Technical Solution Guidelines

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**Revision History**

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**Approval History**

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| 1.1 | Vijaya Somaripeta | Monalisha Mishra  3/10/18 | Nagoor Inaganti  3/10/18 |
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# Purpose

The Purpose of the guideline is to provide guidelines on Technical Solution (High Level design and detailed design) activities.

# Scope

The document can be used as a reference for the Technical Solution (High Level design and detailed design) activities for all software projects developed and managed at Tanvi IT.

# Technical Solution Guidelines

## Stakeholders Involved

Architect, Technical Leads, Developers, Project Manager, Senior Management and end user.

## Develop High-Level Alternative Solutions

* Identify the criteria for studying various alternatives.
  + This could be based on past experience of projects at Tanvi IT, past experience of the architect and inputs from the technical leads in the project
* Identify the technology currently in use at Tanvi IT and match them with the requirements of the project.
* Criteria for developing alternative solution should address issues in design like flexibility (to provide the ability to insert new technologies or expand the scope of the product)
* Other issues to be considered while developing alternative solutions are:
  + Cost of the alternative (over the entire life-cycle of the project)
  + Technological issues like platform and environment considerations
  + Performance-related issues
  + Risks that might constrain or limit or even endanger the project
  + User capabilities and requirements for use of the product
  + Complexity of the technical processes
  + Other issues not listed here (this is not meant to be an all-inclusive list)
* Verify whether the reusable components library has any components that can be reused in this project
* Verify whether it is cost-effective to buy any component from external sources rather than develop them within Tanvi IT.
* Verify that each technical requirement is mapped to a component in the product/project/technical process
* Ensure that there is a technical justification for the allocation of each requirement to a component (in other words, selection of a component for that requirement)
* Record the justification for selection of solutions and components

## Detailed Design

* Ensure that the design establishes capabilities that satisfies the customer’s requirements
* Ensure that the detailed design fully defines the structure and capabilities of each component in the project
* Ensure that all standards that govern the project in the area of design are followed.
* Ensure that reusable components are identified
* Revisit the make or buy process
* Create criteria for verifying the design. The usual list of criteria (but not all-inclusive) is:
  + Clarity
  + Simplicity
  + Maintainability
  + Verifiability
  + Modularity
  + Portability
  + Reliability
  + Accuracy
  + Scalability
  + Security
  + Usability
  + Flexibility
  + Documentation
* Ensure that the methods selected for the design process are appropriate for the project. Only trained resources can ensure that methods are effective.
* Measurements of effectiveness of the design should be created at the beginning of the project and implemented
* Create Detailed Design Document. It should contain:
  + A technical description of the product being developed in the project
  + Detailed descriptions of each component with a mapping to the requirements
  + Descriptions of the technical processes being applied to the project
  + Description of the methods being applied in the project
  + Description of the tools being used for design
  + All the diagrams and drawings
  + Key product characteristics
  + Assumptions, risks and constraints that govern the design process
  + Implementation considerations
  + Implementation specifications