

Program Management Framework

Version 1.0

Technical Project Monitoring



National ICT R&D Fund

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1 Technical Project Monitoring Framework

1.1 Introduction

This document sets out the monitoring framework within which newly funded projects are monitored and managed by Fund and must be followed through contractual obligations. It is intended as a reference for anyone involved in the development and execution of funded project, including participants from organizations (e.g. universities).

The purpose is to provide a comprehensive guide to project management and to set out core project management and monitoring policies and principles with techniques which have been found either to be particularly useful, or where an implementation within a project portfolio is required.

Participating organizations are free to develop and implement their own internal project management systems and procedures, however Project framework must conform to the best practices laid out in this Framework. It is the responsibility of relevant Monitoring officer to ensure that documented procedures within the fund, meeting the minimum requirements set out must be followed for complete/whole project's life cycle.

This Framework shall be reviewed on closure of project and updated to reflect best practices and lessons learned. More detailed guidelines and advice on key aspects of project management (e.g. project planning, risk management) shall be provided where considered helpful.

1.2 Project Monitoring and Reporting

As project must be regularly reviewed with monitoring of progress against scope, time and budget reported. The scope and frequency of information and reporting requirements may vary depending on the scale and complexity of the project and the project reporting format to be used which enable tracking of performance and budget upon completion.

As a minimum, reports should include:

- Progress summary (including the overall status of the project, demonstrating whether it is on track, key successes/problems) .
- Financial summary, including latest forecast of future requirements
- Key Milestone /Deliverable Summary (showing baseline, revised and completion dates)
- Issues/Risk Log

1.2.1 Project Review Committee (PRC)

The Project Review Committee (PRC) shall conduct mid-review project progress or shall review project key milestone as decided in project planning. The PRC shall be comprised of four members which includes one General Manager , Project Manager and a Manager(depending upon the nature of review i.e. Technical or Financial) along with subject specialist/expert (which can be hired on service contracts for monitoring the project performance) as per clause 7.1-Major Actors and sub clause 7.1.3 of company’s operational manual. The purpose would be to monitor and address the key issues or risk identified within project (the proposed mitigation/action to be taken in “Traffic Light” report format).

The PRC shall also provide the project “Go/No-Go” decision etc, after the completion of major milestones.

The Project Review Committee should be using Key Performance Indicators (KPIs) to measure the project progress.

1.3 Project Management

Principal Investigator (PI) is free to choose Project Management Framework as convenient, however, PI is bound to provide the documentation required for the selected Framework to the Company at the start of the project. All the required documentation generated during the project execution should be available.

1.4 Task Management

Project tasks should be scheduled, showing planned start and finish dates for each task. The project schedule should include an overall schedule along with milestones for the entire project. These are points in time, depicting the completion of a specified part of the project, such as a phase/stage transition, which need to be clearly identified.

Project PI and PRC will collectively identify and prioritize the core research and development tasks . The team (PRC+PI) will also identify the time-frame for the mid-review of project progress.

There are number of methods of communicating progress to the Company as the payments by the Company are linked with the completion of milestones. In these circumstances, criteria for achieving the milestone must be specified and agreed by the company and PI.

1.4.1 Task Scheduling

When producing a schedule, the following techniques should be considered:

1.4.1.1 Precedence Diagrams

A precedence diagram is a method used to show the sequence of tasks, in the form of a network, which identifies the inter dependencies between tasks.

1.4.1.2 Critical Path Method

Critical Path Method (CPM) is a scheduling method, also based on a network that identifies the single chain of tasks through the schedule that will take the longest to complete or achieve. CPM incorporates the word ‘critical’ because, if this sequence of tasks and milestones is not complete on time, the project will not finish on schedule. Planned start and finish dates should be added and the logic diagram should be configured to minimize the impact of the critical path.

1.4.1.3 Bar/Gantt Chart

A Bar Gantt chart can be used to show the network of tasks against a project calendar, taking into account the length of the working day, holidays, and other factors. It will also facilitate the mapping of resource availability against the activities and skills required and for resource leveling to take place.

1.4.1.4 Resource Levelling

Resource levelling techniques distribute the use of resources over time to minimize the variation in manpower, equipment, or money to be spent. The central idea of resource levelling is to reschedule tasks and milestones within the limits of available slack to achieve a better distribution of resources. The resource levelling procedure should not allow the duration of a project to increase.

1.4.1.5 Slack/Stretch

Slack, can be used to calculate the amount of time over and above that is required to complete the task or milestone. Stretch factor is used to calculate the amount of calendar time required and to complete a specified amount of effort. The stretch factor can take account of non-project overheads, such as holidays.

1.4.1.6 Project Evaluation and Review Techniques (PERT)

PERT is a time-focused, network-based planning system, which is used for projects where meeting the schedule is more sensitive than costs.

1.4.2 Task Tracking

For task Tracking following Open Source system could be considered however PI could also select his own task tracking system.

1.4.2.1 LibrePlan

LibrePlan is a web based application, making project management available to not just the project manager, but the entire project team, and if necessary across organizations. LibrePlan is licensed under the AGPL.

1.4.2.2 OpenProject

OpenProject is released under the GNU General Public License Version 3 and runs on Ruby on Rails.

1.4.2.3 Redmine

Redmine is a web-based project management tool. It's powerful, runs on Ruby and Rails, and is licensed under GNU General Public License v2 (GPL).

1.4.2.4 Agilefant

Agilefant, as its name implies, is based on Agile methods. However, this open source project management tool also supports product portfolios, projects, sprints, and multi-team development.

1.5 Change Management

Change Control or Change Management is concerned with controlling the results of unforeseen events, factors or mistakes which might modify or remove the need for the deliverable being developed. Such changes can occur at any time, before, during or after their creation. It is inevitable that there will be changes during the lifetime of a project and the Project Manager is concerned with the management and control of changes so that impact to the project may be minimized.

Change management involves a set of procedures including, change requests, evaluation of requested changes, change approval and implementing approved changes. Changes should be classified as minor changes, those which may be accommodated without impacting the project plan and major changes which necessitate a revised plan and its re-approval.

A change request which is minor(that does not have any financial impact, change of scope or time extension) shall be processed by Monitoring Department right away . However in other case change request shall be presented to Change Request Review Committee (CRRC) which has already comprised of CFO, GM-Monitoring and GM-SEED. Decision on change request must be taken within 10 days or less.

1.6 Risk Management

In addition to changes, other issues may arise which may have an impact on the progress of the project. Examples of such issues include non-completion or late completion of actions by either the PI, the supplier or other involved party.

All problems, no matter how large or small, should be documented and communicated. The Project Manager together with the appropriate personnel meet to discuss these problems, identify solutions, the impact of these solutions and together with the PI agree on the action to be taken. There is also an associated escalation procedure whereby more senior management may become involved in order to resolve complex or time critical issues.

Table 1.1: Sample Risk Register

Risk Identification			Risk Analysis			Risk Planning		Monitoring and Control
Date	Risk	Categories	Probability (0-1)	Impact (0-100)	Risk Score ($P \times I$)	Risk Owner	Mitigation	Comments

1.7 Configuration Management

Configuration Management is a discipline for controlling the identification of the software developed to:

- Establishing baselines,
- Recording and tracking
- Auditing the product.

All software modules, specifications, test procedures, etc. are configuration items and subject to change control. A base level (or baseline) is the set of all documents and files that comprises of specific version of a product (or application) created at a specific time. Configuration management is therefore concerned with the identification and control of all components in any given base level.

At this point in time code tracking and baselining should be maintain through one of the following configuration management tools.

- VSS – Visual source safe
- CVS- Concurrent version system
- Rational Clear Case
- SVN- Subversion
- Perforce
- TortoiseSVN

1.8 Project Closure

In Project Closure, the Project Team assesses the outcome of the project, as well as the performance of the Project Team and the Performing Organization. This

is accomplished primarily through soliciting and evaluating feedback and Project Team members.

A comprehensive project closure report by involving Project Review Committee should be submitted mentioning the key project metrics, performance, best practices , lessons learned and commercialization potential for use on current future projects.

(Report format shall be provided)

1.9 Summary

The basic purpose of this document is to provide the guidelines to manage, track and monitor the project effectively. The Motivations behind this are given in Tab 1.2

Summary of responsibility of PI, Project Manager and PRC is given in responsibility assignment matrix in Tab 1.3.

PRC committee shall be responsible to conduct mid review of projects and provide reports in traffic light format as given in Tab 1.4.

Table 1.2: Key Steps

#	Motivation	Requirement
1	Successful projects utilize a proven project life cycle model.	PI will choose the proven project life cycle model and stick to it and ensure that best practice is implemented at the appropriate stages and proper documentation is provided.
2	Planning is everything	Detailed Project Plan will be prepared with PI that reflect each and every task in detail
3	Project Risk must be assessed, reviewed and actively managed throughout the project life cycle	PI will mentioned Risk at every stage of project and as part of deliverables PI will submit the potential risks and Manager will react depending upon the level.
4	Use trend and forecasting techniques.	A successful project is not just on-time & budget but must also deliver the desired outcomes. Using Key Performance Indicators (KPIs) is one technique to monitor wider success criteria through Project Review Committee.
5	Monitoring and Control	Project will be monitor and Control through Task and Code base Management Systems.
6	Integrated Change Control	Formal change control procedures to be adopted. Evaluate all potential changes but implement only those that are beneficial.
7	Scope , Cost , Quality and Time Control	With help of Project Review Committee and Monitoring Tools Scope, Cost and Schedule will be controled. and correct balance between them will be maintianed through checklists and report templates.
8	Fight for the time to do things right.	We always have the time to do the project over; but not the time to do it right in the first place!” Project Managers must demonstrate to sponsors and senior managers why it’s necessary to make this time available in the pursuit of quality deliverables.
9	Learn from the past.	Make sure to include the post implementation review for the future projects
10	Acquire the best people available.	To run the project effectivity training must be given to appropriate time and people.

Table 1.3: Responsibility Matrix

Task	Project Manager	Principal Investigator	PRC
Prepare Project Plan	×	×	×
Selection of Project Management Framework		×	
Risk Reporting		×	
Risk Mitigation and Respond within 14 days	×		
Management Framework Documentation		×	
Project Progress Summary		×	
Financial Summary		×	
Key Milestone /Deliverable Summary		×	
Issues/Risk Log	×		
Change Management - Without Effect on Time , Budget and Schedule	×		
Change Management - Effect on Time , Budget and Schedule			×
Task Management System		×	
Configuration Management System		×	
Project Monitoring and Control	×		
Project Mid Review and Traffic Light Report			×
Communication Management	×		
Project Closure Report	×	×	×

Table 1.4: Mid Review Report

Project Status Report								
Overall Project Status								
Project Name:				Project Manager:				
Principal Investigator:				Reporting Period:				
KPIs	Overall Project Performance			Problem	Action	Owner	Due Date	Comments
Project Schedule								
Project Budget								
Project Scope								
Project Quality								
Project HR Status								
Others								