HCD Architecturally Significant Requirements

California Department of
Housing and Community
Development

1. Overview

This document discusses *Architecturally Significant Requirements* (further abbreviated as *ASRs*) as identified in the RFI documentation being worked on at HCD at the time of writing:

- RFI # 21-ITB-001 that provides "mid-level" requirements for a case management system pertaining to house element compliance and to violations of state housing planning law (see << Requirements for RFI #21-ITB-001 >>)
- RFI # 21-ITB-002 that provides "mid-level" requirements for a potential replacement for the current CASAS system (in its two parts, internal and external-facing, see << Requirements for RFI #21-ITB-002 >>)

The document also provides applicable background for identifying ASRs and more broadly, analyzing and improving requirements.

1.1. Motivation and Goals

Requirements are not created equal - some of them have bigger impact on the target solution than others. Some of the impactful requirements affect the way the target system is to be organized - that is, they affect its architecture or at least constraints on that architecture.

In practice, when faced with unavoidably large number (typically in hundreds) of functional requirements for a desired solution, it becomes necessary to analyze and prioritize them. Identifying ASRs and related capabilities of the target solution helps clarify the requirements both for their contributors and for their intended audiences, such as potential service providers.

1.2. Main Sections

1. The section Terminology clarifies the key terms used in the document: ASR, capability, workflow.
2. The Section Steps for Analyzing HCD Requirements provides a minimal background for analyzing Requirements and for identifying ASRs.
3. The section Key ASRs in HCD RFIs discusses Architecturally Significant Requirements that are common to the RFIs being worked in HCD. It also points out differences and variations in identified requirements as presented in respective RFIs.

4. The section Next Steps suggests further steps that might be taken with respect to ASRs and handling of Requirements in HCD's RFIs in general.
5. The section Requirements for RFI .pdf provides further discussion of the requirements in RFI #21-ITB-001
6. The section Requirements for RFI .pdf does the same for RFI #21-ITB-002.

1.3. Change History

Table 1. Change History

Date	Contact	Description
10/21/2021	piotr.palacz@hcd.ca.gov	RFI ## 21-ITB-001 and 21-ITB-002 included in the scope
10/20/2021	piotr.palacz@hcd.ca.gov	Document started

2. Terminology

- What are Architecturally Significant Requirements?
- ASRs and Capabilities
- Architectural Impacts

3. Steps for Analyzing HCD Requirements

This section describes preparatory steps that are useful in analyzing raw functional requirements.

3.1. Defining and Clarifying Terms Used

Define all environment-specific terms and abbreviations

Example 1. Example

> Abbreviations such as "HUD", "CASAS", and similar may be obvious to the HCD staff but not so for the intended recipients.

3.2. Disambiguating Requirements

- Make sure the requirement expresses intended meaning

Example 2. Example

The system shall present dashboards for users with information relevant for them: This is ambiguous: it is not clear if the requirement is about *personalizing* the UI or rather (more likely) making sure that the UI reflects role-based access to data and operations.

3.3. De-duplicating Requirements

- Sometimes, what at first blush looks like separate requirements are in fact different renditions of the same requirement.

Example 3. Example

Example

3.4. Grouping, Classifying,and Refactoring Requirements

- It is useful to group together requirements for related things together

Example 4. Example

Example

- What is meant here by classifying requirements has to do with identifying requirements that are special case of a more general requirement

Example 5. Example

Example

- Refactoring of requirements strives at reducing their number while preserving their meaning.

Example 6. Example

Example

4. Key ASRs in HCD RFIs

This section identifies ASRs in the requirements coming from the current RFI documents being worked on.

4.1. Business Process Automation and Workflow Capabilities

4.1.1. Expressing Business Process as Workflow

- Workflow Steps and Flow
  - Defining the Workflow
  - Typical Steps in a Case Management System
  - Executing Steps and Roles
  - Persisting Progress
  - Notifying about State Changes
- Business Rules
- Role-Based Routing and Access

4.2. Security-Related Capabilities

- Role-based Permissions
  - Role-based data access
  - Role-based User Interfaces
  - Role-based Steps in Workflows
- Integration with external identity and credential providers

4.3. Reporting-Related Capabilities

- Standard Reporting
  - Pre-defined Reports
  - Custom Reports
  - Ad-Hoc Reporting
- Reporting Outputs and Formats
- Reporting-related Integration

4.4. Application Interaction and Integration-Related Capabilities

- Supporting Payments
- Supporting Communication Channels
  - Email
  - Chat

    - Phone
- Supporting Electronic Document Processing
    - Uploading and downloading documents
    - Electronic Signatures
    - Event Notifications

4.5. Customization-Related Capabilities

- Modifying Workflows
- Modifying Roles
- Modifying UI
    - UI Personalization

5. Next Steps

- Review and enhance existing first-cut requirements - section Steps for Analyzing HCD Requirements provides a blueprint
- Start elaborating explicit Business Processes for HCD
    - Further elaborate requirements in context of and in relation to these Business Processes
    - Identify common elements of Business Processes, related common requirements, and common capabilities that are expected to be provided by the target solution
- Move away from using spreadsheets as the primary tool for maintaining requirements to using dedicated tools (such as JIRA Requirement Maintenance extensions, or similar)

Appendix A: Requirements for RFI #21-ITB-001

Here we go

Appendix B: Requirements for RFI #21-ITB-002

Here we go

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