



**The 2010
BPM Suites
Report on
AuraPortal's
AuraPortal BPMS**

May 2010

AuraPortal BPMS Version: 4.0

AuraPortal

400 TradeCenter, Suite 5900
Woburn, MA 01801-7472,
Tel: 978 808 6340

Web: www.auraportal.com Email: info@auraportal.com

1. Product Overview

AuraPortal is a BPMS software package developed as a 100% Internet enabled platform that provides an enterprise-wide or departmental solution for the complete management of business processes as a result of its innovative approach that incorporates, in one seamless set of 6 essential applications, the following components: 1) Business Process Management Suite (BPMS) with innovative Business Rules system, 2) A new paradigm of Customer Relationship Management (CRM) totally built with Process Pattern templates, 3) Supply Chain Management, also built with Process Pattern templates, 4) Intranet/Extranet platform with dedicated workflow for collaboration, 5) a Document Handling system that includes Microsoft SharePoint, and 6) Customizable Portals for Enterprise Content Management. AuraPortal is one of the most complete and advanced BPMS solutions on the market, backed up by a financially strong company with a large number of satisfied customers of all sizes that have been working with the product for several years.

A unique feature that differentiates AuraPortal is its automatic, on-the-fly conversion of modeled processes into executable processes without the need of any IT intervention or programming code, leaving the full control of the process creation and maintenance in the hands of business people, as seen in Figure 1.

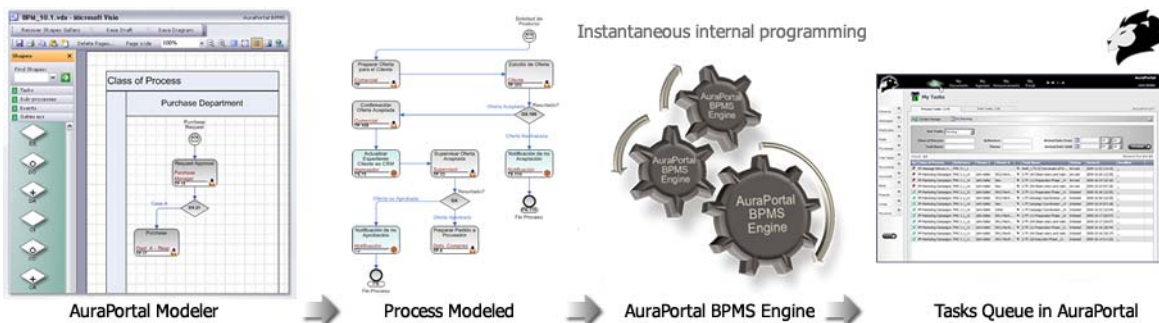


Figure 1. Steps from Process Modeling to Process Runtime.

This core concept presents three advantages: A) Eliminates the traditional communication difficulties between business people and IT people when designing and modifying processes. B) Guarantees the right design and execution of all processes with no programming errors, therefore providing robust operations and processes that exactly fit the requirements of business executives. C) Dramatically reduces process development time (and cost), with the ability to make process models changes easily, rapidly, and with immediate effect.

The executable model of any process is carried out using a diagramming tool based on Microsoft Visio and BPMN standard notation. Only some data such as the roles of the process performers and the forms design for each task needs to be defined before the process enters into execution mode.

The automatic generation of executable processes directly from the model could lead one to think that the system is only applicable to simple processes. The vendor has demonstrated however, directly and via large customers using AuraPortal for several years with tens of thousands of users, in thousands of concurrent processes that the most complex processes (that in some cases are beyond the reach of other BPM products) run smoothly, with high performance, and that are error free.

2. BPM Engine

Server Environment

Presently, AuraPortal’s server platform is based on Microsoft .NET, and developed with C#, AJAX and Javascript, running on Microsoft SQL Relational Database version 2000, 2005 or 2008. See Figure 2.

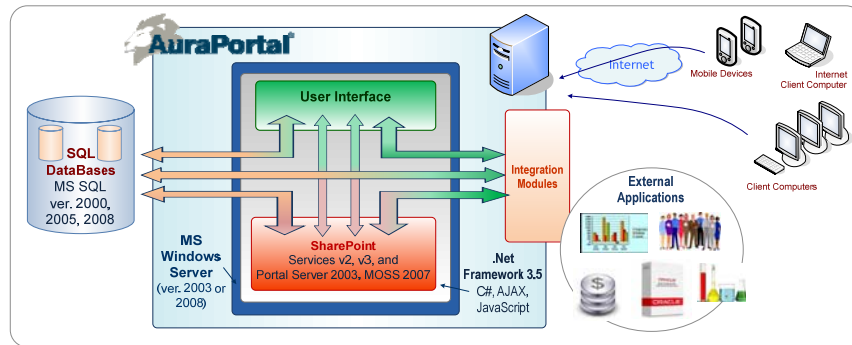


Figure 2. Core Scheme.

AuraPortal uses Microsoft products such as .NET, Visio, SharePoint, ASP.NET, Exchange, SQL Server, and Visual Studio. With AuraPortal functioning from within the Microsoft Office environment, moving information throughout the system is easy. Documents from Word, Excel, PowerPoint, etc. as well as electronic mail (Exchange, Outlook) are worked on by users within their natural habitat or environment.

This server environment is stateless, interoperable, multi-channel, multi-lingual, fault tolerant (load balancing and cluster) and scalable. As can be seen in the example contained in Figure 3, there are three AuraPortal servers with load balancing and two Database servers with a Cluster. The last are accessing an external disk drive (Hard Disk Array) that has 4 hard disks in Raid 5.

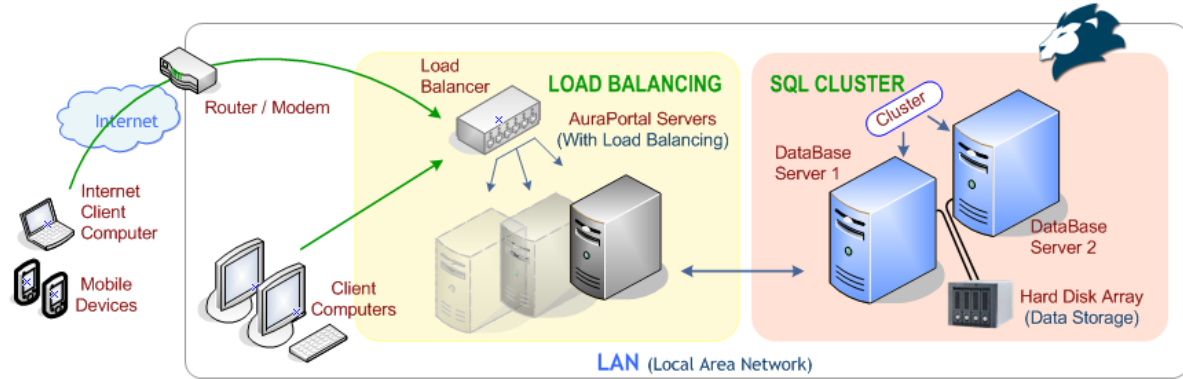


Figure 3. Fault Tolerant Layout with SQL Cluster and Load Balancing.

Client Elements

Server-Side AuraPortal integrates Microsoft SharePoint (Services 2 and 3, Portal Server 2003, 2007 and 2010) for Document Handling capabilities, although any other similar document management tool may be also linked. AuraPortal enhances the native facilities provided by SharePoint, extending the original document management capabilities to support cross-functional, end-to-end business processes with additional programming added by AuraPortal.

Client-Side Besides an Internet browser interface, which is mandatory for accessing AuraPortal, the end user has the following available applications from which to leverage the strength of AuraPortal:

AuraPortal Modeler The AuraPortal Modeler is a tool developed by AURA for business process diagramming based on the widely-adopted BPMN (Business Process Modeling Notation) standard.

The Modeler is based on Microsoft Visio 2003 or 2007, both Standard and Professional, with special features added to increase its capabilities and allowing ubiquity, that is, direct working on the server from any terminal, anywhere, via the Internet. The AuraPortal Modeler, which features a helpful syntax control function to prevent errors in the model diagram, automatically converts the diagrammed processes, once the configuration parameters are supplied, into executable processes without any need of programming.

The AuraPortal Modeler is offered free (it can be downloaded from the site www.auraportal.com) and permits the diagrams that are drawn with the Modeler be converted into executable processes without any programming effort once the AuraPortal tool is installed.

AuraPortal Utilities AuraPortal Utilities are functions developed by AURA to be installed on client terminals in order to facilitate certain client side operations. Their connection to AuraPortal is performed via Web Services. These utilities are:

- *Warning Bell* - This utility automatically notifies of the existence of new tasks in the queue of the user. The bell rings even when the user is not connected to AuraPortal. It works with employees and also with external users (customers, providers, etc.), providing a valuable mechanism for relationship enrichment and for customer retention. The Warning Bell unobtrusively displays a small window, on the bottom right of the user screen near the Windows system tray, which indicates the number of unread tasks.
- *Uploader* - This utility provides the user with a user-friendly system for uploading any document into AuraPortal without being actually logged-in, by simply clicking on the right mouse.

- *Add-In's* - These Add-In's enable the use of AuraPortal Uploader from Microsoft Word, Microsoft Outlook and Microsoft Excel.

Web Services

The extensive use of web services within the application permits the user to take advantage of all benefits of SOA.

AuraPortal has been designed in conformance with integration standards of SOA-based systems. Therefore, WSDL (Web Services Description Language) has been used, and the construction of these Web Services is handled using SOAP (Simple Object Access Protocol) technology, the standard protocol from the W3C (World Wide Web Consortium), that defines the communication between two objects using the XML standard. The majority of the information stored in AuraPortal is accessible through Web Services. In AuraPortal there are three different types of Web Services:

- Microsoft SharePoint Generic Web Services – Provided by default.
- System Web Services - Designed by AuraPortal, and included by default in the installation, these web services facilitate the performance of specific actions.
- Customized Web Services – All Message Events of a process can be published as Web Services by the business user himself. These Web Services may start processes, create events, exchange data, etc.
- In order to publish a Message Event as a Web Service, the user presses the Web Service button placed at the Event Form Design window (see Figure 4), and enters a name and a description. AuraPortal automatically creates the Web Service, completely transparent to the user.

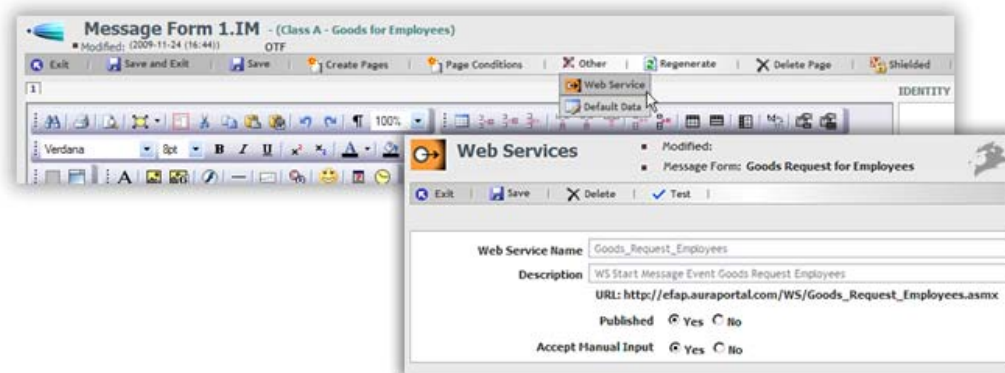


Figure 4. Message Form Web Service creation.

In addition to these three types of web services available in AuraPortal, the user may also invoke other external web services by using a system task called the Invoker. See Figure 5.

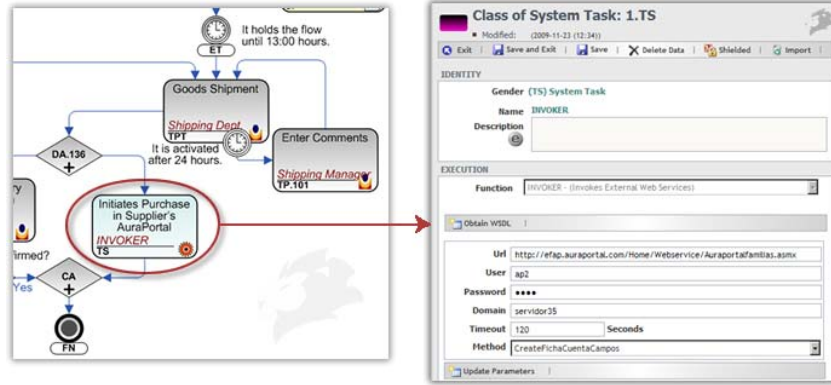


Figure 5. Invoker System Task

3. Platforms

AURA is presently developing a *Universal Platform* which will make AuraPortal compatible with every popular environment such as Linux, Windows, Macintosh, Solaris, Unix and more, as well as the native operations with practically any databases, not just Microsoft SQL Server and Oracle. This project is the result of using a unique *common-to-all programming* code which will avoid the maintenance of multiple parallel developments code lines, and will substantially reduce new version release timing. The vendor states that the new platform will be compatible with all AuraPortal installations already working on the Windows operating system, SQL Server, Oracle and ODBC.

The present edition of AuraPortal v4.0 runs on Microsoft Windows 2003 and 2008 server operating systems, both in 32 bit and in 64 bit versions. It requires Microsoft SharePoint Services 2 or 3, Microsoft Search Xpress or Microsoft Search Server, Portal Server 2003 or MOSS 2007 (version 2007 of MS SharePoint Portal Server). It supports Microsoft SQL Relational Database version 2000, 2005 and 2008.

This cost-effective platform (compared to J2EE-based BPMS tools) allows AuraPortal to provide high technology at an affordable cost, not only to large organizations, but also to medium sized companies.

3.1. User Interface

AuraPortal is a 100% web-based product, and therefore, the end-user only needs an internet browser in order to access the application.

AuraPortal is available in a variety of languages, allowing users to collaborate across geographies and languages. Based on the language set in the user's system, AuraPortal's interface is displayed in the user's specific language.

When the user logs-in, he sees the home page of the employee's portal that shows the last announcements made by the company as part of the 'content management' system.

When clicking on the "My Tasks" button (see Figure 6), the user inbox is displayed. The inbox interface is a holistic view of all tasks assigned to the user, which may be: Process Tasks, Integrated Tasks, Notifications, Alerts and Alarms, and Ad-hoc (called 'Free') Tasks. AuraPortal also supports workload balancing through automatic work distribution to users or roles, using Distributed Treatments.

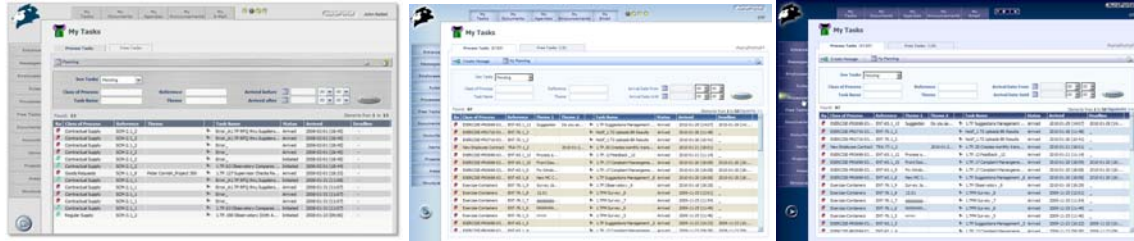


Figure 6. 'My Tasks' window (with different predefined styles).

AuraPortal allows for the use of any device as a user's terminal, including mobile devices as long as they can connect with the Internet. See Figure 7. In that sense, AuraPortal provides customized interfaces for popular devices like Blackberry, iPhone, iPad and other.



Figure 7. User Interface in a Mobile Device

AuraPortal provides out-of-the-box task views, such as: Pending, Sleeping, Cancelled, Terminated, Other's Pending, Created, I am Authorized, I am Linked to, I am the Sender, All my Tasks, etc. Tasks can also be prioritized, sorted and filtered by Class of Process, Task Name, Reference, Theme, Arrival Dates, Class of Task, Creator, etc.

From this window, the user is allowed to perform several actions such as interact with processes, export tasks to Microsoft Excel, or check the task planning of an employee or a group of employees. Additionally, the left hand buttons in the window provide links to different areas of the application including employees, accounts, items, projects, business rules, monitoring, etc.

Once inside an opened task, there are two different interfaces. One that is owned by the task itself, and the other that is the 'form' contained in the task (this one is further explained in the "Forms" section below).

With respect to the interface of the task itself: AuraPortal provides a set of configurations for defining the task actions bar, and the basic task layout (form position, comment logs, instructions, dimensions, alternative enlarged windows, etc.).

During runtime, users working on an activity that prompts a question or comment can create Integrated Tasks, which allow users to have a threaded conversation on any topic (Such as Forums) with other users. Each topic is associated with specific content and is targeted to a specific user or group of users.

The combination of all task features, which include content management, discussion forums, and document sharing, assures complete collaboration among all users in the organization.

3.2 Scalability

Vertical Scalability Vertical Scalability presents no problem in AuraPortal because the solution automatically adapts its performance (speed and workload) to the demands of the user. There are AuraPortal installations with as little as 5 users and others with more than 20,000 concurrent users and from less than 10 processes to several thousand processes running concurrently.

Horizontal Scalability Companies working with AuraPortal may scale the system at their own pace. They may start working with a few 'basic' or 'mission critical' processes, and in a subsequent phase add more complex processes as well as substitute legacy applications with new processes modeled to meet the actual needs of the enterprise.

Scalability in General AuraPortal offers competitively-priced licenses and allows for considerable flexibility in choosing the most appropriate options, which may subsequently be scaled very easily. As said, AuraPortal can scale both in number of users (small to large), in functionality (by including new AuraPortal Modules - See Figure 8) as demand increases, and in license mode (from named users to concurrent users or corporate license).

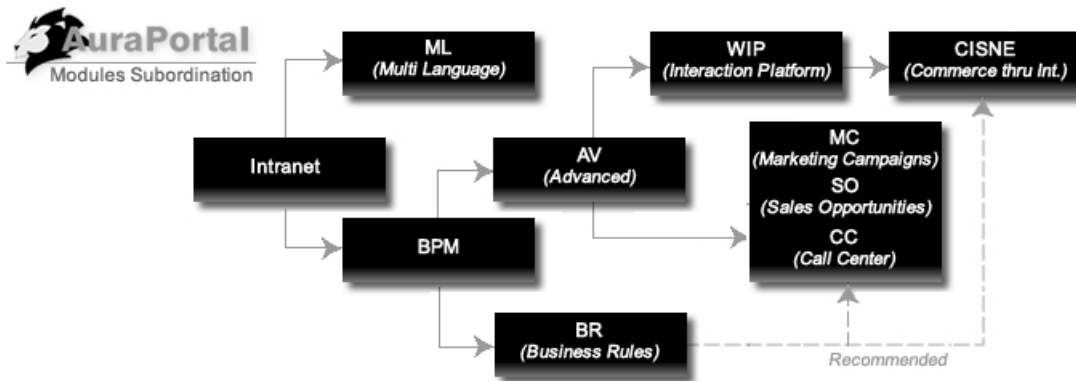


Figure 8. Module Subordination

AuraPortal is broken out into 10 modules, 7 General and 3 Special:

General Modules (applicable to all licensed users): 1) Intranet/Extranet (always required), 2) BPM (Business Process Management), 3) BR (Business Rules), 4) Advanced, 5) Multi-Language, 6) WIP (Wide Interaction Platform which provides a rich communication platform with web visitors via corporate website), 7) CISNE (For e-commerce and social networking enhancement).

Special Modules (for specialized licensed users) are Process Patterns, which are explained in “Section 10 on Templates and Frameworks”.

Scalability of AuraPortal Servers Structure The AuraPortal server structure is designed to meet the scalability requirements of large organizations. The architecture supports multiple servers running concurrently. Scalability is supported by load balancing, clustering and fail-safe technologies, as you can see in Figure 9. Microsoft Windows 2003 and 2008 have their own system of load balancing included in the operating system. Microsoft SQL 2005 and 2008 include their own cluster system that provides the mechanism so that various database servers can work in collaboration and will serve in the case of failure with the principal server. The data should be housed on a storage device that is external to these servers, which are also protected with a RAID 0, 1 or 5 system. This structure provides the facilities to partition the database across physical servers in order to prevent a bottleneck.

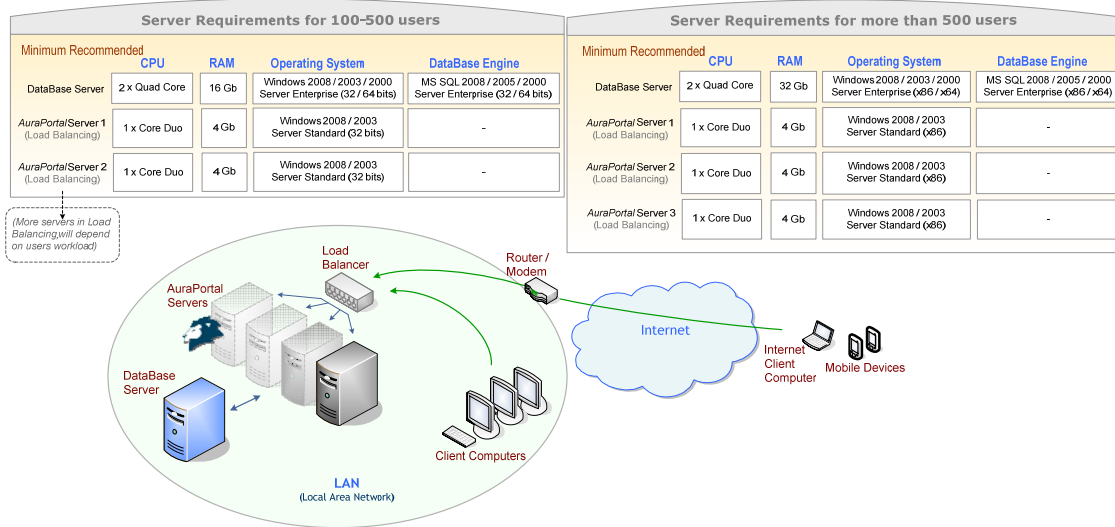


Figure 9. Scalability Examples.

AuraPortal focuses on providing to its customers a sound balance between maximum scalability and high-performance by enabling the software to take advantage of the latest technology available in hardware and operating systems.

4. Processing Modeling

AuraPortal is comprehensive and well-rounded. It is founded on a unique approach to serving business users seeking fast and efficient process automation.

It is focused on line-of-business users, which implies that IT knowledge is not required in the process development life cycle (from designing to execution, monitoring and optimization). Users are independent, in being able to design and change every business process when needed. AuraPortal has demonstrated that it robustly supports highly complex processes with very good performance ratios and free of errors.

Process modeling in AuraPortal is easy. Once modeled, any process can be tested in ‘true’ execution scenarios while being debugged and re-modeled as many times as needed on-line before being released for production.

AuraPortal was conceived from the beginning for designing models following the BPMN (Business Process Modeling Notation) standard. For this purpose, users utilize a diagramming tool containing the predefined BPMN forms based on Microsoft Visio with special features added to increase its power and functions (see *Section 2 on BPM Engine – Client Elements*). While all features included in the latest BPMN version (2.0) are considered, new mechanisms for gathering several event objects in one ‘message object’ have been implemented to facilitate the work of the model designer and also new objects have been added to enlarge the scope of the modeling system. One of them is the feature for indicating the participation of Business Rules in the process and another is the object called ‘Control Point’.

Control Point Object Control Point objects can be located in selected places in the flow diagram to create ‘snap shots’ that collect any desired information about what is happening at a precise moment and situation, allowing for more powerful and dynamic process monitoring.

An important use of the Control Point object is in the WIP (Wide Interaction Platform) module as part of the CRM solution. For instance, Control Points located in strategic segments of the process

diagram keep track of the present location and status of a product in manufacturing or in shipping and transportation. Therefore, a customer waiting for the ordered product may be informed at any moment, by entering in the enterprise WIP, regarding the product’s progress in manufacturing or its delivery status. Also, the comparison between two Control Points gives immediate information about the time-lapse and the cost associated to the particular section of the process diagram located in between these two points. These are remarkable features rarely seen in other BPMS tools.

Automated Functions While the diagram is being drawn and object attributes defined (including the Forms), AuraPortal builds, transparent to the user, the programming code for the engine that will drive and control the process execution.

The modeler tool provides help mechanisms for controlling the model structure, pointing out errors in the diagram construction and providing information for their correction so that only valid models are permitted to be saved. Once saved, the model can be switched back and forth from ‘modeling’ mode to execution modes like ‘simulation’ and ‘published’. This can be done at the configuration window of the Class of Process, of which an example is shown in Figure 10.

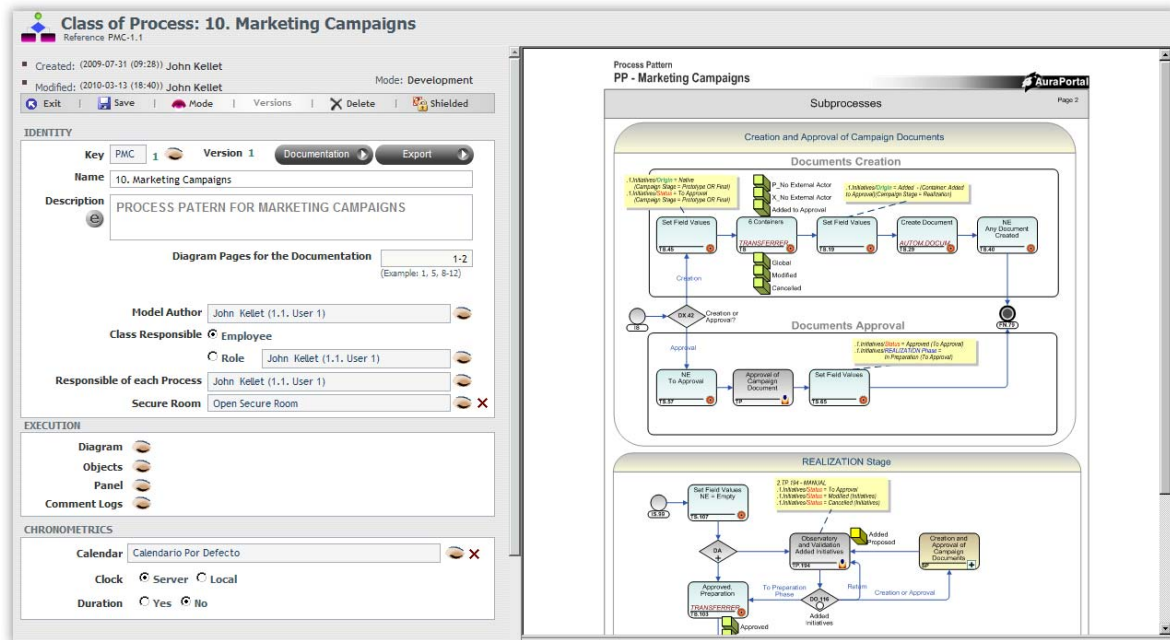


Figure 10. Configuration Window of a Class of Processes

The automatic versioning system takes care of the concurrent execution of both versions (old and new ones) while there are still processes running the old version, ensuring that the processes triggered after the publication of the new version use only the most recent version.

While the model is being designed, the system automatically generates documentation containing the detailed description of the modeled process in either Microsoft Word or PDF format.

Process tasks are classified into two types: Personal Tasks (with human intervention) and System Tasks (actions carried out by the system).

Personal Tasks Upon opening a task, the form contains all of the necessary fields enabling the user to interact with all necessary data or documents without having to leave the task itself. Each task may contain more than one form (See *Forms* section).

The tasks may contain zones with instructions for the performer. The instructions may contain a variety of information, including text, audio, video, images, business rules, data access, documents, web pages, etc. The benefit of these instructions is that the employees (including new employees) have all the information they need to correctly complete their tasks. Each task can be associated with one or more Comments Logs where each task performer writes down comments that will be viewed by the other performers of tasks that have subscribed to the same Comments Log.

A task can be reassigned to a specific user, role or group. There are Singular roles (meaning ‘context independent’, for example the person ‘responsible of quality control’) and Generic roles (meaning ‘context dependent’ where the same role is assumed by different persons depending on the context, for example, the person ‘responsible of the branch office’ when there are several branch offices). Four ‘behaviors’ are allowed in groups of users to cover all possible combinations (succession, concurrency, reclaim, and delegation). Additionally, escalation and ad-hoc routing of tasks based on personal calendars is also supported.

System Tasks There is a set of System Tasks to cover all of the activities that must be performed by the system without human intervention, for example: the creation of users and passwords, documentation, data input, automatic notifications to employees, external or guest users, web services invocation (within AuraPortal or external), deviation of process flow, etc. The system tasks are classified in types, each one composed of one or more functions. An example of types is shown in Figure 11.



Figure 11. Examples of System Tasks Types

4.1 Subprocesses

Subprocesses, represented in the diagram following the BPMN standard (with its Collapsed and Extended Notations – see Figure 12), can stand alone and can be called from any point of the diagram. By its own nature, any subprocess, when created, belongs to the repository of subprocesses where it can be recalled as many times as required from any point of the general process. And also, since AuraPortal allows the concurrent running of different classes of connected processes, any information in one of them can be directed to another, transferring the information from one to the other, so that a subprocess created in one class of process may inherit the information generated in similar processes located in a different class of processes.

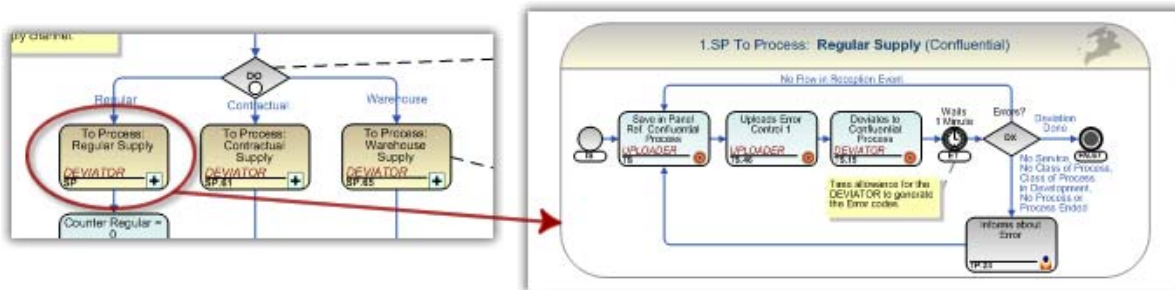


Figure 12. Subprocess in Collapsed and Extended Notation

4.2 Shared Data Space

The shared data space for a given process is in a section of the database called the 'Process Panel'. The panel contains all of the information pertaining to that specific process including all input data generated either automatically by system tasks and web services or manually by users through forms in personal tasks and message events.

The types of data that can be stored in the panel is manifold: one line text, multiple line text, rich multiple line text, whole numbers, decimal numbers, dates, dates and time, yes/no fields, simple selections, multiple selections, family elements (items, accounts, employees,...), documents, connections to external databases (adapters), singular roles, generic roles, account profiles, item profiles, lists of recipients, contacts, SharePoint annexes, integrated tasks, digital signatures, planning and other complements. The information stored in the panel is classified by general terms, prefixes, suffixes, groups of fields and keys.

Before assigning a field to the panel of a process the user will create this field in the Dictionary of Terms. Thus, the creation and maintenance of fields or terms (to be displayed on the forms along a process) is greatly optimized.

4.3 Forms

The 'Forms Designer' in AuraPortal is extremely comprehensive. AURA understands that forms used within personal tasks are the primary interfaces for task performers, which means many hours, days and months constantly working with them. See an example of AuraPortal's Form Editor in Figure 13. Therefore AURA has taken great care to help facilitate the creation of forms that support the users' required functionality and look and feel. To accomplish this, AURA provides a rich and powerful design environment for the user to create the 'perfect' form for each process task. The almost unlimited design possibilities in the AuraPortal forms designer are accompanied by a pipeline connecting the designer desk with the dictionaries, families and calendars within the application. This means that the distribution and configuration of fields in the form is done very easily, picking up the corresponding field through filtered selections from the dictionaries.

Editing possibilities are superior to commonly seen form editors. There are many features which detailed description would require many pages, going beyond the scope of this document to enter into their explanations. But at least, some hints can be given here:

The number of Forms that can be activated within a single task is unlimited. The number of pages in a form is unlimited. The number of divisions per page is also unlimited. The number of fields in a division is unlimited.

The terms (fields) placed in the form can be pre-filtered using intelligent and automatic filters according to the context. Any conditions related to values in the form, in the process panel or in external sources may be set for displaying or hiding any field or division. A validation control for entered values is also provided for the designer to incorporate constraints and limitations for each field. Some types of fields are: free, calculated, business rules, external forms, certified and guaranteed signatures... and a wide range of action buttons for process tracking, queries, triggers, links, planning, flow deviations, email tests, links, automatic documents with process context data, system tasks, etc. In addition, the AuraPortal form editor provides templates for creating the most appropriate look-and-feel, which also includes button design templates.

Divisions may contain not only fields but also 'complements' for inserting rich text, images, video, flash, sound, etc. to improve the appearance of the form. The 'complements' can also accept conditions so that depending on the circumstances during process execution, some complements are

shown and others are hidden. This allows for inserting dynamic and changing operating instructions for the task performer according to each particular situation.

In addition, forms can be designed to automatically create documents based on information entered in form. These automatic documents, created over templates called 'Base Documents' reshape themselves following the data and conditions of each instance and allow versioning.

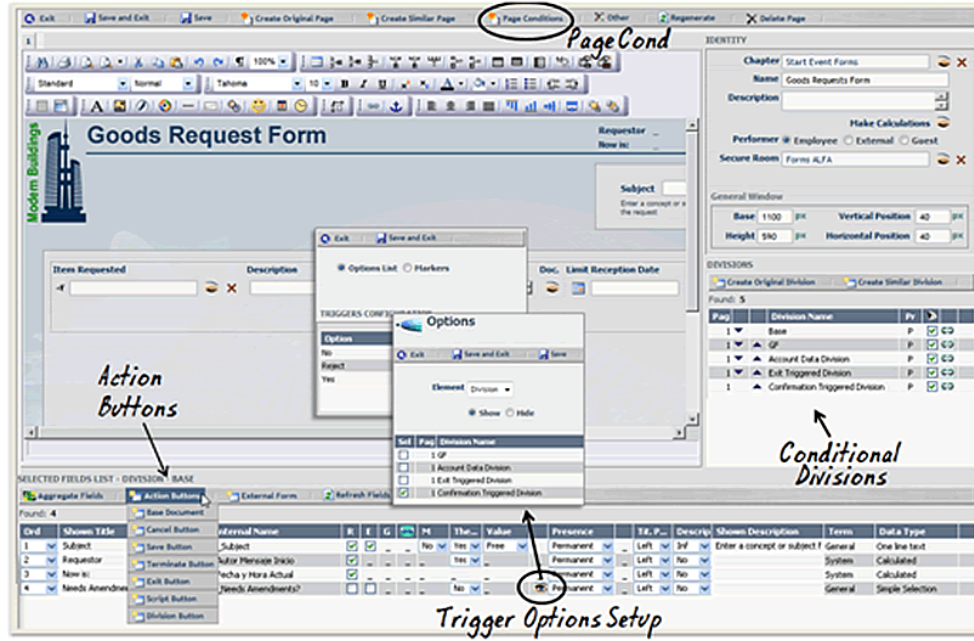


Figure 13. Forms Editor

DAD Technology AuraPortal has recently incorporated an innovative form control named DAD Technology (Dynamically Activated Divisions). This innovative system converts a Personal Task form inside a process into a powerful workstation acting as a control center with a dashboard capable of triggering an unlimited number of divisions so that many related activities can be carried out from the same point. This is a technological forward step that largely enhances the power of the BPMS making it capable of performing the most complex and critical operations of the company very easily. Figure 14 contains an example of a form using DAD Technology.

All Buttons trigger emerging Divisions for entering data

Figure 14. A Form using DAD Technology

Groups of Fields and Containers Another important aspect of the data appearing in the Forms is the difficulty of handling multiple registers in a single treatment unit. AuraPortal has solved this problem by means of the so called ‘Groups of Fields’. These are tables with predefined columns (fields) and unlimited number of rows (registers) that are managed as a single unit but in multiple ‘vistas’ according to the conditions imposed by the context so that only the columns and rows that meet such conditions appear in the form. The transference of rows from one ‘vista’ to another one can be carried out automatically or via a System Task of the type called ‘Transfer’. In the first case, the transference is made by means of the so called ‘Structured Containers’ whereas in the second case, the ‘Free Containers’ transference is applied.

Handling of bundles of elements with detailed control of each element is widely used in organizations (invoices, lists of products, contacts, etc.) but presents some data management challenges when trying to be controlled within automatic processes like BPM. AuraPortal offers a powerful solution via Groups of Fields and Containers that is simple and elegant.

4.4 Time

Time Format In an international business world, date and time issues, due to their different formats, crop up in business dealings of all sorts, from insurance forms to travel agencies, from banks to tax forms. In order to provide a world-class solution, AuraPortal follows ISO 8601, the International Standard for the representation of dates and times. ISO 8601:2004 provides one simple, logical and coherent format for all dates, times, and periods of time. It represents elements from the largest to the smallest element: year-month-day. This system avoids confusion.

Time Zone Frames AuraPortal internally stores all data in GMT time frame. When displaying these dates in the user interface, AuraPortal converts them into the time zone of the server or the one assigned to the user, depending on the settings. This is an essential feature for international companies.

Time Controls AuraPortal provides different time controls distinguishing between process modeling and processes in general.

There are several process modeling objects which contain time controls such as: Start Time Event, Intermediate Time Event, System Task for Time Calculation, and the ones related to Exceptions Handling (Personal Task with inlaid Time Event and Sub-process with inlaid Time Event).

These Time Controls take into account several aspects. One is the type of calculation (period or date); another is the unit to be used in the calculation (working or actual days, working or actual, working or actual minutes) in each case based on the indicated calendar among the unlimited number of calendars that can be created. The other is the point from which to count on (absolute or relative – upon context data and process performance) in order to determine the specific date and time to be controlled. In this last configuration, AuraPortal provides a large range of options such as whole date, only years, only months, only days of month, only weeks, only weekdays, weekdays in month or weekdays in week of year. Figure 15 shows part of the settings for the “Weekdays in Week of Year” option.

When the resulting date is a non-working day, the user can establish which substitution is to be made (next working day, a fixed date, a date stored in the process panel or no action). Time control in process modeling does not only control date but also hours, minutes and seconds, while also allowing a time-validity margin to be indicated by the process designer.

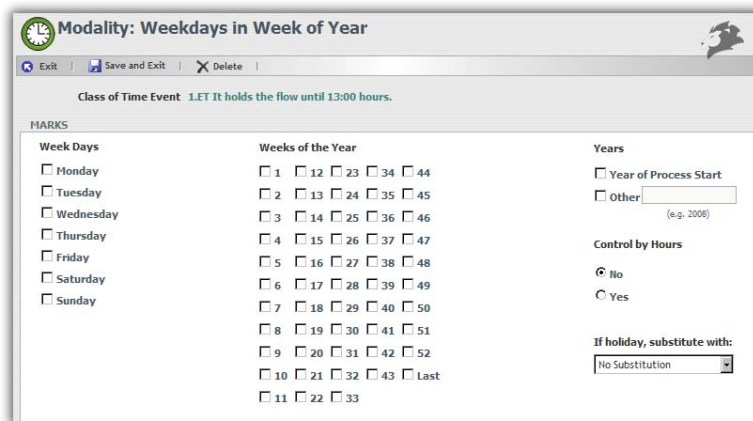


Figure 15. Time Event Modality Configuration

AuraPortal allows the user to create as many different calendars as needed (for different branches or geographical areas). Each calendar contains a definable list of years, and each one contains specifications for week schedule (working hours) and non-working days. These calendars are used in processes, subprocesses and activities. In addition, a user, either by name or role, may define his/her own calendar that will apply when he/she is the performer of the activity allowing the control of absences (for instance, a task will not be sent to a user if, according to his/her calendar, is on holiday). This prevents miscalculation of the delay in attending the workflow.

Users may plan their activity performance in their planning (personal or group). This is a Gantt chart graphic which displays not only the performer’s process tasks but also ad-hoc tasks, integrated tasks and some activity-related values.

AuraPortal provides a complete time configuration feature called ‘Chronometrics’. The process designer establishes time control at both activity and process level, which is based on the above mentioned calendars. While the process is active, any task or process that reaches the deadline triggers automatic alerts and alarms. The system generates a notification to the person defined to be informed so that he can decide accordingly.

AuraPortal Chronometrics works with the following concepts: expected, minimum and maximum time (deadline), alert, alarm and alert threshold (time prior deadline to trigger the alert). See Figure

16. This feature allows the BAM (Business Activity Monitoring) window to show process performances in real-time.

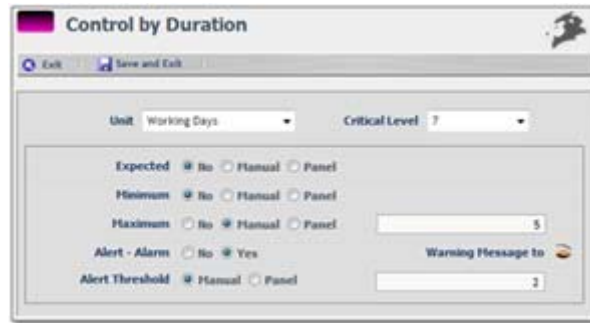


Figure 16. Process Chronometrics Configuration

4.5 Process Optimization and Simulation

One very special feature of AuraPortal is that simulation and optimization can be made by designers, managers and business analysts easily in real working environments (see Figure 17), not just by statistical algorithms like Monte Carlo and other mathematical approaches (although these simulations can also be applied).

Unlimited iterations of ‘what-if’ scenarios can be performed switching process modes from simulation to modeling and again back to simulation. This helps identifying design errors so that a complete and accurate debugging of the whole process design can be done in minutes or hours compared with weeks or months in other BPMS systems that require IT programming.

Once the design has been tested to the extent of being considered error-free, new kinds of analysis on the execution performance of the process can be done to identify bottlenecks, process cycle time, work resources balance, cost estimations, capability to handle processes with the assigned resources, etc., all this in real working environments where some factors (like the identity of the performers) are ‘simulated’ while other factors remain true, providing a very accurate picture of what will really happen when the process is in production.

With the newly acquired data, new changes can be easily made in the model and tested again in a real-time execution loop of trial and error as rigorous as desired to achieve process optimization in the shortest time.

This process creation method, only possible when the process modeling and execution are seamlessly connected and the process transition from model to execution mode and vice versa can be done just by clicking on a button, is exclusive to AuraPortal. It surpasses other BPM suites that require IT programming intervention to bridge the modeling phase to process execution.

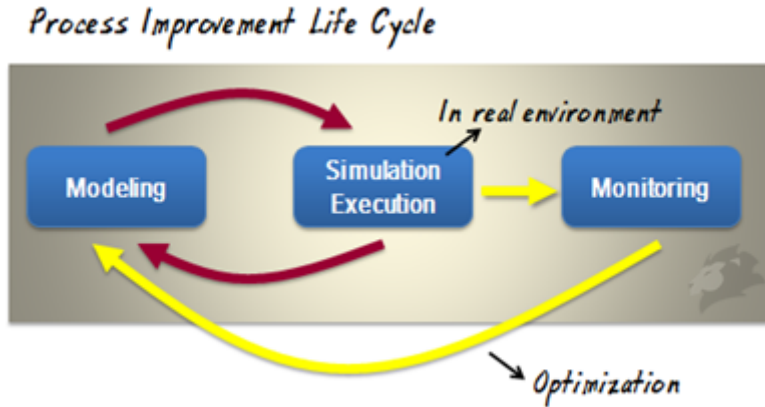


Figure 17. Process Improvement

5. Business Rules

The importance of the Business Rules in connection with processes is rapidly becoming evident. The processes need a separate repository of information suitable to being modified as frequently as needed without having to touch the process model. This is the mission of the Business Rules within AuraPortal.

AuraPortal offers a proprietary and innovative Business Rules system that is comprehensive enough to not require a separate engine for rules handling. It takes advantage of the process engines to perform the actions regulated by the rules. This system follows the approach accepted by all Business Rules experts: "Business Rules must be declarative and not executive. Rules should proclaim what is to be done but they should not perform any action". They are indicated in diagrams by means of artifacts (see Figure 18).

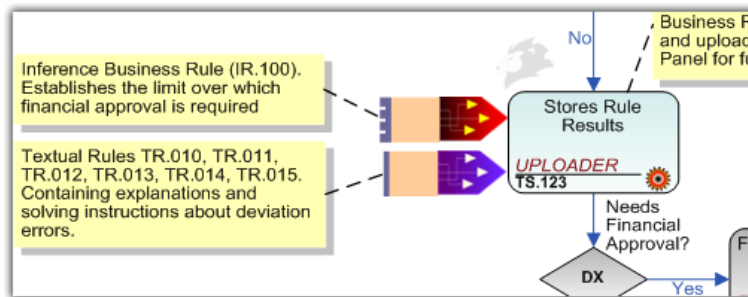


Figure 18. Diagram Extract with Business Rules Indication.

The system comprises 4 types of rules: 1) Textual (text to be read), 2) Assignment (lists of heterogeneous parameters to which values are assigned), 3) Calculation (algebraic and date operations, statistics, comparisons, etc.) and 4) Inference (matrix with criteria and qualifications).

This approach has proved to be very powerful, simple to apply and practical, as demonstrated when used for controlling complex environments like the Basel II international banking directives for 'Credit, Market and Operational Risks and Regulatory Capital'.

AuraPortal Business Rules do not require any code. The Inference rule is defined very easily following the directions to handle the criteria and qualifications that populate its matrix (See two configuration windows of this Business Rule type in Figure 19). The procedure is complete, all

possibilities are considered and therefore the conditions normally expressed by statements of the type 'IF' and 'Then' as well as any other code expressions are not used.

The rules may lodge all company regulations with seamless integration with business processes wherever necessary but maintaining their independence.

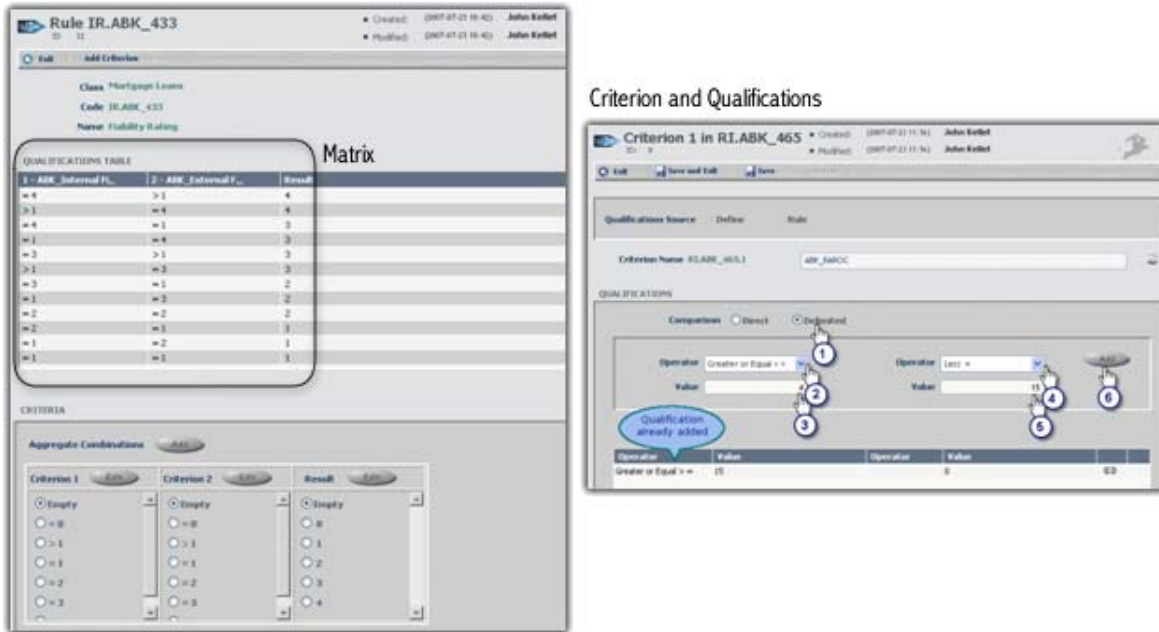


Figure 19. Inference Business Rule

6. Integration

AuraPortal is designed to easily integrate all kinds of external applications, including disparate technologies. The available connection procedures for data integration in AuraPortal are:

Importer. This is a windows service that carries out imports from external programs and can be configured to customer needs.

Web Services (SOA). AuraPortal has a wide range of Web Services for SOA (Service Oriented Architecture) integration with external applications. (See BPM Engine section – Web Services).

Adapters Server. This out-of-the-box tool allows complete communication between AuraPortal Processes and any other external database or application (ERP, CRM, MRP, etc.), with no programming required.

System Task of the Type Invoker. Allows the invocation of Web Services available in other AuraPortal installations, or from external systems.

System Task of the Type Executor (Script). Executes Scripts (SQL Stored Procedure), and therefore it is capable of executing any external application. For example, this functionality may be used for issuing new invoices in the external ERP system.

System Tasks of the Type Notifier (E-mail, SMS, etc.). Notifies via Email, SMS and other (for example: to users who are not granted with access to AuraPortal).

7. Organizational Structure

AuraPortal contains a user management system -LDAP compatible- that includes: a hierarchical chart with job titles (supervisor-subordinate relations) – see Figure 20 -, singular roles, generic roles, account roles and profiles (for external users), list of recipients, etc.

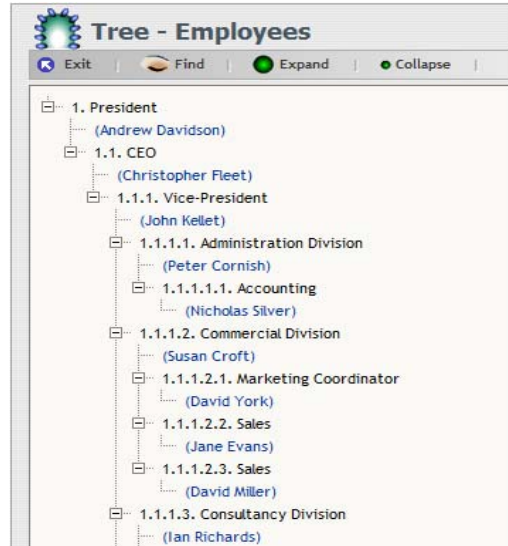


Figure 20. Example of Organizational Chart

Work items/tasks are routed as defined by the user in charge of process modeling, who indicates who the performers are for the tasks as well as the scope of their interaction with tasks.

After diagramming the process, all objects included in the process are automatically populated and they are ready to receive attributes. One of the attributes to be defined is the list of participants for a specific work item (task). See an example of Task configuration window in Figure 21.

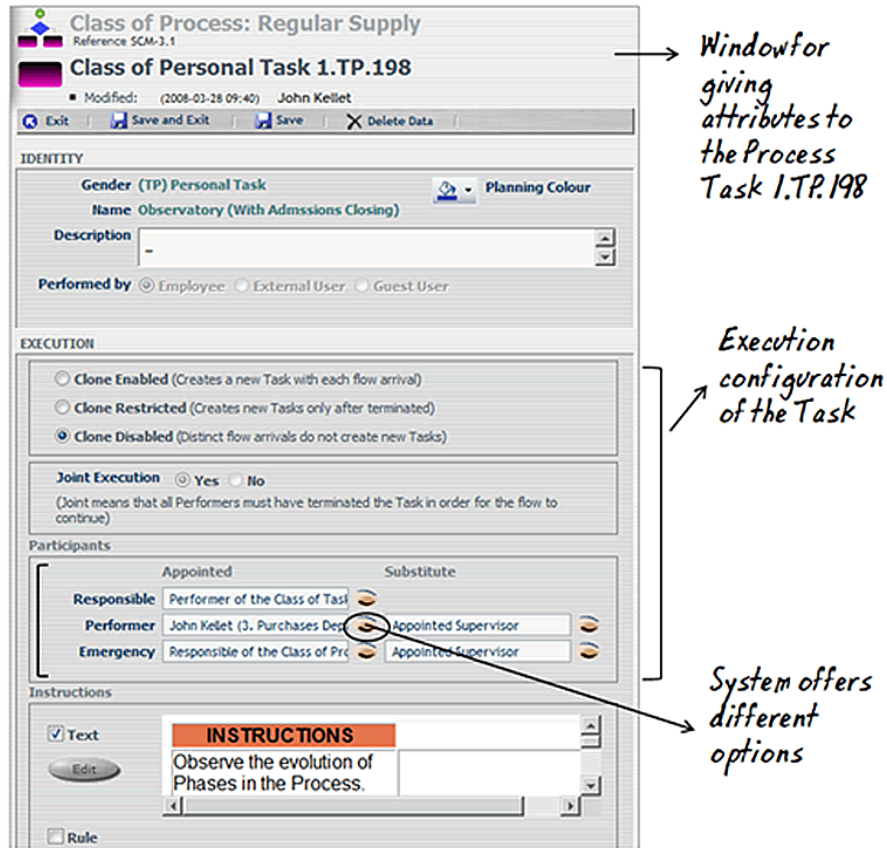


Figure 21. Task Configuration Window

There is a wide range of possibilities to indicate who the task performer is, such as: Start message creator, Specific employee, Singular role, Generic role, Group of employees, to be decided during runtime according to the defined conditions and other parameters.

Also External Users and Guest Users may be performers of tasks with some restrictions.

In addition, for the whole set of options above, the user can decide whether the task is for the performer indicated or for the supervisor of the performer indicated (being able to select the number of hierarchical levels to be scaled). As seen in Figure 22.

AuraPortal supports both 'job title' and 'personal' assignments of work items. When a task is assigned to a specific employee, the designer may decide whether to assign it to the 'person' (as in tasks related to the employee's social security number) or to the 'job title' (as in tasks related to company operations). This way, if the employee is promoted, the tasks assigned to his 'job title' will be automatically inherited by the new employee in substitution, whereas the tasks assigned to the specific 'person' will be retained by him.

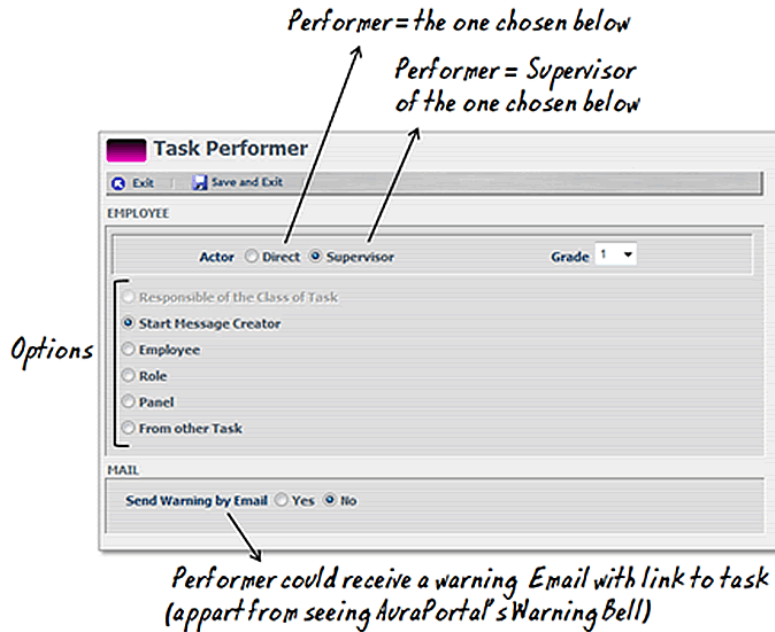


Figure 22. Task Configuration Window

8. Process Adaptability

AuraPortal processes can be adapted at runtime. Either by using AuraPortal built-in Business Rules, or editing the process context data edition, or by modifying process flow-thread heads in order to cancel, resume or roll back the path taken by processes, or even by changing task forms which will take effect in run-time processes. All these functions are available only for users with the right security rights, which are handled by the AuraPortal Secure Room system.

9. Process Lifecycle

AuraPortal fully covers the four lifecycle stages: Modeling, Execution, Monitoring and Optimization. See Figure 23.

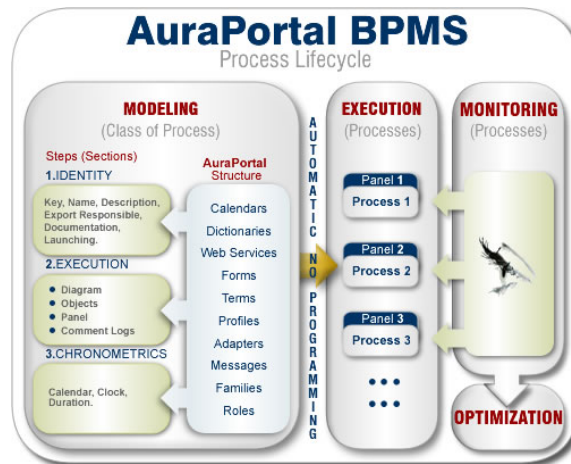


Figure 23. Process Life Cycle

When the process designer draws the process diagram and configures its attributes, the Modeling stage is finished. AuraPortal is a user-friendly application with modeling features such as “Similar Creation” for creating a new class of process based on existing ones or “Export/Import” that allows exporting a class of process from one installation to another with automatic updates of terms in the dictionaries so that the processes are ready to run immediately within the receiving installation.

Processes within AuraPortal allow for continuous in-line optimization, providing the agility for adapting the processes when needed. The versioning method acts automatically: Upon simulation of the changes made in the process, just by shifting the process into published active mode, every new process (instance) will follow this new version of the business model. AuraPortal keeps track of all versions. Also, process descriptive documents automatically generated provide great support in the process lifecycle as they contain all the information related to the process.

9. Monitoring, Measurement, and Management Information

AuraPortal Monitoring (BAM) covers the real scenarios (times, delays or progress, pattern deviations, costs, etc.) of all the processes while they are being executed without waiting for future audits.

Monitoring with KPI (Key Performance Indicators) by means of dashboards (queries and reports that keep control of all processes while being executed) and furnished queries is available even at the very beginning while the model is being designed, along with providing a sound ‘simulation’ system with real variables. The monitoring system also incorporates a set of ready-made Business Intelligence reports and a powerful tool for developing new reports by business people, providing a complete BAM (Business Activity Monitoring) system that is powerful, yet easy to use.

Process Tracking The ‘visual’ process tracking feature in AuraPortal is different from the ones offered by other BPM tools. Instead of the common method of drawing a colored line on the diagram to follow the process flow in execution (which presents shortages like not showing the present situation in looping flows), AuraPortal provides a combination of the diagram and a list showing the sequence of objects traveled by the flow-heads with additional information including the name, the exact timing (date, hour, minute and second for start and finish in each object) the performer (in tasks), the active outlets (in divergent gateways). Also, when clicking on an object, it opens a pop-up window offering all of the information related to the object. See Figure 24.

This approach, exclusive to AuraPortal, has important advantages over the ‘colored line on the diagram’ seen commonly: a) It provides a much richer set information on the process execution, b) Allows the user to follow the evolution of each branch resulting from divergent gateways separately with their timing, 3) When there is looping on a given portion of the diagram, the information is shown separately for each loop regardless of the fact that the objects are the same in the looping circuit.

Aside from the flow tracking, the system provides access from the same window to other monitoring information: Panel Data, Comment Logs, Documents and Chronometrics, providing the most complete offering about what is going on in the process.

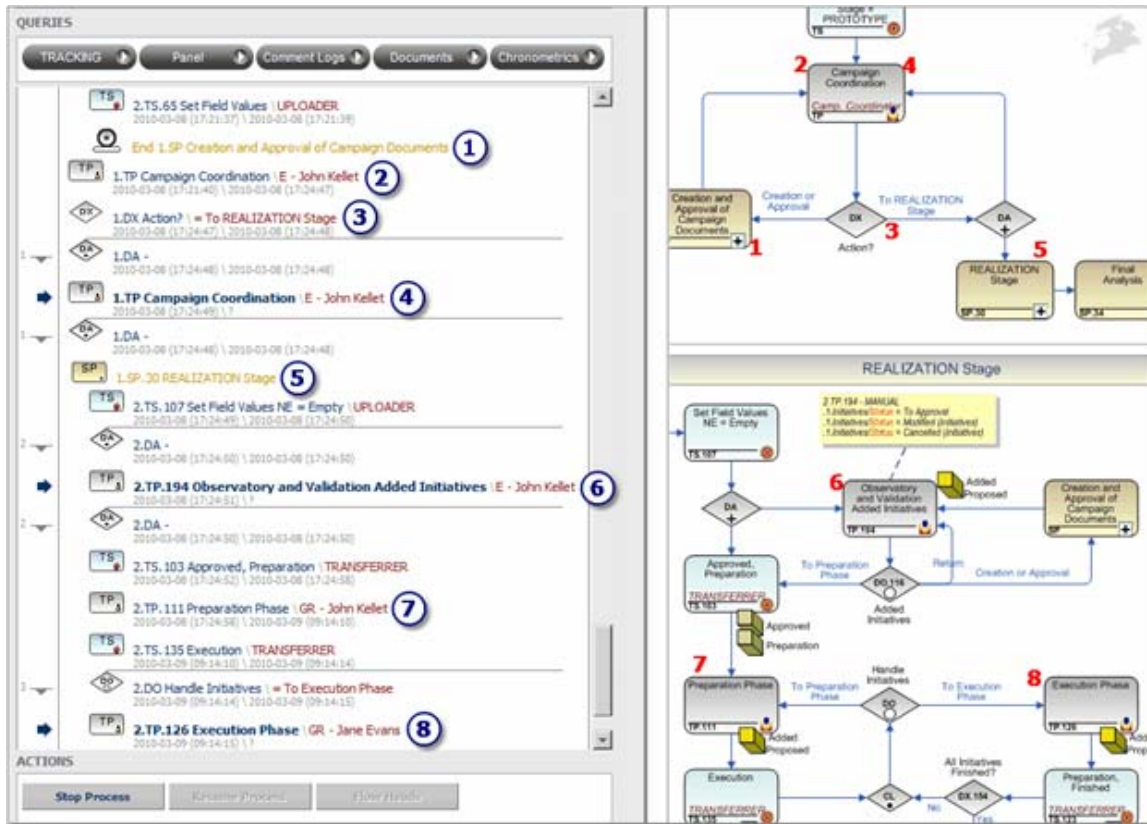


Figure 24. Process Tracking

Business Intelligence Business Intelligence involves the whole set of queries and reports that use data stored in AuraPortal databases for individual and collective analysis, statistics, etc. In this area, AuraPortal provides ready-made reports, mainly on chronometrics but also furnishes a simplified tool for users to create their own reports based on Microsoft SQL Reporting Services. Additionally, well known reporting tools such as Crystal Reports can be used. See Figure 25.

User set-up Regarding work environment management, AuraPortal provides a full and seamlessly integrated Organizational Chart where the employees with user licenses are registered. This chart takes an active role in assigning tasks to the right performers.

Users are created either thru the application itself, or can be directly uploaded from the Active Directory of the company which is LDAP compatible. There is a section in the application devoted to managing users including controls for logins, users in session, sessions log, concurrency log, user's activity and log-in forms.

Security: The 'Secure Rooms' system The access security to the different parts of the application is controlled by means of an AuraPortal proprietary system called 'Secure Rooms'.

Each Secure Room is created by users with administrative power who may select from a wide range of combinations to decide which elements (documents, objects, processes, reports, queries, or any part of the application) are to be placed in that Secure Room. Then they can define the 'key' that will open that room. This key is a set of 'credentials' that must be provided in order to enter the Secure Room and access the elements inside. Any element may be placed in more than one Secure Room.

Once the Security Rooms are created, the system generates a 'Guardian' that validates the access for a given user's ability to interact with elements (documents, processes, reports, etc.) placed in a given

room. And, in many situations, the guardian hides those elements from the user's window that are not accessible to them, so they only see what they have access to.

This security system has an unlimited scope because virtually any element can be placed in a Secure Room. It is also tailored to the users as defined for a given secure area. In spite of the robust nature of the system security features, application performance is not impacted; therefore it provides optimum system capabilities with highly flexible and secure access control.

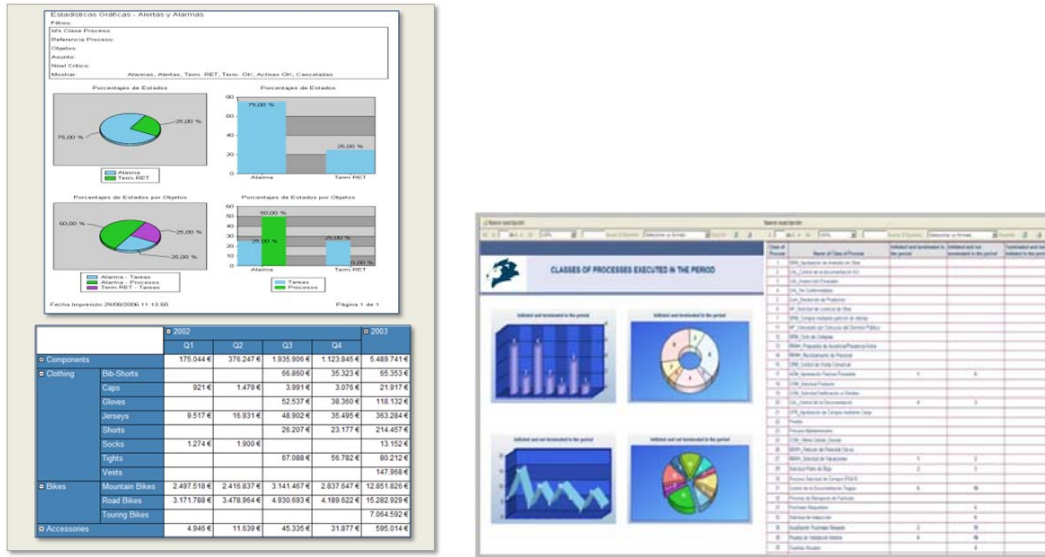


Figure 25. BAM Samples

11. Templates and Frameworks

Templates AuraPortal provides templates in the form of ‘**Process Patterns**’ which are considered *Special Modules*. (For information about *General Modules*, see “*Section 2.3 on Scalability*”).

Process Patterns are classes of processes of general application that are already prepared by AuraPortal containing the knowledge and structure for ensuring smooth and effective operations related to a given subject or within a particular environment. They serve as a solid foundation and are ready to be used with the exception of small details specifically related to a given user's specific requirements that need to be defined.

The Process Patterns available are related to CRM activities, namely: 1. WIP (Wide Interaction Platform); 2. CISNE (Commerce thru Internet with Social Networks Enhancement); 3. MC- (Marketing Campaigns); 4. SO (Sales Opportunities Follow-up); 5. CC(Call Center).

AuraPortal claims to be the pioneer in introducing the modern paradigm of CRM based on processes (BPM) designed by business people. This ‘new concept’ of CRM is rapidly gaining market interest over traditional CRM approaches because it allows the user to tailor the CRM to their exact needs and adapt it to on-going requirement changes easily and rapidly. To achieve that, AuraPortal has developed the abovementioned series of Process Patterns (precooked process models or templates) ready to perform CRM capabilities out-of-the-box with only minor adjustments to finely align the application to the organization's needs.

Frameworks There are also other Process Patterns that should be considered more as framework than as a template because even though a great deal of knowledge is available, the template needs to be adapted to the enterprise specific requirements. These Process Patterns are related to the SCM (Supply Chain Management), such as the 'Distributed Treatments' Process Pattern.

12. Vendor

Strengths of AURA:

- Founded in 2001 with a funding of \$30 Million in shareholder's equity and increasing yearly profits. The company is financially very strong.
- 90 employees dedicated exclusively to AuraPortal BPMS.
- Headquarters in North America (Boston) and Europe (Holland). Software development centers in Spain and India. Presence in 41 countries.
- Consistent yearly increase in sales of over 30% during the last 3 years and a yearly increase in customer base of over 50% along the same period.
- Over 350 BPMS customers, 12 of them in Fortune 500 Global and some of them using AuraPortal with thousands of users working on thousands of concurrent processes.
- Many users expressing their high degree of satisfaction can be seen in recorded videos that are accessible through www.auraportal.com.
- Some relevant customers are: Toyota, Yamaha, PEMEX (Petroleos Mexicanos), Coca-Cola, Pepsico Group, Arcelor Mittal, Bristol-Myers Squibb, Carrefour and other.
- Every year AuraPortal gains market share and offers new product versions, maintaining its prominent position as a world-class product. AuraPortal is the pioneer in several key market trends, among them:
 1. **BPMS oriented to business people** capable of coping with the most complex processes directly from their models without any programming or IT intervention.
 2. **The construction of the new paradigm of CRM based on BPM** processes instead of traditional approaches based on prebuilt structures.
 3. **A revolutionary new Business Rules system** more powerful and easier to use without the need of rules engines and without any programming.
 4. **The inclusion of a Platform containing:** Document handling, Content Portals, Families of elements (Items, Accounts, Areas and Projects) and Commerce thru Internet in just one application.
- Experts opinion: AuraPortal has been qualified by Gartner in its Magic Quadrant Report of 2007 and 2009 as the 'Example of Next-Generation BPMS' and by OVUM in its Decision Matrix for BPM (February 2010) as the product that 'Excels in OVUM's technology assessment study which was set by a highly competitive field'.

13. Cost

In comparison with other products on the market considered direct competition, AuraPortal offers economical advantages in license pricing and above all a very significant consultancy cost savings to the user due to the reduction in business processes development and implementation time since no programming is required for building executable processes regardless of their complexity and operating throughput.

AuraPortal provides three different types of users: 1) Employee Users (for the company staff), 2) External Users (for customers, suppliers, etc.) and 3) Guest Users (for prospects, web visitors, etc.). All of them act as task performers with their corresponding access level and the only software they need to have installed in their terminal is an Internet browser.

The AuraPortal licensing system is a plus as it covers every scenario (named users, concurrent users, unlimited, on-premises, SaaS-cloud, etc.). Moreover, it offers different selling options according to customer sector (education, associations, etc.).

The final license price is calculated taking into account the modules purchased and the number and type of users (Employees and External). As an example, a typical system will cost between \$30,000 and \$240,000 depending on the selected modules and user classifications.

Maintenance Service covers technical assistance (annual fee: 9% of licenses) plus upgrades (annual fee: 9% of licenses).

AURA: AuraPortal, Version 4.0

Overview	Web-based BPMS oriented to Business People. Process execution directly from the model without any programming. Includes new CRM paradigm built on BPM processes and Commerce thru Internet. Innovative, very complete and technically advanced. Backed up by vast number of satisfied customers.
BPM Engine	100% Internet with load balance, clustered database, high performance.
Platforms	Presently, Microsoft MS Windows 2003-2008, SharePoint 2 or 3, SQL 2000, 2005 and 2008. In development, a Universal Platform to be released in 2011 that will allow running AuraPortal in any operating environment: Windows, Linux, Mac, Unix, Solaris and all popular databases.
User Interface	Any web browser. Also in mobile devices like Blackberry, iPhone or iPad.
Scalability	No limit in software scalability. The hardware dictates the installation size limit.
Processing Modeling	Complies with latest BPMN 2.0 version. Some additions significantly empower the modeling and execution possibilities, like the exclusive 'Control Points' feature.
Subprocesses	Independent objects that may be called when required by a process.
Shared Data Space	The 'Panel'. It allows all types of data and provides a very efficient platform for working with different models of processes simultaneously.
Forms	Outstanding strength of AuraPortal, offering a highly sophisticated system for designing forms with the inclusion of 'DAD (Dynamic Activated Divisions)' capability with Groups of Fields and Transfer Containers. The vendor claims that there isn't a more powerful and user-friendly form designer on the market.
Time	Time is controlled by way of the 'chronometrics' system based on calendars that can be defined by the users without limitation.
Optimization & Simulation	An exclusive simulation system that allows the user to test in real-time the behavior and performance of all processes due to AuraPortal's unique feature of creating executable processes directly from the model.
Business Rules	Proprietary system with four types of rules: Textual, Assignment, Calculation and Inference. No programming nor dedicated engine.
Integration	Connectors and Adapters provided. Rich palette of Web Services Included.
Organizational Structure	Organizational dynamic auto-adjustable chart with job titles and individuals. LDAP Compatible. Security provided by proprietary Secure Rooms system.
Process Adaptability	Highly flexible. Process may be stopped where desired during execution and resumed from the same point or from a different flow head.
Process Lifecycle	Modeling, Execution, Monitoring, Optimization. Automatic versioning.
Monitoring & Measurement	Innovative process tracking system allowing complete access to any object in running processes. Predefined dashboards and BI reports with SQL reporting.
Templates & frameworks	'Process Patterns' solution templates for CRM (Marketing Campaigns, Sales Force Automation) and Supply Chain Management.
Vendor	AURA: www.auraportal.com . \$30 million in shareholder's equity, HQ's in North America (Boston) and Europe (Holland). Development centers in Spain and India. Presence in 41 countries with more than 350 customers, and 30% yearly growth.
Cost	Multiple licensing for named and concurrent users. Corporate License. Typical cost ranges from: \$30,000 to \$240,000 depending on the modules and users included.

