Litho InSight

Application Architecture and Design

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# Purpose and Scope

TODO: purpose and scope of this document

# Stakeholder Representation

TODO: key stakeholders and expectations

# Problem Definition

TODO: problem statement

# Solution Overview and Project Phases

TODO: solution description and project break down structure

# Requirements

## Functional Requirements

TODO: state generic functional requirements of the application

Tool to Tool Matching specific requirements:

* The application should replicate the Tool to Tool Matching functionality currently found in the uDBO Analyzer Tool; (TODO: replace this with actual functionality)
* The application must be able to offer configuration suggestions and smart defaults but should also allow the possibility of fine-grained control;
* Configuration options should persist for repeated use;

TODO: CD-SEM correlation specific requirements

* The application should replicate the CD-SEM Correlation functionality currently found in the Metro Target Selection Tooling application;

## Non-Functional Requirements

TODO: application reliability and uptime, security, maintainability and upgradability requirements

## Environmental Requirements

TODO: hardware and software requirements

# 6. Architecture

## Overview

TODO: architecture overview, discussion of alternative designs

## Application Type

TODO: application type and alternatives

## Application Layers

TODO: application layers diagram and description

## Components and Interactions

TODO: application components and interactions diagram and description

## Security

TODO: authentication, authorization, data encryption and other security concerns

## Performance

TODO: performance principals: connection pooling, data caching, concurrency etc.

## Usability

TODO: define GUI standards, UI/UX design principles

## Testability

TODO: test driven architecture using popular principals such as interface based programming, IOC/DI, etc. State unit tests requirements.

## Scalability

TODO: state/stateless design, concurrent data access, server load-balancing, etc.

## Constraints

TODO: state application constraints

## Considerations

TODO: state architectural considerations, such as data availability, data persistence, synchronization, etc.

# Design

## Overview

TODO: design overview

## Database Design

### Database Engine and Alternatives

TODO: integrity requirements, SQL vs. NOSQL, light database comparison, chosen DB engine, etc.

### Local Database Model

TODO: database entity relationship diagram and description

## Application Flow

TODO: application flow diagram

## Design Patterns

TODO: specific design patterns and techniques used in the project.

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## Tool to Tool Matching

TODO: define inputs, functionality, algorithm and flow diagrams, outputs, etc.