Telamon™ Platform Overview

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For further information on Decision-Intensive Processes, or to learn more about the Acappella Software approach to the practice-driven, "Real Time" Enterprise, please contact: info@acappellasoftware.com

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Comparative Technology Overview

In the technology market space, the Telamon™ Platform is an enterprise software application within the Information Enabler category. These applications are software solutions that produce, organize, manage and deliver information to business users. This category includes technology subcategories such as Business Process Management (BPM), Enterprise Content Management (ECM), Business Intelligence (BI), and Knowledge Management (KM).

The *Telamon* approach is most closely tied to BPM but has a different focus. While BPM seeks to orchestrate business steps and activities, or the "what" of business process, the *Telamon* Platform is focused on decision-making practices, or the "how" of business process. This makes the *Telamon* Platform a perfect complement to BPM technology. There are other features of the *Acappella* technology that complement the other subcategories inside Information Enablement. The table below quickly summarizes those relationships.

Technology Category	*Relevant Category Functionality*	*Complemented by the Telamon Platform*
Business Process Management (BPM)	• Exposes business processes	• Business practices are exposed
	• Orchestrates tasks and activities	• Supports conduct of role-based decision-making tasks & activities
	• Launches applications	• Used to design, build, and deploy practice-driven apps
	• Tracks status of business processes	• Tracks status of decision-making within processes
Enterprise Document Management Systems (EDMS)	• Supports workflow through document movement	• Supports workflow through structured data movement
	• Centralized storage, organization, and distribution of any version of documents	• Centralized production (from data) and distribution of document drafts (version 1.0)
Enterprise Content Management (ECM)	• Supports form-driven processes	• Supports form- and human-driven processes
	• Form-driven data gathering	• Data capture as the result of performing analytical practices related to decision-making
	• Uses pre-existing text elements to produce documentation by dropping in data or moving text into place	• Text is generated based on data gathered, needs of document, and target audience; allows multiple documents to be built from single data source
	• Template based document authoring	• Separation of content authoring from document publishing
	• Most data resides in unstructured form	• Most data is elemental and highly structured

Technology Category	Relevant Category Functionality	Complemented by the Telamon Platform
Business Intelligence (BI)	• Produces information from historical data	• Produces information from real-time decision-making practices
	• Creates organized warehouses of aggregated data	• Builds massive store of practice-based data which can be mined
	• Delivers enterprise level information to those who need it	• Delivers the right elemental information to anyone in the organization at the right time in the right context
	• Information produced to add to enterprise store of knowledge	• Provide framework to push and pull information from critical processes and BI systems to make it actionable
Knowledge Management (KM)	• Captures expertise from within unstructured and structured data	• Captures expertise directly from the experts
	• Connects people to organization expertise when they need it	• Expertise always available in the applications regardless of availability of expert
	• Organizes and manages existing knowledge using ontologies (semantic hierarchies)	• Uses knowledge in semantic hierarchies to build practice-driven actionable applications

Functional Overview

The Telamon™ Platform is a business application services platform used to:

- Rapidly conceptualize, build and manage practice-driven software applications
- Codeless deployment of applications as web-based services
- Design scripts that respond to data to produce documented outputs including narrative

Platform functionality results from the melding of an understanding of human decision-making processes with an object-oriented, data-centric approach to software design. The software system captures any domain of decision-making expertise directly from domain experts and renders it as an analytical map. This analytical map, which is represented by categories (topics) with associated questions, is converted into a web-based application where it is used for role-specific decision making processes.

The *Telamon* Platform comprises three software components:

1. ***Application Component***. Dynamically builds and serves an application to a role based business expert, guiding him/her through an analytical approach to decision making and capturing his/her answers to questions as data. Once the decision making process is complete, the Application Component is capable of authoring and publishing documents from the answered questions that include natural language interpretive narrative.

2. ***Design Component.*** Captures analytical approaches to decision making processes as a hierarchy of categories (topics) and questions. Furthermore, provides a facility for developing outputs (e.g., data driven forms, narratives, etc.) based on answers to the questions.

3. ***Portal Component.*** Manages applications and secures access to the Design Component and Application Component.

To follow is a more complete description of these components.

Application Component Serves Applications to Decision Makers

The Application Component serves applications via the web to a specifically targeted community in a decision making process. Every solution built on the *Telamon* Platform has a common structure that offers standard functionality and features:

- ***Support of Decision Making Processes***. Each application has specialized content that guides and supports an analytical approach to a specific decision making process;

- ***Role-Based Perspectives***. Information is delivered to any practitioner anywhere in the enterprise according to the role or perspective s/he brings to the task. Data moves freely in a form that is inherently collaborative;

- ***Generation of Documented Outputs***. Authors and publishes documented outputs from the decision making process including business forms and extensive natural language narrative documents.

Detailed discussions of each of these features follow.

Decision Making Practices as Specialized Web-Based Solutions

Many of the tasks and activities within the enterprise have a critical decision making component. This component may be in the form of an assessment, evaluation, investigation, diagnosis, analysis or planning methodology. The challenge is to have a "flexible" technological infrastructure that supports the analytical methodology of any decision maker when performing his/her role. To that end, the *Telamon* technology is built to address decision making requirements. Each application addresses and supports the following common decision making elements:

- The decision making task has a specific purpose and is repeatedly performed (e.g., insurance submission, security clearance, drug study design, etc.).

- There is a target entity around which the analysis is performed and decisions made. This target entity is generally referred to as the "subject" and can be a person or thing.

- The process has an initiating event with a start date/time and has a period of time within which the analysis must be performed and decisions must be made.

- The decision making process can be performed against the same subject many times. Each effort is a new iteration of the decision making task, or a re-assessment of the subject.

- The decision making process is represented by an analytical method or map comprised of hierarchically organized categories and questions within those categories.

- Different people contribute to the process in different ways according to the role they are performing. Each role usually requires a unique viewpoint, or perspective onto the process.

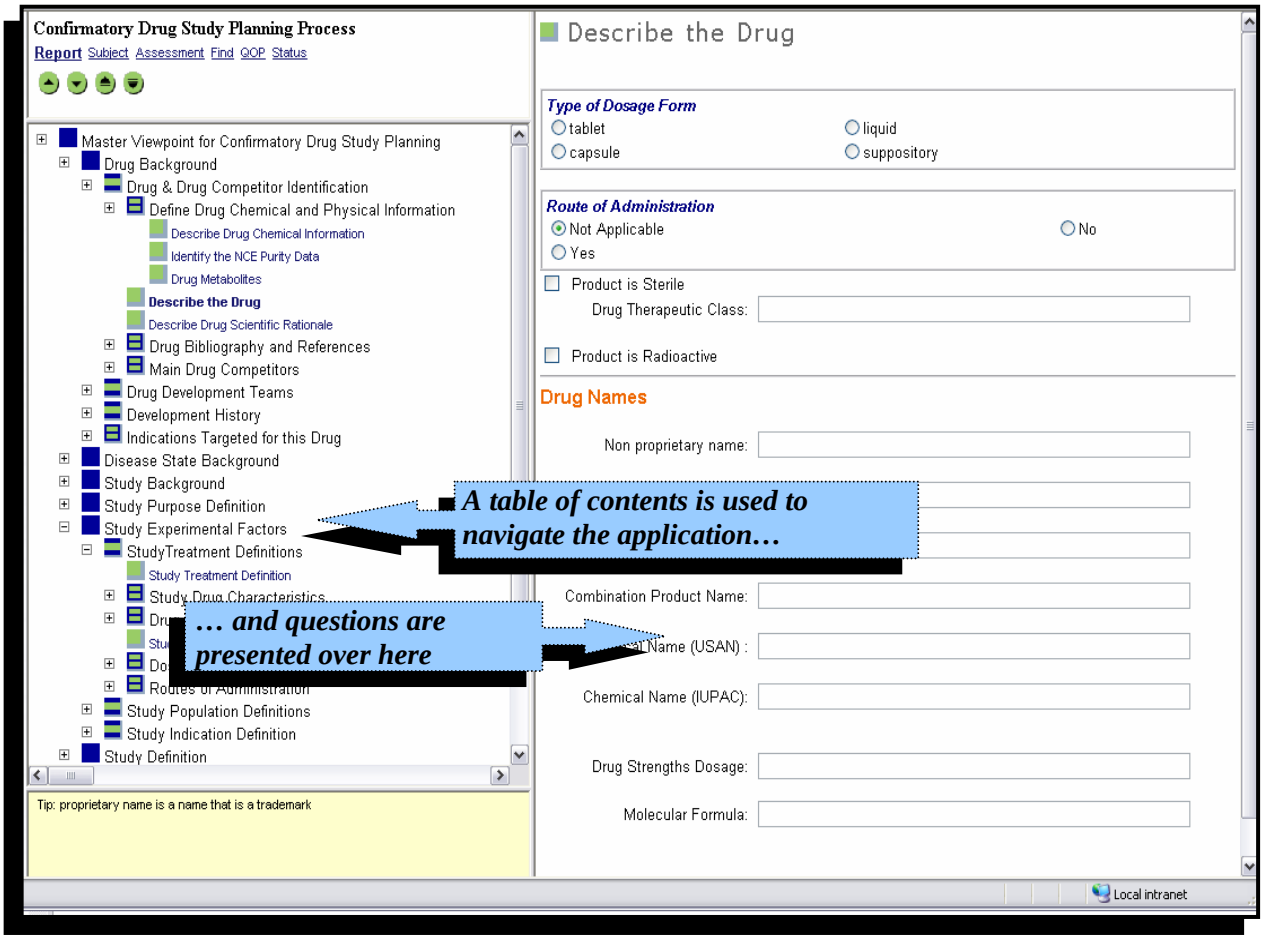
Role based decision makers begin by selecting the application that supports their particular decision making task. They choose the subject for analysis, and the particular iteration of the decision making process being applied to the subject. Based on an assigned role, they are opened into a particular viewpoint or perspective for the decision making task for that subject.

To guide users through the decision making process, the application presents the categories for analysis as a table of contents. The user can navigate the categories, or topics, using three methods: 1) sequentially; 2) select topics in any order; 3) search for keywords and jump to a found topic. There is a fourth method of navigation that pre-determines the order of presentation of topics. However, navigation is generally left to the user thereby ensuring a feeling of "control" over the application.

When a topic is opened, questions are presented as multiple-choice, numeric, date, true/false, or text types. Phrasing of questions indicates whether there is information being offered or gathered, an

interpretation is required, a decision needs to be made, or actions need to be declared. The topic provides context, which infuses meaning and purpose to individual questions and ties together the set of questions within the topic. The user is therefore provided with enough meaning and information to understand the needs of the decision-making practice, the questions therein, and the necessary answers. It should be further noted that not all questions need to be answered. Only those questions whose answers make a relevant contribution to the decision need be answered along with a few designated mandatory questions.

Figure 1: The Standard Interface for *Telamon* Platform Applications



Data for each decision making task, generated by answering questions, is stored in a centralized data repository along with a corresponding audit trail. Data in the repository is available for use and reuse in other decision making task and to any downstream processes such as to produce reports or documents, for analysis, and for data mining.

Information is Delivered According to a Role-Based Perspective

The *Telamon* Platform has a collaborative capability called "Viewpoints". A Viewpoint provides a perspective or view of a task, tailored to the analytical requirements of the person (or role) performing that task. Using the *Telamon* technology, this task is exposed providing the necessary detail on "how to perform" the task. For those familiar with business processes, Viewpoints are a role-based process step represented by a "box" in the process chart. The *Telamon* Platform, then, exposes "what is inside the box". In practice, each Viewpoint appears to the user as an independent or composite application.

Information gathered or generated within one Viewpoint is immediately available across Viewpoints. This is because a question, which can be repurposed inside another Viewpoint, draws its answer from a common central data repository. As a result, users and their supervisors can have Viewpoints tailored to their roles, seeing only the information that is relevant to their task in the context they need to see it in,

delivered to them as soon as it is available and just when they need it. Moreover, people in the organization end up working together seamlessly without the need for extensive meetings or documents to communicate information. This transparency results in real time inherent collaboration.

Using Viewpoints, persons can be restricted to the analytical tasks and information that are appropriate to their role in the enterprise decision making process. Users can be assigned to multiple Viewpoints should they have need to see how information they are using was developed or reached elsewhere in the process. And again, the right information is made available to the use when they need it and in the work context in which they need it.

Documented Outputs are Automatically Produced

Once the decision making task is complete, or at any point prior, the application can be used to author documented outputs such as business forms and written reports. Depending on their purpose, these documents can incorporate elemental (raw) data and/or natural language narratives or some combination thereof. The published document can also be handed off to a document management system or made directly available for download to a personal computer.

The document is authored and published via the following series of steps:

1. During the design phase of application development, the *Telamon* Platform generates a tagged layout document (TLD) that acts like a template for the document layout. This TLD is populated with XML tags (placeholders) representing each element of the potential finished (a.k.a. published) document. A member of the design team positions these tags within the template and formats them with desired fonts and presentation styles. The layout of the TLD is performed using Microsoft® Office Word.

2. A formatted template is uploaded and stored back in the *Telamon* Platform TLD repository so that it can be called upon for document publishing during application use.

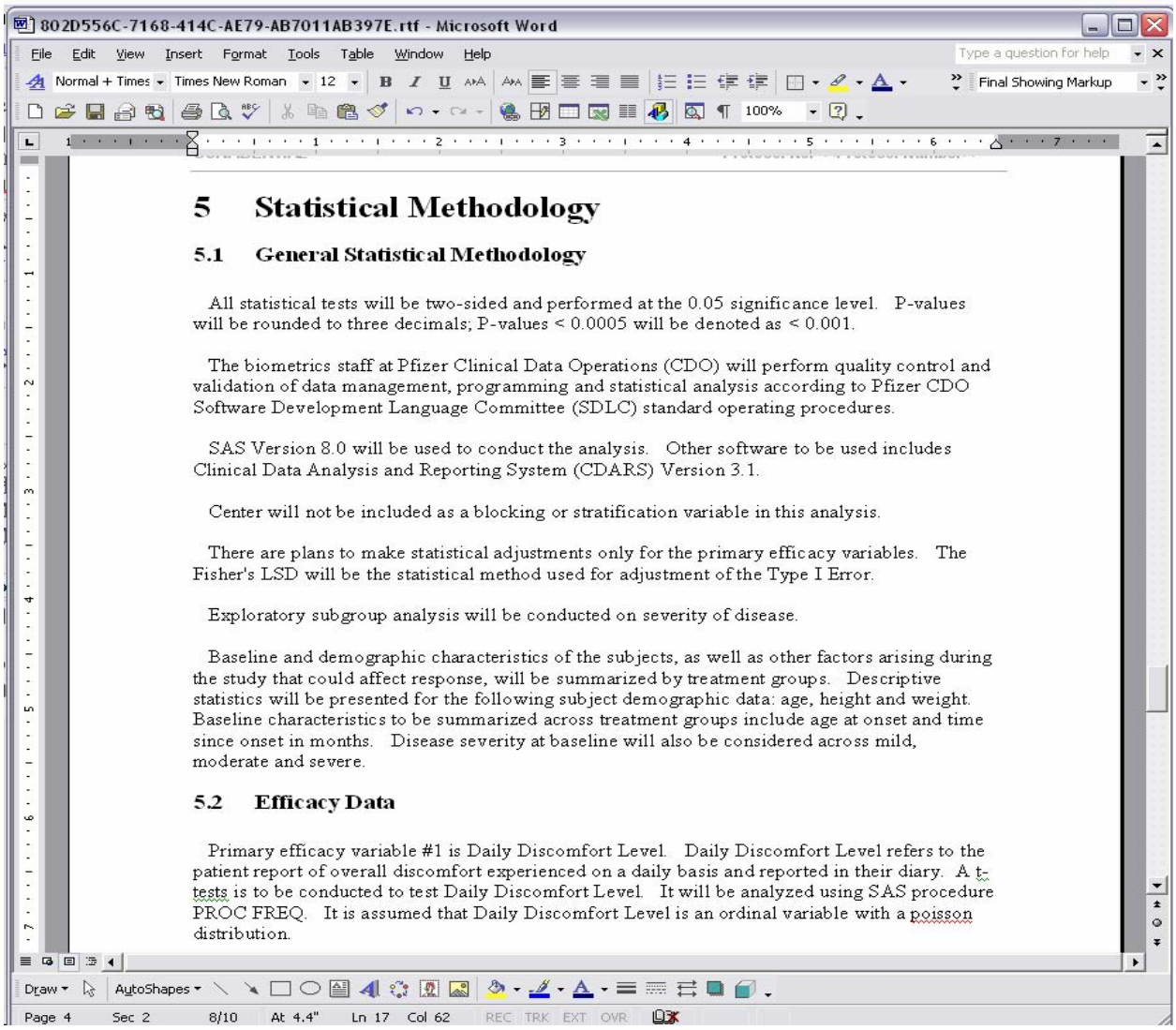
3. The document generation process is called upon any time during the decision making task; usually upon completion of the task. The Application Component uses an end-product script developed with the Narrative Designer (see below) that when combined with answers to questions, determines the text[1] that is to appear in the document. Upon request, the script and data are used to author document content. The authored content is produced and organized in an XML stream.

4. The narrative generator opens Microsoft Word (on the server) to replace the XML tags (placeholders) in the TLD (template) with the authored content (in XML stream form) generated in the previous step. Steps 3 and 4 can produce 60-100% of a 20 page document in approximately five minutes.

5. With the replacements made, the TLD becomes a draft document ready for delivery to the user. The Microsoft Word “Save As” facility can be configured to convert the document into a desired form (e.g., HTML, PDF, etc.). If required, the form or document can be handed over to a document management system which can take over delivery as well as layering version control capabilities related to document editing.

[1] In this context, text refers to anything that is put into documentation. This can include raw data which, at the point of documentation, is just text.

Figure 2: A Narrative Generated by the *Telamon* Platform and Opened in Microsoft Word[2]



Designers Build Applications with the Design Component

The Design Component of the *Telamon* Platform is an application development environment for rapidly developing the "raw material" of a business application. A highly sophisticated application can be developed in a fraction of the time that is needed for traditional programming techniques or other off-the-shelf technologies. Robust business forms or written reports can be developed and ready for use shortly thereafter.

There are two facilities within the Design Component:

- ***Dialog Designer***: A facility built around the notion that analytical and decision-making practices can be captured as categories (i.e., a hierarchy of topics) and associated questions. The hierarchy of topics guides the analytical process and lends meaning to questions. Questions can be phrased to elicit information, encourage interpretation, help draw conclusions, and determine a course of action for the assessment.

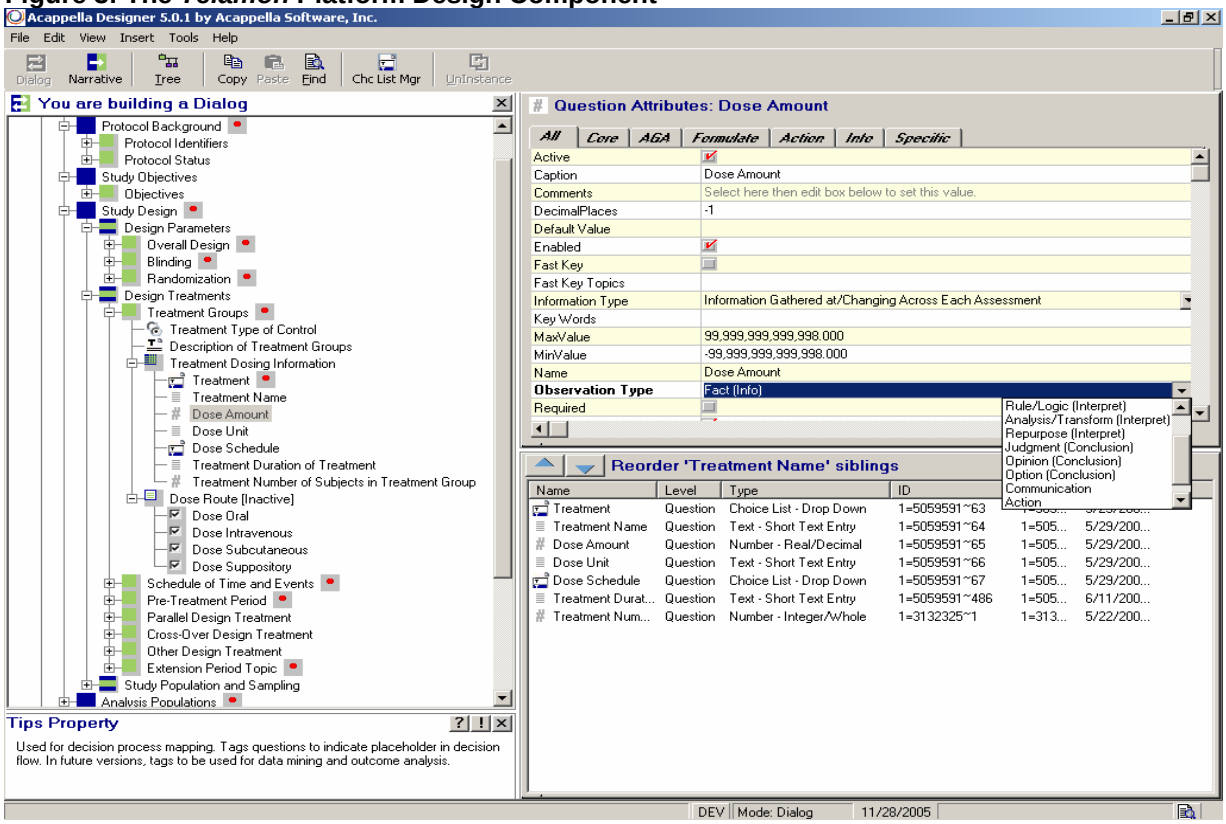
- ***End-Product Designer***: A facility for constructing hierarchically organized end-product scripts. These scripts include the data and text to be presented within the document. Furthermore, they

[2] This narrative is from a statistical plan used in a drug study within the pharmaceutical industry.

hold the business rules that determine how text is actually brought together. Those business rules draw upon the questions available to the application and their possible answers.

Each of these facilities is similar in utility to outlining tools. Much of the power and flexibility of the technology resides in this intuitive "outlining" capability.

Figure 3: The *Telamon* Platform Design Component



The Design Component manages and organizes enterprise knowledge via a semantic hierarchy that uses standard business language. This hierarchy is the raw material that defines the application. Since everything is developed in the language of the business, one need not be a programmer to build or maintain an application. Role based experts can be trained in the use of the Design Component thereby enabling them to directly modify the raw materials of an application. This allows the enterprise to decentralize the development and maintenance of applications. Each business unit can oversee the ongoing development of applications within its domain.

Portal Component Ties Everything Together

Application management features are an integral part of the *Telamon* Platform. The Platform has the functionality needed to manage the development of robust practice-driven applications from start to finish. This functionality is accessed through the Portal Component (Portal), a web-based point of entry to the platform.

Platform functionality includes:

- Application life cycle management;
- Role-based access rights to applications;
- Application management.

A detailed discussion of these functions follows.

Applications are Matured Through Stages

As an application services platform, the *Telamon* Platform delivers easy-to-use, robust, tested applications to the business user community. To do this, an application passes through stages before it is released into a production environment for use by the intended audience.

The stages of a *Telamon* Platform application are:

- ***Design Stage***. Expertise is captured as raw material for the application using the Design Component. This raw material includes a semantic hierarchy (ontology) that is the topics and questions of the application built using the Dialog Designer; as well as the end-product scripts that are used to produce business forms and narratives when the application is later used built using the End-Product Designer.

- ***Draft Stage.*** Expertise as raw material, developed during the design stage, is converted into a preliminary version of the application available for review and testing by the design team. This includes the database infrastructure for storing application data, the interfaces which users will interact with when using the application, the rules of use which will guide users when they utilize an application, and working models of the forms and documents that the application produces.

- ***Trial Stage***. The draft version of the application is converted into a full working version of the application for peer review, testing, and training purposes. This stage is essentially a clone of the draft stage with the security capability turned on and any additional functionality layered into the application.

- ***Production Stage***. For this stage, the trial version is cloned and the business application is put into use to support decision making processes and generate documents. Data captured in this stage becomes part of the historical record of analysis and decision making. To further clarify, future iterations of an application do not affect the underlying data store even as the presentation layer changes.

The design team decides when any given stage is ready to be promoted to the next stage. Each stage and promotion between them is managed through the Portal. Promotion occurs within minutes via a single click of the mouse. There is no need to “compile code” because it is a codeless staging methodology. As a data-driven process, as soon as the promotion process is complete, the application is ready for use.

With the incorporation of an application life-cycle, and given the intuitive business language nature of the development process, application development and maintenance can be decentralized. Role based experts can maintain or enhance the application directly without the delays normally associated with software development.

Role Based Access Personalizes the Portal and Application Experience

The *Telamon* Platform incorporates its own security system that can be integrated with existing security systems. Users, Workgroups, and Roles are the basis of the security system.

Users are the individuals who are declared to the Platform. Users have no inherent privileges or rights within the Platform or its applications.

Users can be grouped into Workgroups for the purpose of Platform and Application Role assignment. Workgroups also have no inherent privileges or rights.

Only Roles have privileges or rights within the *Telamon* Platform and its applications. Only upon assignment to a Role do Users and Workgroups inherit rights and privileges. There are two categories of Roles; Platform and Application Roles.

Platform Roles are three types of technical roles associated with the management, oversight, and overall performance of the *Telamon* Platform. Platform Roles do not allow for access to applications, but may confer rights to see what applications are hosted in the Platform.

Application Roles are those roles necessary for both the design and use of an application. An Application Role can confer management, supervisory, practitioner, or design rights to an application. Note that each application has its own role-based infrastructure, i.e., assignment to a role in one application does not carry over to other applications hosted on the same platform.

Users and Workgroups can therefore be strategically assigned to Roles that define access rights and functional privileges within the Platform and within a particular application. Furthermore, User and Workgroup access can be restricted to a specific Viewpoint within an application, thereby securing access to information on a "need to know basis".

A final item of note regarding application security: Opening an application does not require entry through the Portal. There is a secure method by which an external call can directly open a particular Viewpoint for a particular subject within a particular application.

Application Objects Are Managed Through the Portal

Applications require management features. Through the Portal, an application is initialized deleted, copied, exported or imported. For example, a new application can be cloned from an existing application. This clone can evolve along a unique development path from the original application and be differentially customized and extended. A major benefit here is that common questions, i.e., the data elements that were in the originating application, have unique identifiers that are passed along to the new iterations of the application. Through this mechanism, data gathered across different applications use can be aggregated efficiently and effectively.