongly recommends the use of such tools jointly with UML modeling tools.

Presentation

- Developer   Rational Software
- Version   98i
- Date of first sale   92
- Web site   www.rational.com
- Development laboratory   Lexington (United States)
- Hot Line   Gold support : 24h/24
- Users club   rose_forum@rational.com
- Recent developments   integration with other tools (Java development, requirement management, test managers), support of EJB

Main module

- Rose Modeler. This is the main modeling environment. It integrates model browsing and diagram editing. It also incorporates code generation.

- Administration module. This module allows repository configuration and multiple use of the tool.

- Plug-ins. These extend Rational Rose menus and allow code generation or interfacing with other tools.

- Comparison module. This utility allows graphic comparisons and the reconciliation of several diagrams.

- SODA. This is the documentation generation module.

Outline of the main environments available

For a detailed analysis of the environments available, see the DETAILED EVALUATION volume.

- Repository format. File system.

- Supported platforms. AIX, HP UX, Sun Solaris, Digital Unix, Irix, Windows NT.

- Generated code. Ada, C++, Java, Smalltalk, Forté, Visual Basic. Delphi, Powerbuilder, with tier plug-ins.

- Reverse engineered code. Ada, C++, Java, Smalltalk, Forté, Visual Basic. Cobol, Delphi, Powerbuilder, with tier plug-ins.

RATIONAL ROSE

UML modeling tools

MASTERING MODEL QUALITY
- STANDARDIZING THE NOTATION
- MAINTAINING MODEL INTEGRITY AND COMPREHENSIVENESS
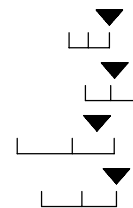- GUARANTEEING MODEL CONSISTENCY

EASE OF ADOPTION
- EASE OF USE
- SIMPLIFYING THE CUSTOMIZATION
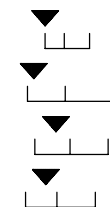- MODELING THE EXISTING CODE

MANAGING TEAM WORK EFFICIENTLY
- ACCESS TO MODEL SUITABLE FOR EACH RESPONSIBILITY
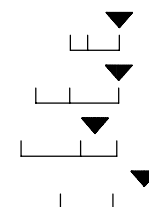- AVOIDING MULTIUSER CONFLICTS
- SUITABILITY FOR CORPORATE PROJECT

RETAINING INFORMATION FROM ONE STEP TO ANOTHER
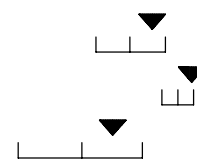- GUARANTEEING TRACKING
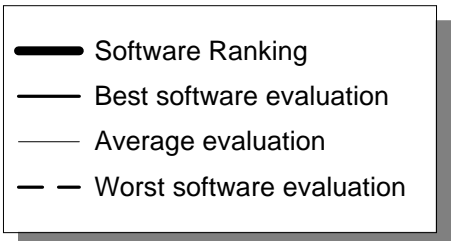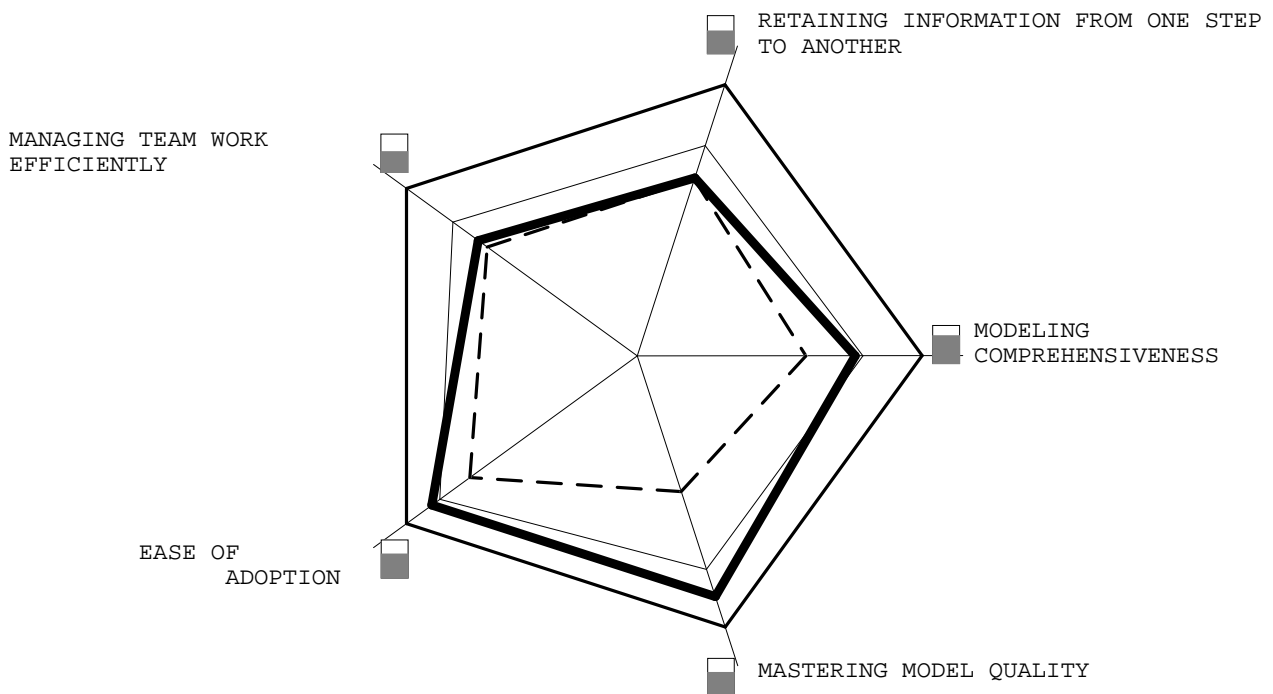- SUITABILITY FOR ROUND-TRIP DEVELOPMENT
- AUTOMATING THE DOCUMENTATION

MODELING COMPREHENSIVENESS
- COMPLIANCE WITH UML
- COMPLEMENTING THE UML DEFICIENCIES

Strengths and Weaknesses List

SELECT ENTERPRISE

RETAINING INFORMATION FROM ONE STEP
TO ANOTHER

MANAGING TEAM WORK
EFFICIENTLY

MODELING
COMPREHENSIVENESS

EASE OF
ADOPTION

MASTERING MODEL QUALITY

Software Ranking

Best software evaluation

Average evaluation

— — Worst software evaluation

Ranking Chart

Select Enterprise

Opinion

- Select Enterprise includes a component management tool that can import components and administer versions. Therefore, Select is suitable for component-based development.

- Select Enterprise relies on underlying corporate repositories. In standard, it integrates with Softlab Enabler. This makes Select suitable for corporate projects.

- Select Enterprise and Rational Rose are the only ones among the tools evaluated to incorporate simulation features. Select Enterprise can specify, in the sequence diagram, statements used for step-by-step testing. It allows associating screens with operations, which allows the validation of use sequence. This is convenient in order to validate a model more rapidly without generating a prototype.

- Select Enterprise is customizable but often requires programming efforts. It lacks graphic customization features to meet specific modeling or quality control requirements.

Presentation

- Developer
  Princeton Softech
  1060 State Road
  Princeton, New Jersey 08540-1423
  Phone 609 688 5000
  Fax 609 497 0302
- Version
  6.1 for Select Enterprise
  1.2 for Component Manager
- Date of first sale
  1995
- Web site
  www.princetonsoftech.com
- Development laboratory
  Cheltenham (United Kingdom)
- Hot Line
  Cheltenham (United Kingdom), 10 people in English,
  7 a.m. - 8 p.m.
- Users club
  no
- Recent developments
  Java round trop synchronizer
- Announced functions
  preset customizable model templates for technical architecture modeling (visual controls, network management, heterogeneous applications)

Main module

- Select Enterprise. This is the modeling tool, which integrates a tree view of the model and diagram editing.

- Select Component Manager. This is a component repository that incorporates component reverse engineering, versioning, publishing and search features.

- Add-ins. These include documentation generation and code synchronization. There are three types of add-ins: generators, reversers and synchronizers.

- Repository. The repository is the Enabler repository, but it can be replaced by other repositories compatible with Select (Unisys). Its administration features are used to administrate Select enterprise (user management).

Outline of the main environments available

For a detailed analysis of the environments available, see the DETAILED EVALUATION volume.

- Repository format. Enabler repository or Unisys UREP.

- Supported platforms. Windows NT.

- Generated code. Java, C++, Forté, Visual Basic. Delphi and Powerbuilder with tier products.

- Reverse engineered code. Java, C++, Forté, Visual Basic. Delphi and Powerbuilder with tier products.
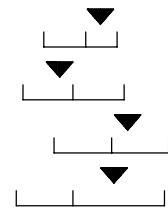
SELECT ENTERPRISE

UML modeling tools

MASTERING MODEL QUALITY

STANDARDIZING THE NOTATION

MAINTAINING MODEL INTEGRITY AND COMPREHENSIVENESS
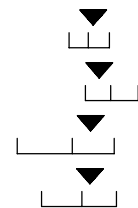
GUARANTEEING MODEL CONSISTENCY

EASE OF ADOPTION

EASE OF USE

SIMPLIFYING THE CUSTOMIZATION
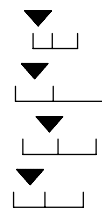
MODELING THE EXISTING CODE

MANAGING TEAM WORK EFFICIENTLY

ACCESS TO MODEL SUITABLE FOR EACH RESPONSIBILITY

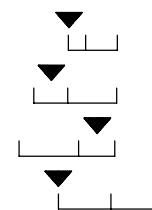AVOIDING MULTIUSER CONFLICTS

SUITABILITY FOR CORPORATE PROJECT

RETAINING INFORMATION FROM ONE STEP TO ANOTHER

GUARANTEEING TRACKING

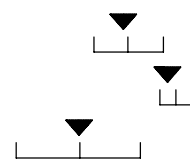SUITABILITY FOR ROUND-TRIP DEVELOPMENT

AUTOMATING THE DOCUMENTATION

MODELING COMPREHENSIVENESS

COMPLIANCE WITH UML

COMPLEMENTING THE UML DEFICIENCIES

Strengths and Weaknesses List

Yphise Software Evaluation Reports

Yphise and software products evaluation

Yphise is committed to providing the best in-depth and independent evaluations of software products so that IT managers can make appropriate decisions quickly at a very low cost. Yphise assesses over 160 software products each year in all areas of interest to large IT departments. Yphise sells over 16,000 software evaluations worldwide annually. IT departments have made thousands of software selection decisions based on Yphise expertise. Yphise also advises software vendors and investors in market research.

Yphise software evaluations are published in Yphise Software Evaluation Reports. Yphise analysts in its Paris laboratory (France) produce them.

Yphise is certified as ISO 9001-compliant in evaluating software products (AOQC Number 9907091).

Components of the Yphise Software Evaluation Reports

Each Yphise Software Evaluation Report has four components.

- REQUIREMENTS volume. Provides a reference List of Requirements. This list is established in collaboration with several large IT Departments to be both practical and comprehensive.

- DETAILED EVALUATION volume. Evaluates each product on each criterion of the REQUIREMENTS volume. The results are provided in comparison tables. Yphise tests each software product, meets with the vendor and users, and reviews its technical documentation. Yphise saves you precious time by eliminating products with insufficient functions or support.

- EXECUTIVE SUMMARY. Condenses all the results of the corresponding DETAILED EVALUATION volume and provides a top/down ranking of the products evaluated.

- SELECTION ASSISTANT software (a W3 or W95 app). Enables you to customize and ponder the data from the DETAILED EVALUATION volume. It then adapts the ranking to your need and you can print your own customized report.

List of Requirements structure

The List of Requirements has a three-level structure : large domains of evaluation (chapters), domains (subchapters) and analysis criteria to evaluate the various useful functions of the products. Each criterion is composed of items.
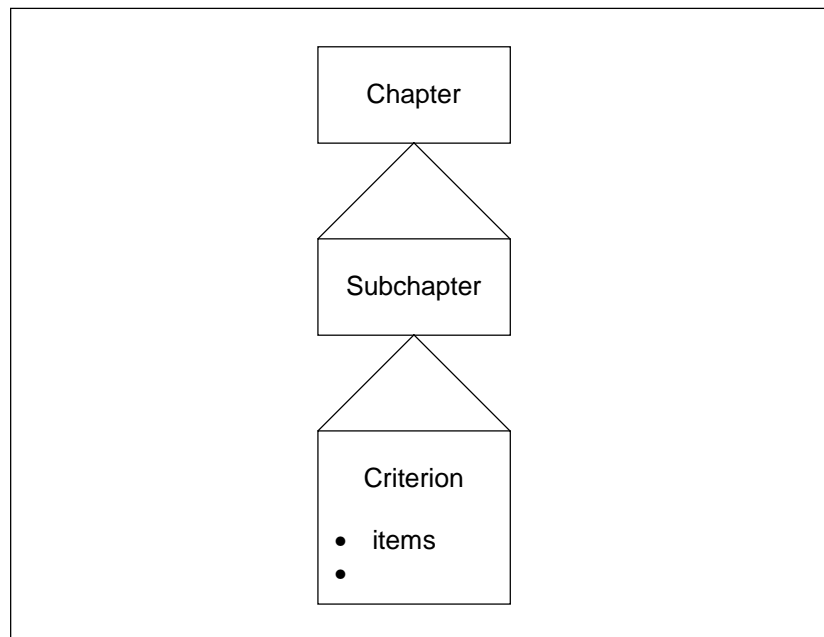
EXECUTIVE SUMMARY aggregations and SELECTION ASSISTANT

The charts of the EXECUTIVE SUMMARY aggregate all the results established at item level in the corresponding DETAILED EVALUATION volume. Most of these charts aggregate results on several hundred items. The rankings and overall evaluation obtained are robust and reliable.

But you do not necessary agree with all the notes attributed by Yphise. You also may be interested in a product with fewer functions but very cheap or easy to install. Some criteria and items are also more important for you than others. The EXECUTIVE SUMMARY charts don't take your requirements into account. They are very useful for a first overview of the market, but you need more to make a purchase decision. The SELECTION ASSISTANT allows you to customize Yphise notes and criteria weights according to your specific need. It then adapts the ranking and you can print your own customized report.

- Obtaining your List of Requirements. The REQUIREMENTS volume enables you to work from a reference that you customize according to your need. Some criteria may be ignored, although others are essential.

- Obtaining a short-list. The EXECUTIVE SUMMARY provides you with a brief overview of the market. Then use the SELECTION ASSISTANT. Input the weight for each criterion and item according to your point of view. The assistant then adapts the ranking and helps you select a short-list.

- Decision making. At this step you must make a decision based on your environment, context and issues. Focus your effort on the essential criteria for you. The DETAILED EVALUATION volume enables you to work from a reliable reference. Then use the SELECTION ASSISTANT. Input your notes when they differ from Yphise and use the editing functions to obtain a clear view of the results.

- Negotiate. When you have identified the right product according to your functional need, consider the vendors service record, financial structure and product commitment, then negotiate the best deal. If you are not satisfied with the vendor of the best ranked product, try the second on the list.