ADONIS
Version: 3.81

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1. Product Overview

ADONIS is a key part of BOC’s Management Office (which also includes ADOscore, ADOlog, and ADOit) – a family of products for the integrated management of strategy, business processes, people, and IT. This report focuses on ADONIS, BOC’s graphical business process modeling and analysis tool, its standard components, optional add-on components, and various interfaces.

Table 1 provides an overview of the ADONIS toolset (version 3.81) and its main add-on components and extensions. It also provides an overview of ADOscore, ADOlog, and ADOit, which – although they are separate products – are are based on the same meta model architecture as ADONIS and, thus, can be used in conjunction with ADONIS. ADONIS is available in two versions. ADONIS Business Edition focuses on process design, process analysis, process documentation, and process implementation. ADONIS Professional Edition, in addition to all the features provided by the Business Edition, supports process simulation, process evaluation, process monitoring, and controlling tasks.

ADONIS supports the core activities of BPM methodologies, including information acquisition, modeling and design, analysis, simulation, and evaluation. ADONIS also provides various import/export facilities, Web and standard publishing capabilities, and administration tools. Optional add-on components are available for Web-based modeling, activity-based costing (ABC), workforce and capacity planning, and call center management.

Key design aspects of ADONIS include usability, openness, method flexibility (customizability), and model maintainability. ADONIS supports non-technical users such as business analysts, process owners, and process managers, as well as more technically skilled information systems and enterprise architects interested in business processes and business process-related information such as documents, resources, systems, applications, and organizations.

ADONIS operates as either a stand-alone tool on desktops or laptops, or in a multi-user environment utilizing a central repository.

ADONIS supports standard modeling languages such as BPMN, UML, EPC, and LOVEM. In addition, ADONIS provides an underlying meta modeling technology that allows users to define new modeling languages and mechanisms for domain-specific or customer-specific needs. Various pre-defined reference models, templates, and meta models are also available, including ITIL, CobiT, BS15000, SCOR, Six Sigma, SOX, and ERM. These are implemented as specific pre-built modules and templates designed for use with ADONIS for Sarbanes-Oxley, healthcare, knowledge management, e-learning, and other enterprise/industry initiatives.

ADONIS also integrates with other BOC toolkits and products, including the ADOscore Balanced Scorecard (BSC) toolkit, the ADOlog SCOR implementation framework, and the ADOit IT architecture and services management toolkit.
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Typical ADONIS application scenarios include

- Business Process Optimization – continuous improvement of business processes (e.g., process simulation, conducting “as-is” and “should-be” comparisons, benchmarking, etc.)
- Organizational Management – organizational documentation, job descriptions
• Controlling – process cost analysis, business activity monitoring (BAM), and KPI management
• Quality Management – ISO 9001:2000 certification, Six Sigma, EFQM, CMM
• Process-based knowledge management and skills management (e.g., process portals, knowledge portals, etc.)
• Human Resource Management – workforce and resource planning, capacity management, and call center management
• Compliance Management – Basel II, Operational Risk Management (ORM), Sarbanes-Oxley (SOX), Enterprise Risk Management (ERM), Solvency II, and International Financial Reporting Standards (IFRS)
• Process-oriented application development – ERP systems implementation, integration with workflow and Web-based systems, MDA, BPEL, etc.
• Information Management – creating requirements definitions, specification documents for information systems, legacy migration, etc.

ADONIS is available in a wide range of human languages, offering extensive support for multi-national organizations.

Overall, ADONIS is a well-designed tool that provides a functionality rich modeling and analysis environment behind a very intuitive and friendly UI. It is also very customizable – from the languages and frameworks it can support to its GUI and role-based user access and functionality tailoring capabilities.

2. Product Architecture

2.1 Architecture Overview

Figure 1 shows the ADONIS architecture, which consists of three main levels: the repository, the application components, and the user interface. Optionally, the ADONIS application server can be used to access the repository and the application components via the ADOweb Web Services interface, which supports browser-based modeling with ADONIS. ADOweb is also used to integrate ADONIS into corporate portal applications, and for creating “BPM portals” designed to provide a single point of access to corporate EA and process information.

![Figure 1. Overview of ADONIS Architecture.](image-url)
The ADONIS architecture supports XML import/export and scripting and plug-ins, allowing integration into existing customer specific infrastructures. All repository information such as configuration information (ABL proprietary format), user information (UDL proprietary format), and model information (XML) can be imported and exported between different ADONIS installations or to other environments.

ADONIS is separated into two toolkits: the administration toolkit and the BPM toolkit. The administration toolkit provides user administration, meta model administration, and configuration management facilities. The BPM toolkit provides the end-user application components. This division provides a clear separation of administrator and end-user tasks. All necessary components are directly available from a single UI within each toolkit.

### 2.2 Usability and User Interface

ADONIS supports general business users (i.e., managers) as well as more technical analysts. It features an intuitive GUI based on the MS Windows paradigm, and MS Office users should feel quite comfortable with its large number of functions and features. ADONIS also includes user-support features designed to assist users with modeling and analysis tasks, including:

- Interactive framework picture – helps users choose relevant model types
- Methodology wizard – assists users in following a methodology
- Integrated help files (including on-line help as well as PDF files as printable versions)
- Embedded help on objects and attributes
- Context sensitive help

ADONIS features intuitive modeling facilities for creating and managing models. Model design features include the ability to drag-and-drop objects from the palette. A table view also provides a spreadsheet for users to display and edit the properties of each modeling object.

Each modeling object or connector has a specific set of attributes for capturing information. In the model editor, these attributes are shown via a property dialog box called “notebook.” Double-clicking on an object opens its notebook in which you can add detailed information in tabs and fields. Fields are not only simple text fields, as ADONIS supports many strongly typed attributes, including text, number, date, time, enumeration (simple/multiple selection), record, inter-reference, expression (user-defined formulae), and program calls. This range of attribute types provides considerable capabilities for structuring and formatting of information.

ADONIS’s notebook paradigm provides users with a very powerful but intuitive way to manage process and process-related information. Notebooks are not only used to define detailed information about objects, but can also be used to navigate from one process to another process (by referencing an object in another model, for instance). Notebooks can also be configured to work like a filter to specific information (e.g., cost) or capabilities (read/write, etc.) in order to support specific users with varying levels of functionality and access to information. (Customization is usually carried out by an administrator by organizing the various tabs and fields in the notebook.). Figure 2 shows the notebook of an Activity object, with different chapters or pages. “How to use” explanations for the object or each of its fields are available by clicking on the blue “i” icon. The responsible role is documented by referencing an existing role from a working environment model.

ADONIS allows a large range of graphical representations – from geometrical shapes to any picture. Other shape properties include resizing, expand/collapse, auto-grow, and flexible text positioning. In addition, the tool supports complex graphical representations that embed customizable visualization logic, depending on attribute values (e.g., IF Activity has Input Documents THEN Display a document icon). This feature makes the tool particularly user-friendly; by displaying information stored in a notebook, users are afforded an at-a-glance view to a lot of information related to a model.
For documenting processes, ADONIS uses the swim lane paradigm for its workflow model. Users have the choice of using horizontal or vertical swim lanes. Other helpful features include an undo function, auto-save, and various user-friendly attribute types (e.g., list, radio buttons, check boxes, tables). Figure 3 shows a process flow model as well as KPIs displaying process-monitoring data from process execution environments. The modeling palette shows all available types of objects and connectors. You can display their names by highlighting them with the mouse.

Other notable model display features include a full-screen mode, zoom options, connector marks at page borders to ease working with large models, the ability to shrink or expand referenced sub-processes, and print preview with page setup.

The ADONIS model editor supports multi-page diagrams, movement of multiple objects, object alignment, automatic object numbering; automated positioning (via hierarchical positioning algorithms), and floatable windows and toolbars.

The ADONIS Model Explorer provides a number of features to support model navigation, including:

- Model exploration – folder structure display, object and connector browsing within a model
- Model navigation – drill-down navigation with hyperlinks, a process stepper that “walks” the user through each step in a process, and path analysis
- Productivity-enhancing features – expressions for automated value definition, global change on attributes, and automated model generation

Figure 2. Notebook, Object Selection and Reference Dialog in ADONIS.
Figure 4 shows the Model Explorer GUI and several models, including a process map, org chart with roles, and process model. The Model Explorer shows the folder structure that is accessible for the logged user, including write-protected folders and models. If a model/object includes a reference to another model/object, this reference can be shown in the model editor, and users can follow it by clicking on the hyperlink, for example, navigating to a sub-process.

ADONIS also offers various quality-enhancing features for enforcing compliance with modeling rules. These include “correct-by-construction” enforcement, valid and default values for attributes, semantic checking, and scripts for quality assurance.

ADONIS provides a rich set of functionality that allows you to tailor the tool to support different users according to their specific needs (e.g., roles, goals, languages, skills etc.). This includes a multi-lingual UI, multi-lingual model and HTML documentation (e.g. language-specific attributes), and the ability to define end-user-appropriate notation and terminology.

Notable features for configuring ADONIS to support specific levels of users include

- Defining specific repositories dedicated to different user groups, with or without shared models.
- Exposing or hiding tool features, such as components, menus, toolbars, according to a specific user group.
- Defining specific information levels available to each user group (e.g., available model types, models, objects, attributes, etc.).
- Adding extensions – specific customization functions (scripts) that are available according to model-driven role-based permissions (e.g., validation workflow, publishing rights, etc.).
The ADONIS administrator configures the tool via intuitive menus, which are used to hide or lock items according to specific end-user audiences. In this manner, each user is presented with a personalized environment that displays information relevant to their roles and needs.

ADONIS offers a number of features to cover various analysis requirements: standard queries, pre-defined queries, ad-hoc queries (supported by a wizard), search mechanisms, and cross-reference matrices. Queries involve models, objects, or attributes. Users can follow documented interdependencies (through inter-references or connectors), carry out impact analysis and get a comprehensive understanding of the system. Results of such queries are provided as tables. Another solution is to visualize analysis results as a model (e.g., service dependency model, etc.).

Finally, ADONIS offers extensive support for multi-national organizations, with versions available for English, German, Spanish, French, Italian, Greek, Polish, Hungarian, Czech, Russian, Bulgarian, and Romanian languages.

**2.3 Repository Options/Team Development**

ADONIS is a repository-based tool. The repository can reside on IBM DB2, Oracle, and Microsoft SQL Server databases.

ADONIS supports multi-user workgroups in several ways. In addition to the ability to publish models to the Web, the ADOweb interface provides Web-editing of ADONIS models (but in a more limited capacity than is available using the full client-server version). You can also integrate ADONIS into corporate portal applications using ADOweb.
ADONIS uses a file-based directory system (versioning numbers, etc.) for managing models; folders in directories have (assigned) different access rights based on user-assigned roles and privileges. A model comparison utility is also available for comparing different versions of models in the ADONIS repository.

ADONIS also integrates with Concurrent Version Systems (CSV) and other external Document Management Systems (DMS) that provide check-in/check-out capabilities. Such configurations are typically used for large projects involving multiple environments (IDEs, CASE tools, etc.). More sophisticated version management capabilities (than those found in the standard ADONIS package) are available through customization of ADONIS’s version management and model-tracking capabilities.

2.4 Integration with Other Products

ADONIS offers various capabilities for integrating with third-party tools and applications, including

- Link or program calls without data exchange – attributes in the notebook or functions in menus that can link and open an external program with given launch parameters (e.g., opens IBM Rational ROSE with the corresponding MDL/XMI file).
- Interface for data exchange. Implementation is done with ADONIS API (i.e., AdoScript) or with one of the multiple import/export formats supported by the tool, which include: XML, XMI, XPDL, BPEL, FDL (IBM Websphere), XFR (TIBCO Process Suite), Text, CSV, XLS, RTF, DOC, and PDF.

ADONIS offers direct integration with the following third-party tools and applications:

- BPM/EAI/Workflow platforms: Microsoft BizTalk Server, Oracle BPEL Manager, IBM WebSphere Workflow, TIBCO Process Suite, and DOMEA
- IDEs and CASE tools: IBM Rational ROSE, Eclipse, and MS Visual Studio Team System
- Enterprise Content Management Systems: PC DOCS (ODMA) and Lotus Notes
- GroupWare: Lotus Notes (NotesCall) and MS Project (Microsoft Sharepoint Team Services).
- Simulation tools: ARENA
- Drawing tools: MS Visio

3. Analysis and Process Modeling

3.1 Enterprise and Organization Models

Enterprise Architecture Models

ADONIS supports a number of EA frameworks including Zachman, TOGAF, DoDAF, NGOSS, and OSSAD. BOC also offers pre-built libraries for special frameworks (e.g., LOVEM) or guidelines on how to use ADONIS and other BOC products for a given framework.

Concerning EA framework (and methodology) support, ADONIS is very extensible. ADONIS is based on a meta modeling technology that provides a very flexible architecture (meta meta model) and meta model design tools for customizing or designing any type of EA framework. All framework configurations are stored as libraries, and can be managed with other available libraries via the “Library Management” component of ADONIS administration toolkit. (See Sections 2.2 and 4.1 for more on ADONIS’ customization features.)

Organization Models

ADONIS provides modeling capabilities for depicting organization charts and for documenting organizational units, actors, and roles. Further documentation attributes include skills, presence, and availability. These various elements can also be referenced from the process model and linked to swim
lanes, processes, activities, or any potential object. These links are very important for reporting issues based on cross-references (e.g., role-activity matrices, org unit-process matrices, etc).

BOC also provides, with its optional ADOorg product, an interface to get current information related to the organization from Human Resources Management Systems (HRMS). This interface automates the management of nested organization charts by enabling

- Data collection from SAP HR module or other systems
- Automated model generation and import mechanism with updating facilities
- Automated generation of hierarchically structured charts
- Documentation and aggregation of HR metrics

**Resource and Cost Modeling**
ADONIS supports modeling of any resource involved in the process execution. Costs can be defined for each resource and used during simulation for personnel or equipment cost calculations. Schedules are documented using an attribute of type “Calendar,” which stores input data for workload analysis. (See Section 3.4 for more on simulation). Resources can also be shared and allocated to activities of a process.

Users can also adapt the “Resource” object to specify a large range of resource categories with optional graphical symbols – examples include plane, truck, warehouse, production plant, etc.

**Mapping Organization Strategies to Performance Measures**
ADONIS supports documenting performance strategy and goals, and mapping organizational strategies to processes and performance measures. For example, ADONIS process models show indicators that can be documented with current and target values that lead to a score calculation. (This capability supports process monitoring as well).

BOC also offers several supplemental products for representing items related to strategy or performance in process models. ADOit features a meta-model that includes the following modeling objects: “Strategy,” “Goal,” “Project,” and “Indicator.” Relations between these objects allow users to map strategies to KPIs. Typical applications encompass IT governance, business-IT alignment, and IT project controlling. Processes in ADOlog include attributes to store values for SCOR-KPIs. In addition, ADOscore provides models and automation mechanisms designed specifically for configuring BSCs, defining initiatives, collecting metrics, aggregating indicators, and for publishing dashboards via a Web-based controlling cockpit.

**Managing Process Portfolios**
Once KPIs or other information (e.g., maturity level) are documented in the “Process” object, ADONIS’s analysis component allows users to filter process portfolios – for example, per org unit, per business domain, or per process owner, and so on. On the model management level, users can set up a practical folder structure to organize models into folders corresponding to specific portfolios. A graphical visualization of the portfolio is also possible using process maps.

### 3.2 Defining Processes
**Defining Processes**
Processes are described graphically as well as in a notebook. Process information is documented in attributes of the “Process” object, and as a model that graphically depicts a sequence of activities, with control or information flows.

Users can consider a number of documentation views including: functional (activities, sub-processes); organizational (actors, resources); dynamic (sequence, flows); content (artifacts, products); quantitative (times, costs, and other metrics); and context-oriented (version, variant).
ADONIS offers visualization modes to select which items in a model should be visible or not in order to provide better visibility of the models. This is important, because in some cases, trying to display all views in a particular model is inappropriate. For example, system integration projects typically require a description of the same process from a business perspective and a technical perspective. While the notation for the business perspective has to remain extremely user-friendly (e.g., focusing on organizational issues), ADONIS can be tailored to provide a suitable notation for the technical perspective (i.e., related to Use Cases of IT systems [BPM, Workflow, ERP etc.]).

Process Information Storage and Integrity
All information is stored in the ADONIS repository. Mechanisms for integrity management include access-rights, permissions, and locking mechanisms. (See Section 9 for more about system administration and security.)

Graphical Notations
ADONIS supports a range of pre-defined graphical notations, importable as libraries or model types, including ADONIS (proprietary), BPMN, UML 2.0, LOVEM, EPC, and OSSAD. ADONIS can also be customized to support any graphical notation. (See Sections 2.2, 3 and 4.1 for more on customization.)

A model transformation utility is also available. For user groups working on the same process but using different modeling notations (e.g., ADONIS Standard vs. BPMN, etc.), the BOC Model Transformer provides automated transformation of models from one particular notation to another. It also provides visualization options to view a model using a selected notation.

ADONIS supports all elements and attributes ("Complete Element Set") of the BPMN 1.0 specification. Thus, BPMN processes can be created, analyzed, simulated, documented, and published using ADONIS.

In ADONIS, UML 2.0 fulfills the "Compliance Level Complete (L3)" – all 13 diagram types with all notation elements are implemented in compliance with the standard. The structure diagrams allow for an illustration ranging from class structures to the structuring of whole systems and architectures. You can also display the sequence of actions between static parts in various ways using behavior diagrams.

3.3 Subprocesses and Activities

Handling Subprocesses and Activities
ADONIS supports any number of nested levels of decomposition. Users can easily navigate decomposition diagram hierarchies via hyperlink or by clicking on the symbol. Starting from a process map, a “Process” object may reference

- A process map, with a decomposition into subprocesses
- A process model with a sequence of activities, including references to other processes

If a lower granularity is required, users can link procedures or work steps to activities as external documents.

Defining Activities
Activities in ADONIS are used to graphically describe which tasks are executed within a process. Because they can link many elements of an EA framework together (e.g., links to roles, applications, documents, etc.), activities are key modeling objects. Activities in ADONIS contain necessary information related to different views (See Section 3.1).

Documenting Decision Rules
Rules that alter a process sequence are captured and depicted through logical operators, objects, or connectors as is appropriate to the notation used. Transition condition and probability are documented for each branch of the process. (See Section 3.4 for more on simulation). Rules/events that do not alter
a process sequence can be either documented within attributes of the activity or shown as separate objects in the model.

**Rules Entry**

See above.

**Activity Costs, Resources, and Time Data**

In ADONIS, each process, subprocess or activity object offers several standard attributes to store cost, resource, and time data. User-defined metrics can be added via customization. This information can also be used for simulation purposes. A bottom-up aggregation of this data from individual activities to the whole process, through all decomposition diagrams, provides metrics on the higher description levels of the processes.

Various approaches for calculating costs are possible, allowing users to perform complex activity-based costing (ABC). The optional ABC module supports As-Is and Should-Be analysis. Typical results include resource costs, personnel costs, and activity costs. These results can be mapped to processes, organizational units, or cost centers.

### 3.4 Simulation

**Simulation Capabilities**

ADONIS's simulation component is directly integrated within the tool and provides discrete, event-based simulation. A simulation library is included that provides four simulation algorithms as well as animation and playback capabilities.

**Path Analysis**

Path analysis simulates a business process without taking the working environment (“resource model”) into account. Results include times (e.g., cycle time, execution time, etc.) and costs of the business process, as well as details for each specific path that can be chosen within the process. A path analysis gives the opportunity to calculate the amount of personnel needed for a process. Using path analysis, the critical process path can be determined and every possible path in the process model can be analyzed regarding its frequency, execution time, cycle time, and resource costs, etc. Results are displayed in spreadsheet as well as graphically (i.e., in charts as well as directly in the process flow). The results of a path analysis provide a basis for determining process weaknesses (e.g., activities rarely executed, paths with very long cycle times, etc.) and offer an overall picture of the business process.

**Capacity Analysis**

Capacity analysis simulates one or several business processes, taking into account the working environment of the organization. In addition to the results of the path analysis, the workload, personnel costs, and the personnel capacity required are also calculated. By simulating the processes in different working environments the implications of different scenarios can be modeled and analyzed.

**Workload Analysis**

Workload analysis simulates one or several business processes within a given working environment model. Using a process calendar, the likelihood of a new process being started is defined (often this kind of information can be obtained from EDP supported applications – e.g., the call routing server of a call center – and may be imported via the ADONIS XML interface). For each employee, his/her availability is documented in an employee calendar. Results of workload analysis simulations enable users to determine the dynamic waiting times that occur during process simulation (e.g., due to a lack of resources, etc.), thus allowing you to identify bottlenecks in processes and to schedule an optimum utilization of the existing (personnel and material) resources. Bottlenecks are easily visible with the use of animation while process simulations are run. Two different types of workload analysis are available: one is based on the number of processes to simulate; the other on a fixed period of time (e.g., 1st - 30th June).
The inter-arrival times of processes and the resource calendars are described by statistical distributions such as normal, exponential, uniform, and discrete. The process flow is described by transition conditions (business rules). Complex transition conditions can be defined by composing simple conditions using AND, OR, and NOT operators. All statistical information such as times, costs, probabilities, conditions, and so on, can be either directly inserted within ADONIS or imported from external spreadsheets or via XML. Simulation input data is analyzed for consistency before execution of the simulation model – for example, to check the likelihood of all transition conditions at a decision point to be 100%, or to check the structural consistency of the business process models and working environment models, etc.

Analytic Capabilities
ADONIS uses a flexible process simulation meta model. Thus, it can simulate business process models regardless of their underlying modeling language or notation (e.g., BPMN-based models can be simulated). ADONIS also integrates with third-party simulation engines (such as Arena) via its XML interface.

Simulation results can be stored within its corresponding input models and further analyzed using the ADONIS evaluation component. This allows evaluations such as “Provide all business processes with a cycle time greater than two weeks.” (See Section 2.2 for more on ADONIS’s analysis capabilities.)

Real-time Data Utilization
ADONIS’s simulation component does not support receiving real-time data feeds or interaction with operational systems during a simulation (i.e., ADONIS can import data from operational systems before a simulation but can not receive data once the simulation is begun).

Model Distribution and Simulation on Enterprise Networks
ADONIS does not support simulation of models from different repositories distributed across a LAN. Rather, all simulated models must reside in the same repository.

Statistical Fit/Data Analysis
See above.

Capture and Reporting of Simulated Metrics
Simulation results are displayed in spreadsheets and, graphically, in charts, as well as directly in a process flow. Using ADONIS’s publishing component, all simulation results can be made available in an organization via Intranet or email.

4. Business Process Methodologies

4.1 Business Process Methodologies
ADONIS does not enforce any specific modeling methodology. Rather, it is designed to support whatever modeling approaches the user desires, based on standard components like Acquisition, Modeling, Analysis, Simulation, Evaluation, and Import/Export. Thus, ADONIS can be tailored to reflect these and other methodologies, with a specific repository structure, customized functions, and additional components. (For more on customization see Sections 2.2 and 3.)

Examples of supported methodologies include:

- Process Improvement: Six-Sigma, ISO 9001:2000, TQM, ITIL.
- Process Re-engineering and Transformation: LOVEM and NGOSS SANRR (i.e., Scope, Analyze, Normalize, Rationalize, and Rectify).
4.2 Six Sigma Support

ADONIS’s general capabilities can be applied in the context of the DMAIC and DMADV cycles to support Six Sigma efforts. BOC consultants can provide guidance to set up all conventions for a Six Sigma project with ADONIS. With business modeling and simulation and evaluation mechanisms, ADONIS offers model-driven solutions for several Six Sigma applications. The ADONIS import/export component allows data exchange to MINITAB or JMP statistical analysis tools via MS Excel spreadsheets or CSV files.

5. Report Generation and Document Management

ADONIS supports various formats for exporting repository content, including

- Text documentation of object or query results (XLS, CSV, TXT, HTML)
- Model graphics (PDF, BMP, JPG, EMF, PNG, PCX, SVG)
- Model information: XML, SGML
- Model information and graphic: HTML, RTF, Word, and PDF

Publishing functionality includes HTML document generation (which can be tailored to client-specific needs). Thus, users can obtain a generated website that meets their intranet/extranet layout requirements. Reports are available for a single model, a model list, or a model hierarchy (e.g., all referenced models). Other options include various layout settings, format profiles, and the application of filters on objects or attributes. You can also print models directly, and ADONIS offers enhanced features, including print preview, layout setting, or scale selection.

ADONIS offers document management capabilities ranging from a simple link to a complex interactive solution. For example:

- Embedded picture – models can embed pictures as background illustrations or as a graphical representation of modeling objects.
- Linked document – the ADONIS notebook has a typed-attribute called “ProgramCall” that lets users easily link to any type of document (e.g., videos, presentations, procedures, etc.). This attribute takes two parameters: a file-system path or a URL, and the program’s name that should open the file. For example, this feature could be used to enter the URL of documents stored in a document management system (DMS). If necessary, referenced documents can be attached to the generated Website and included in the HTML package.
- Modeled document – the modeling of documents used means they are more easily managed by making them less abstract than links and by applying all analysis facilities of ADONIS to them. For this reason, ADONIS provides a modeling object called “Document,” used to specify meta data of the document (e.g., keywords, responsible person, and last update). This allows users to get a better overview of documents, display a documents map, and visualize icons of the document’s type (e.g., Word, PowerPoint, Excel). It also provides a hyperlink or a file system link to directly open the document in ADONIS.

Related features in the process model:

- An icon is displayed on “Activity” objects to show when documents have been attached
- A list of input/output documents can be displayed close to the object referencing them, with navigation capability via hyperlinks
BOC has implemented solutions to integrate ADONIS with DMSs (e.g., PC DOCS). Users can directly link documents stored in the DMS, open these documents in ADONIS, and get meta data from the DMS to fill attributes in the document’s notebook. Links to DMS documents remain available on the generated Website using plug-in technology.

ADONIS also integrates with Lotus Notes. This includes import/export of data between both tools and the ability to reference/open Lotus Notes documents from ADONIS.

6. Development Environment

6.1 Language of Tool

ADONIS is written in C++, with add-on components in C and Java. Other languages used include XML, XSLT, SGML, DSSSL, and SQL. ADOweb is written in Java.

6.2 Product Support, Maintenance, and New Versions

Minor versions (e.g., patches and minor functionality extensions) are delivered approximately every 4-6 months. Major versions featuring major functionality extensions are delivered approximately every 18 months. Both minor and major versions are delivered via CD and email.

7. Software Modeling and Code Generation

ADONIS supports business-driven software engineering with a number of modeling and reporting features that can generate comprehensive project documentation. Various model types or concepts can be added to cover project specific needs and to ensure integration of business process models with the corresponding technical models.

ADONIS also exports XMI files to CASE tools and IDEs with software code generation capabilities. Typical benefits are enhanced use case descriptions, comprehensive risk/impact analysis, and a better introduction of the system to its users.

ADONIS assists users in many activities of a software process, especially for business modeling or requirements of engineering disciplines and for the transition phase. ADONIS can also support different software process improvement approaches such as

- CMMI - SCAMPI (Standard CMMI Assessment Method for Process Improvement)
- ISO 15504 / SPICE (Software Process Improvement Capability determination)

Software models:
- Add-on library with all UML 2 diagrams, or an extension of the customer’s library with some UML diagrams. Customers may purchase the whole library (consisting of all 13 diagrams), or ask for 1-2 models (typically use-case or class diagrams) to be integrated into their existing library. The first option is for the customers who want full UML-compliant modeling capabilities. The second is for customers who just want to bridge the gap between business and IT while integrating both business and UML models.
- XMI import/export.
- ADONIS integrates with Eclipse via XMI.

Workflow models and code:
- Export: BPEL (e.g., Oracle BPEL Process Manager); Import/Export: XPDL, FDL (IBM Websphere Workflow), XFR (Tibco Process Suite).
7.1 UML Model Generation
As indicated above (see software models), ADONIS offers three levels of support for UML: modeling, XMI generation, and transforming business-level models to UML models (e.g., MDA approach, BMT).

7.2 BPEL Generation
ADONIS generates BPEL code from BPMN models or models using other notations. It supports the complete range of modeling levels, from the business side and optimization through to the technical realization. This integration has been demonstrated through a coupling with Oracle BPEL Process Manager.

8. Templates and Frameworks
BOC offers several products, including those designed to integrate directly with ADONIS's modeling functionality, as well as separate pre-packaged solutions that incorporate horizontal and vertical templates and frameworks.

BOC has built capabilities in ADONIS that enable it to expose templates or frameworks in a variety of ways, including

- Pre-built repository structure (new library/product/product configuration)
- Repository extensions (extensions of an existing library, shapes, etc.)
- Pre-built models with linked documentation (e.g., ITIL, BSC, SCOR documents, etc.)
- Pre-built reporting tools (e.g., SOX)
- Pre-configured tools for semantic-checks and correct-by-construction modeling

BOC offers the following pre-packaged and customized solutions:

- ADOscore (BSC), ADOit (ITIL), ADOlog (SCOR), and PROfit (ISO 9001:2000 and other quality standards).
- Various configurations of ADONIS: ADOmed (Healthcare) and ADOegov (Public Administration).
- An importable package of pre-built models: ITIL, CobiT, CMMI, eTOM/SID/TAF, MOF, SPICE.

BOC also offers services to extend a customer's product to support Six-Sigma, SOX, and Basel II.
Balanced scorecards and metrics definitions are also available for ADOscore for banking, healthcare, and IT.

9. Systems Administration and Security
ADONIS provides advanced features for security management, user administrations, and repository/model management.

Security Management
User authentication. ADONIS supports the Single Sign On (SSO) protocol that offers unified login and advanced security for user authentication and password management.

Information confidentiality. Administrators can control access (no access, read-only, full access) to information captured in models according to defined user profiles. Facilities for filtering object types and their attributes before publishing the models supports the selection of any published information.

Data storage. Database backups and security policies defined by the IT department can be applied to the ADONIS repository. Another way to secure data is to export the models as XML files, which could be periodically stored in external archiving systems (e.g., CVS).

User Administration

User administration includes user groups, users, and user profiles. Users and domains can be imported from LDAP directories (Windows Active Directory). Administrators use the ADONIS administration toolkit, which offers intuitive menus to define user profiles and workspaces that specify access rights, permissions, and available libraries or components.

Model Administration

Each model has meta data that is entered by the modeler (e.g., table with change history, keywords, etc.) or automatically provided by the system (e.g., last user, date of last modification, etc.). Other coordination features include objects for information exchange (e.g., note) and teamwork attributes (e.g., To Do list, Open Questions field, etc.).

Each model has a version number. ADONIS supports any complexity level for version management, regarding version number policies (e.g., policy for minor or major versions) or model status strategies (e.g., workflow for reviewing, validating, publishing, archiving, etc.).

Some end-user organizations require enhanced change and history management capabilities. ADONIS can be customized with scripts (AdoScript) that generate audit-trails listing all changes.

10. Scalability

ADONIS can scale from a single user to hundreds of users and enables the management of a shared repository across organizations and locations. It can be deployed stand-alone; client-server or in thin client-server configurations. Different deployment variants support low-bandwidth networks with only tens of kilobytes in a WAN up to high-speed networks within a LAN or Intranet.

Some projects require both stand-alone and client-server configurations, for example, when external consultants also work on models. For such cases, ADONIS offers import/export facilities, locking mechanisms, as well as model consolidation features to ensure the integrity of stored information.

Once validated, models and their documentation can be published as Web pages, exported from ADONIS as a separate HTML files package, and distributed among organizations via intranet/extranet.

Scalability also refers to languages and variant management. BOC has developed multilingual features for the ADONIS GUI and models. On the model level, users can access language-specific attributes directly in the notebook and can choose to visualize the model in the required language. ADONIS supports complex variant management, for example, in the case of product- or country-specific processes/activities. BOC identifies three variant levels:

- Model – each variant is described in a specific model; navigation from the global model to specific models is achieved through model pointers and hyperlinks.
- Object/Path – each variant is represented on the same model using variant-related objects and paths.
• Attribute – each variant is documented in the notebook using tables or language-specific attributes grouped by tabs.

ADONIS supports simulation of complex processes, for example, with several hierarchical sub-processes, linked to large working environment models (organizational diagrams with roles and actors). The same business process models can be simulated related to different working environments without changing the models, just by combining them with so-called application models (i.e., simulation packages), saving considerable time in model building.

11. Platforms

ADONIS’s client application runs on Windows NT 4.0 (SP6a), 2000, XP Professional/Home. ADONIS is also compatible with leading terminal services technology (e.g., Microsoft, Citrix). Repositories are hosted on Windows NT 4.0 (SP6a), 2000, 2003, XP, HP-UX, AIX, Solaris, and Linux servers. ADOweb runs on Java-based and J2EE environments.

12. Pricing

ADONIS distinguishes between stand-alone licenses (“named use” licenses) and multi-user licenses in a client-server environment (“concurrent use” licenses). Concurrent user license means that organizations can install ADONIS on an unlimited number of client computers, but only the maximum number of purchased licenses can connect concurrently to the ADONIS database. Furthermore, two functionality sets are distinguished: the ADONIS Business Edition contains modeling, analysis, import/export, publishing, and administration components; ADONIS Professional Edition contains the following additional components: information acquisition, simulation, and evaluation components. All license information is configured and centrally stored via license numbers in the ADONIS repository. Site licenses and group licenses are also available.

Licensing for ADONIS Business Edition starts at 2.100,00 EUR; ADONIS Professional Edition starts at 2.700,00 EUR. Because ADONIS multi-user licenses are “concurrent use” licenses, typically at least two users can be covered by one “concurrent use” license.

• 8 users-configuration for 16.000,00 EUR achieved with 4 “concurrent use” licenses for ADONIS Professional Edition and 1 ADONIS server license
• 32 users configuration for 48.400,00 EUR achieved with 16 “concurrent use” licenses for ADONIS Professional Edition and 1 ADONIS server license


13.1 Company Background Information

BOC was founded in 1995 as a spin-off of the BPMS group of the Department of Knowledge Engineering at the University of Vienna. BOC is privately held and is headquartered in Vienna, Austria, with subsidiaries in Berlin, Madrid, Dublin, Athens, Warsaw, and Vienna.

BOC has emerged as a worldwide consulting and software firm specializing in strategy management, BPM and IT management. It has over 130 employees working in platform and product development, technical support (40%); consulting services, customer projects and sales (50%); and training and seminars (10%).

BOC’s customer base includes more than 500 customers worldwide. The company has experienced steady growth since its formation, reaching an annual turnover of 12 million Euros.
Since its inception, BOC has been strongly committed to R&D and innovation in the field of IT-based management approaches. It is involved in national and international research projects and presents papers at relevant scientific conferences and workshops. Well-known BOC research results are the Business Process Management Systems paradigm (BPMS) and the Enterprise Model Integration approach (EMI).

**13.2 Positioning**

BOC has positioned ADONIS to support the full range of EA modeling and business process change activities, including

- Enterprise architecture modeling and analysis
- Process modeling and analysis, redesign, and improvement
- Detailed process modeling and analysis
- IT support/software development
- Human performance improvement initiatives
- Development of management and measurement systems

BOC has made a considerable effort to provide the features and functionality necessary to position its product to support the full spectrum of EA and BPM needs. In short, ADONIS is a very well thought out tool that provides powerful, feature-rich modeling and analysis functionality behind a very intuitive and user-friendly interface. It is also very customizable, from the languages and frameworks it can support to its GUI and role-based user access and functionality tailoring capabilities.

When used in conjunction with other BOC Management Office offerings (e.g., ADOscore, ADOlog, ADOit, etc.), ADONIS offers a very capable platform – based on a common meta model design – that supports business process modeling, enterprise architecture, IT architecture, and component analysis and systems design efforts. While its simulation capabilities support detailed process modeling and analysis. The addition of various frameworks and methodologies – including Zachman, TOGAF, DoDADF, Balanced Scorecard, etc. – make it well suited for supporting human performance improvement efforts and developing management and measurement systems. Finally, the pre-built reference models and templates offer organizations a practical means for jump-starting their EA and business process initiatives.

**13.3 Product Training**

BOC provides consulting and training support services delivered on site or at BOC offices. Training covers BOC products, including end-user training and administrator training classes, and use of methodologies and approaches such as process costing and controlling, process management, strategy management, risk management, and service management. Classes are offered in local languages. Services also include the preparation of documents such as operations manuals or modeling guidelines.

**13.4 Business Process Consulting**

BOC’s consulting services focus on industry verticals such as financial services, IT service providers, healthcare, public administration, trade, manufacturing, and logistics.

BOC offers various consulting services and workshops for EA and business process consulting. These include methodology workshops, project support in process definition, process analysis, process implementation, strategy management, introduction of information systems such as ERP systems or workflow systems, project assistance, and project management. Technical consulting services offered include product customization, integration of BOC’s products into customer-specific infrastructures, and interface development.
14. Case Study: ADONIS at Telefónica

Telefónica is a world leader in the telecommunications sector, with market presence in Europe, Africa, and Latin America. It ranks third in the sector worldwide in terms of market capitalization and has over 100 million customers in a potential market of 500 million. Telefónica is also one of the integrated operators with the largest percentage of its business outside its home market and a reference point in the Spanish and Portuguese speaking markets. Telefónica’s business activities cover fixed telephony and broadband, mobile/cellular telephony, business solutions, Internet access and content, and other business lines (e.g., guides and directories, contact center services, and content production, etc.).

The Challenge

The main challenge for Telefónica was to create a common language for business process modeling to facilitate and improve communication between departments, including communication of corporate strategy. Another key challenge was the introduction of a horizontal business organization, involving end-to-end processes, instead of the existing vertical (departmental) approach.

Telefónica required a BPM tool that could support its specific methodology and depict the company's "reality" in a way that would provide easy-to-follow process documentation. In addition, BPM and standardization should allow Telefónica to control and manage the processes efficiently, thereby becoming more proactive in the future. Prior to the selection of ADONIS, Telefónica evaluated different tools regarding their functionality, usability, and pricing. Telefónica settled on ADONIS, purchasing a group license that supports an unlimited number of licenses for all companies belonging to the Telefónica Group.

BOC's Involvement

BOC is a strategic partner of Telefónica, and its consultants have participated in various projects within the Telefónica Group. Initially, BOC supported Telefónica by designing a meta model for process management, according to customer-specific requirements. In a second step, BOC customized ADONIS to implement the specific meta model and other specifications sought by Telefónica. Additionally, handbooks explaining Telefónica's BPM methodology were created to facilitate both EA modeling and company-wide understanding of the models. BOC also provided Telefónica with advanced training on BPM concepts and ADONIS features to ensure a resource-effective application of the tool. The successful implementation of ADONIS in the main companies of the Telefónica Group in Spain, such as Telefónica Moviles, was followed by an additional rollout in Latin American companies. BOC also helped Telefónica deploy ADONIS (and trained Telefónica employees) in several additional countries, including Brazil, Chile, Peru, Argentina, Mexico, and the Commonwealth of Puerto Rico.

Results and Benefits

Telefónica has benefited from using ADONIS in various ways. First, ADONIS helped Telefónica to devise (and follow) a single procedure for its BPM projects, whereby processes are analyzed and redesigned, while business functions are defined and then assigned to processes. Next, the organizational structure is depicted (org charts), and the most appropriate systems are selected and implemented. The responsible persons approve models before publishing them as RTF or HTML documents. In the final stage, process indicators are monitored and evaluated to complete the process lifecycle and achieve continuous improvement.

Telefónica has modeled nearly all of its relevant business processes (including process maps, org charts, and process models); the repository contains about 20,000 models managed with ADONIS. As a result, Telefónica has gained better knowledge of its operations across the entire group. This allows best practices consolidation and sharing, especially for specific critical areas. ADONIS has also made it easier for Telefónica to get process certification according to the ISO 9001:2000 standards by integrating different quality management systems.
ADONIS models are shared via the company's intranet. Thus, all employees may browse published models and get up-to-date information about Telefónica’s operations, process accountabilities, or their roles within the value-chain. Relevant documents for each process step and information regarding systems are also published to ensure comprehensive understanding of the processes and facilitate efficient knowledge management.

Telefónica has also carried out additional projects with BOC to develop solutions for Sarbanes-Oxley compliance, advanced KPI management, and extended publishing capabilities.

15. Company Offices

BOC markets and supports its products globally through a combination of its own resources, complemented by a network of business partners. BOC is represented by many regional offices throughout Europe. These are located in Athens, Berlin, Dublin, Madrid, Vienna, and Warsaw. Corporate Headquarters are in Vienna, Austria.

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