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**{Client Name} – {Project Name}**

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**{Title} Document**  
*Version 1.0*

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## 1 Document Administration

### 1.1 Document Purpose

This document is the final report of the ATAM process.

### 1.2 Project Reference

Project Sponsor	
Project Manager	
Product Owner	
Operational Lead	
Summary of Impacted Business Groups / Sites	
Impacted Current-State Information Systems / Applications	

### 1.3 Revision History

Version	Date	Author	Revisions
1.0	11/10/15	Robin G. Coles	

### 1.4 Document Contributors

The following people made significant contributions to the content of this document:

Contributor	Contribution
<i>QRS Team</i>	Authoring and overall document management

### 1.5 Related Documents

Name	
Description	
Path or Source	

## 2 Acronyms & Definitions

The following critical abbreviations and acronyms appear throughout the remaining document sections.

Abbreviation or Term	Definition
<b>Architectural decisions</b>	One of three categories in the quality attribute characterization. An architectural decision is the aspect of an architecture – components, relations, and their properties – that have a direct impact on achieving attribute responses.
<b>ATAM</b>	Architecture Tradeoff Analysis Method
<b>ESB</b>	Enterprise Service Bus
<b>Final Report</b>	The final report is produced during Phase 3. It catalogs: <ul style="list-style-type: none"><li>• What was done</li><li>• What was found</li><li>• The conclusion</li></ul>
<b>Functionality</b>	Functionality is the ability of the system to do the work for which it was intended. Performing a task requires that many or most of the system’s components work in a coordinated manner to complete the job.
<b>Performance</b>	Performance refers to the responsiveness of the system – the time required to respond to stimuli (events) or the number of events processed in some interval of time. Performance qualities are often expressed by the number of transactions per unit time or by the amount of time it takes to complete a transaction with the system. Performance measures are often cited using benchmarks, which are specific transaction sets or work-load conditions under which the performance is measured. Performance of a SOA can be measured with respect to factors like: <ul style="list-style-type: none"><li>• Response time (how long does it take to process a request?)</li><li>• Throughput (how many requests can be processed pre-unit of time?)</li><li>• Timeliness (desired time to process a request)</li></ul>

Abbreviation or Term	Definition
<b>Risk</b>	<p>Risks are potentially problematic architectural decisions. It should be understood and explicitly recorded.</p> <p>Documenting of risks consists of:</p> <ul style="list-style-type: none"><li>• An architectural decision (or a decision that has not been made)</li><li>• A specific quality attribute response that is being addressed by that decision along with the consequences of the predicted level of the response</li><li>• A rationale for the positive or negative effect that decision has on meeting the quality attribute requirement.</li></ul>
<b>Scenario</b>	<p>A scenario is a short statement describing an interaction of one of the stakeholders with the system. They resemble use cases.</p> <p>Each scenario is associated with:</p> <ul style="list-style-type: none"><li>• A particular stakeholder</li><li>• Addresses a particular quality, in specific terms.</li></ul> <p>For example:</p> <ul style="list-style-type: none"><li>• A maintenance stakeholder would describe making a change to the system</li><li>• A developer might involve using the architecture to build the system or predict its performance</li><li>• A customer might describe the architecture reused for a second product in a product line or might assert that the system is buildable given certain resources.</li></ul>
<b>Scenario Structure</b>	<p>Scenarios tell a brief story about an interaction with the system from the point of view of a stakeholder. This has three parts:</p> <ul style="list-style-type: none"><li>• Stimulus</li><li>• Environment</li><li>• Response</li></ul> <p>There are also three types of scenarios:</p> <ul style="list-style-type: none"><li>• Use case</li><li>• Growth</li><li>• Exploratory</li></ul>
<b>Utility Tree</b>	<p>A utility tree contains a prioritized list of scenarios that serves as a plan for the remainder of the ATAM. It tells the ATAM team where to spend its (relatively limited) time, and in particular where to probe for architectural approaches and risks. This tree guides evaluators to look at the leaves of the utility tree. Additionally, it serves to make the quality attribute requirements concrete, forcing the evaluation team and the customer to define their quality requirements precisely.</p>

Abbreviation or Term	Definition
<b>Trade-off</b>	An architectural decision that affects more than one attribute and is a sensitivity point for more than one attribute.

### 3 ATAM Overview

This executive summary presents the results of an evaluation of XYZ’s requirements for a software architecture. This evaluation followed the Architecture Tradeoff Analysis Method<sup>sm</sup> (ATAM<sup>sm</sup>) process.

XYZ committed to design and build a first-of-its-kind software platform to support all of its key business activities. The goal of this design is to build a robust platform that supports all facets of their business workflows.

The results of this evaluation are recommendations to adopt the following:

- Service-Oriented Architecture (SOA)
- A publish-subscribe messaging architecture
- An enterprise service bus (ESB) pattern

Four risk themes were identified:

1. All processes are currently done manually
2. When protocol definition changes occur they may prevent data exchanges and inhibit communication with other systems
3. Applications become incompatible with other systems and devices
4. Expensive human labor for system maintenance

The ATAM process includes the following documentation:

- Phase 1: Step 1 – Present the ATAM (ppt)
- Phase 1: Step 2 – Present the Business Driver (ppt)
- Phase 1: Step 3 – Present the Architecture (ppt)
- Phase 1: Step 4 – Identify Architectural Approaches (doc)
- Phase 1: Step 5 – Utility Tree (ppt & doc)
- Phase 1: Step 6 – Analyze Architectural Approaches (doc)
- Phase 2: Step 7 – Brainstorm and Prioritize Scenarios (doc)
- Phase 2: Step 8 – Analyze Architectural Approaches (doc)
- Phase 3: Step 9 – Present the Results (doc)
- SOA Pattern Library (doc)
- Quality Attribute Library (doc)

## **4 Summary of Business Drivers**

The complete overview of the business drivers can be found in step 2 – Business Drivers Powerpoint Presentation.

- The primary driver is to select the correct enterprise architecture to optimise patient outcomes
- The secondary driver is to find the technologies and design patterns to meet key quality attributes in support of business goals and drivers. These patterns must be easily added or deprecated from the architecture in a way that scales with patient and employee demand.

## **5 Summary of Architecture Presentation**

The results of the ATAM shows the need to invest in an enterprise service bus that represents a basic set of functional requirements used to integrate applications across an enterprise.

The correct ESB will integrate all relevant cloud and on-premise applications in a unified platform, foster business innovation and lead to faster response times to business changes.

This platform allows XYZ to:

- Fully integrate real-time data
- Provide single source of communication through the company
- Provide real-time access to all enterprise stakeholders
- Adopt and leverage cutting-edge capabilities
- Align technologies in the value chain to maximize positive patient outcome

Best industry practices are to orchestrate interactions via a service integrator; not compare unlike systems. In XYZ's case an enterprise service bus (ESB). Eventually all the systems will be integrated and working together.

## **6 References**

- Present the ATAM (ppt)
- Present the Business Drivers (ppt)
- Present the Architecture (ppt)
- Identify Architectural Approaches (doc)
- Utility Tree (ppt)
- Utility Tree (doc)
- Analyze Architectural Approaches (doc)
- Brainstorm and Prioritize Scenarios (doc)
- Analyze architectural Approaches (doc)
- Present the Results (doc)

- SOA Pattern Library (doc)
- Quality Attribute Library (doc)