



**Software Procedure document**

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## Objective

This procedure defines the functions and activities of Software development team.

## Scope

This procedure is applicable to software development and maintenance of Thar Worx.

## Roles and Responsibilities

## Assistant Director / Senior Manager

The Senior Manager has overall responsibility for the deliverables from the Software Department. In order to achieve success, the Senior Manager should work closely with the Key Stake holders and the Sponsor with respect to staffing, requirements and funding availability. The Senior Manager is responsible for looking at the technology roadmap for the organization and ensuring deliveries are completed on time, within budget, and meeting the quality criteria and requirements.

The Senior Manager develops Project Plan. The Project Plan should include the Project Charter, POC, constraints, assumptions, WBS defining project deliverables, cost estimates and project budget, major milestones, schedule, resource requirements, acquisition/procurement plans, risk analysis and response plans, project team structure. Also included will be the deliverables acceptance criteria (quality metrics) and the acceptance process.

Roles and Responsibilities

General Functions

* Comprehend and implement organizational project policies and procedures
* Maintain project staff technical proficiency and productivity, and provide training where required
* Establish and maintain project quality
* Identify and procure project infrastructure needs
* Develop Project Charter and obtain approval
* Define project goals, objectives and success criteria
* Identify and document project constraints
* Identify and document project assumptions
* Identify and secure project team resources
* Serve as focal point for project communications
* Develop and present Milestone review briefings
* Ensure that IT security C&A requirements are met

Project Responsibilities:

* Monitor the progress of the projects and ensure they are meeting organizational objectives
* Obtain stakeholder approval and acceptance of the Project Plan
* Obtain organizational commitment and support for completion of project task assignments, timing and quality Establish baseline
* Develop and update system security plan and other security deliverables
* Manage, or support, procurement process and contract administration requirements
* Evaluate project performance and initiate change requests as required (scope, cost, schedule or quality)
* Review project risks and establish risk response plans
* Obtain customer and management approval and acceptance of completed project

Authority

* Authority to review and approve project document.
* Authority to move software team member on Performance Improvement Plan. To identify training needs.
* Raising hiring request to HR.
* Approving leaves for the team.

## Team Leader / Senior Team Leader / Team Manager

Provide Team Leadership

* Create an environment oriented to trust, open communication, creative thinking, and cohesive team effort
* Provide the team with a vision of the project objectives
* Motivate and inspire team members
* Lead by setting a good example (role model) - behavior consistent with words
* Maintain healthy group dynamics
* Recognize and celebrate team and team member accomplishments and exceptional performance
* Reviews deliverables prepared by team before passing off to client
* Resolves and/or escalates issues in a timely fashion
* Possesses a thorough knowledge of software and a thorough understanding for configuring the system during each project
* Assists the Senior Manager to ensure an on-time delivery of completed system
* Capable of assisting with several projects at one time
* Identifies risks throughout the project and determines appropriate mitigation of any foreseen issues
* Addresses client issues immediately
* Follows up with clients on a daily/weekly basis until problem is resolved

Roles and Responsibilities

* Communicate team status, task accomplishment, and direction
* Provide status reporting of team activities against the program plan or schedule
* Keep the Senior Manager informed of task accomplishment, issues and status
* Serve as a focal point to communicate and resolve interface and integration issue with other teams
* Escalate issues which cannot be resolved by the team
* Provide guidance to the team based on management direction
* Best matches for team leader roles and responsibilities

**Other Areas**

* Designing user interface modules
* Tracking software development process time of the project
* Developers task review on day to day basis from PM
* Monitoring daily activities of developers
* Allocation of resources
* Handle developers’ issues
* Monitoring developer level testing
* Assigning tasks in daily basis
* Handover applications to Testing Engineer for testing the application.
* Responding to feedbacks
* Random testing of test cases done by Testing Engineer.
* Initiate weekly review of coding standards in current projects
* Need to provide training to new joiner which should be maintained.
* Need to conduct technical training to the team and it should be maintained.
* Monitoring application maintenance

## Software Programmer / Software Engineer / Sr. Software Engineer

The Software Engineer is responsible for the design and development of web / windows applications, including Updates and Upgrades. This role requires an individual who works well within the development team, across projects with Quality Assurance and Professional Services, and capable of providing technical solutions and deliverable assignment.

The role will have the ability to quickly understand a complex Enterprise Performance, Operations Planning solution, be a self-starter, and have extensive experience designing complex, transactional, software solutions. Discipline in development methodology, including open communication during architecture and design phases, and attention on SDLC

**Roles and Responsibilities**

* Designing and developing screens as per plan
* Debugging and unit testing
* Responding to Team Leader for assigned tasks.

## Trainee Programmer/Trainee software programmer

The Trainee Programmer is responsible to learn technologies and mingle with development team to start develop applications. Trainee Programmer must create the opportunity to learn technologies with the help of development team.

The role will have the ability to quickly learn the technologies and understand a complex Enterprise Performance, Operations Planning solution, be a self-starter, and have extensive experience designing complex, transactional, software solutions. Discipline in development methodology, including open communication during architecture and design phases, and attention on SDLC

**Roles and Responsibilities**

* Study and learn technology
* Responding to Team Leader when task assigned.

## Testing Engineer

Apart from all the traditional Testing practices like writing test cases, reporting and monitoring those, Software testers are having some more major responsibilities:

* Analyze and identify the flaws/mismatches in the requirements.
* Confirm the best Usability of the application.
* Identify the main integration points in the application across different modules, before the

starting of the actual testing, so this will indirectly guide the development team into the right way.

* Suggest the best ways to improve the usability and to abide the business rules (Requirements).
* Indirectly 'Software Testers' are the REAL PROJECT MANAGERS/PROCESS DRIVERS.

**Roles and Responsibilities**

* Execution of test cases after build is deployed
* Collecting and understanding the project requirements
* Design and document the test cases.
* Involving in functional, regression, system and compatibility testing
* Test report generation
* Report bugs

## Software Testing Engineer

The Testing Engineer is responsible to perform manual testing and mingle with development team to start testing the applications. Testing Engineer must create the necessary testing report as per requirements.

**Roles and Responsibilities**

* Responding to Team Leader when task assigned.
* To read all the documents and understand what needs to be tested.
* Based on the information procured in the above step decide how it is to be tested.
* Inform the test lead about what all resources will be required for software testing.
* Develop test cases and prioritize testing activities.
* Execute all the test case and report defects, define severity and priority for each defect.
* Carry out regression testing every time when changes are made to the code to fix defects.
* Prepare the status report of testing activities.

## Web Designer / UI Designer

Web Designers and Developers research, design, develop and produce internet and intranet sites.

**Roles and Responsibilities**

* Create content for web sites using a variety of graphics, databases, animation and other software.
* Ensure the web site is working efficiently.
* Research and evaluate a variety of interactive media software products
* May lead and co-ordinate multidisciplinary teams to develop web site
* Functionality.
* Designing template as per the requirement
* Getting approval for the designed template
* Creating Style Sheets as per the requirement

## SQL Developer

The SQL Developer is responsible for creating database design and writing SQL statements. This role requires an individual who works well within the development team, across projects with Quality Assurance and Professional Services, and capable of writing SQL queries and deliverable assignment.

**Roles and Responsibilities**

* Create Entity Relationship (ER) Diagrams to the proposed database.
* Create database objects such as tables, views, stored procedures, etc.
* Maintain referential integrity, domain integrity and column integrity by using the available options such as constraints etc.
* Identify columns for Primary Keys in all the tables at the design time and create them.
* Create functions to provide custom functionality as per the requirements.
* Develop reports in SQL Server Reporting Services.
* Design, Develop and Deploy SSIS Packages.
* Identify and write best possible code in case of new deployments or when rewriting code when migrating to newer version of SQL Server.
* Participate in discussions involving the application creation and understand the requirements and provide the back-end functionality for the applications.
* Prepare documentations and specifications.
* Participate in development and creation of Data warehouses.
* Create cubes in SQL Server Analysis Services.
* Ensure performance, security, and availability of databases.

## Junior Document Writer / Document Writer

The JDW is responsible for creating documents. This role requires an individual who works well within the development team, across projects with Quality Assurance and capable of writing documents.

* Create SRS document for new requirement with the help of TL and Managers.
* Updating SRS document for change request with the help of TL and Managers.
* Creating impact analysis with the help of development team.

## Activity Process Flow

| **Process Step** | **Activity details** | **Responsibility of** | **Remarks** |
| --- | --- | --- | --- |
| Project Inputs & Planning | * Requirements Gathering | Manager |  |
| Analysis | * Requirements Analysis * Prepare SRS Document | Manager/Team Leader |  |
| Design  & Review | * Low Level Design * High Level Design * Prototype Design (Optional) * Architecture Design * Security check list * Design Review * Project Plan | Manager/Team Leader |  |
| Development | * Application Development * Unit Testing | Developers |  |
| Verification & Review | * Software Testing * Application Review | Testing Engineer/ Team Leader |  |
| Integration Phase | * Deployment of application * UAT (Validation) | Team Leader/End User |  |
| Maintenance | * Application Maintenance post deployment * Changes to design and development | Software |  |

The **Activity Flow Chart** defines the department’s process steps, interrelation with other departments and documents used in the process





## 

## Quality and Information security objective

Please refer the Quality and Information security objective in the below link

(Link need to be provided for the Measurement of Software KPI)

## Work Flow Methodology

## The SDLC Waterfall

In "The Waterfall" approach, the whole process of software development is divided into separate phases. In Waterfall model, typically, the outcome of one phase acts as the input for the next phase sequentially.

Following is a diagrammatic representation of different phases of waterfall model.



* **Requirement Gathering and analysis:** All possible requirements of the system to be developed are captured in this phase and documented in a requirement specification doc.
* **Design:** The requirement specifications from first phase are studied in this phase and system design is prepared. System Design helps in specifying hardware and system requirements and also helps in defining overall system architecture.
* **Implementation:** With inputs from system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality which is referred to as Unit Testing.
* **Integration and Testing:** All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.
* **Deployment:** Once the functional and non functional testing is done, the product is released

.

* **Maintenance:** There are some issues which come up in the client environment. To fix those issues patches are released. Also to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment.

## Terms & Definition

|  |  |
| --- | --- |
| POC | * Proof of Concept |
| WBS | * Work Breakdown Structure |
| SDLC | * Software Development Life Cycle |
| SRS | * Software Requirement Specification |
| UAT | * User Acceptance Test |