

Optimize Software Governance with a Predictive Model to Improve the Success Rate of Software Projects, Program and Portfolio

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Abstract: Success of Software projects is the main objective of any IT organization. Software Project management is a combination of People, Process and Technology to support the success of software projects. IT Governance ensures operational efficiency through various control mechanisms at a Project, Program and Portfolio level. Currently we have a gap in Governance and compliance process in predicting the success of software projects. This paper is focused on optimizing software governance with a logical predictive model.

Keywords: Software Projects; IT Governance; Project Management; Software Optimization; Predictive Model

I. INTRODUCTION

Providing insights in the software project management process is one of the core responsibilities of the IT Governance Team and IT Governance Framework. Generally these project progress insights are based on the actual project data; these project level insights are grouped at a program and portfolio level to get an overall success rate of the projects at an organizational level.

Hence this is a reactive reporting that highlights only the current status, but this paper depicts a proactive reporting based on current project status, past project and organizational mandates. Primary focus of this paper is on the Database Structure and approach of the model that helps to predict success rate of project through the software governance framework.

Database of this Predictive model uses Top Down modeling; this helps to [1] gather information about business requirements and the internal project status. Core Logic of the prediction will be based on the classification technique through a systematic process of obtaining important and relevant information from Organization Mandates, Past Projects and Current Projects status.

II. ORGANIZATIONAL STRUCTURE

Projects in Software organizations are categorized according to the Business Lines / Domain Areas. Each business line will have strategic goals to increase the year on year revenues. IT projects supporting these strategic initiatives are grouped in to Portfolio, Program and Projects

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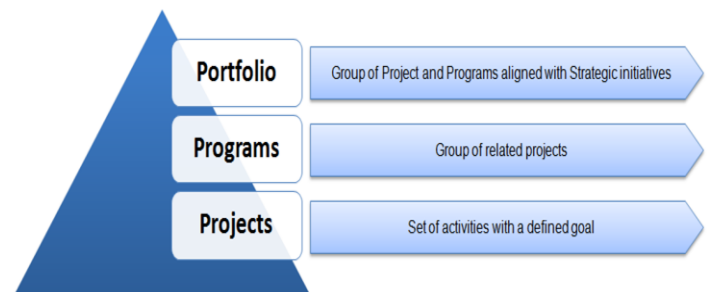
An organization will have parallel execution of multiple Portfolio, Programs and Projects. These parallel executions may create an ambiguity in tracking mechanism for the IT Governance Team. This team is responsible for Strategic alignment, Value Delivery, Resource Management, Risk Management and Performance Measures.

Representation of Portfolio, Programs and Projects of an organization (Picture -1)

III. DATA MODELING

Prediction tool for governance team demands following three groups of data

- A. Organization Standards and Governance Policies
- B. Past Project Data
- C. Current Project Data



A. Organization Standards and Governance Policies

Primary aim of getting these inputs in the Governance Prediction Tool is to set the benchmark across different projects of the organization. Just more than the project progress, tracking of organization and Governance policies helps in the overall alignment with business goals

Organization Standards and Governance Policies focuses on the controls that help to align overall compliance policies through IT Governance. Success or Failure prediction always happens at a project level; project level data is grouped to provide the Program and Portfolio level prediction.

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Following table is a sample of Organization and Governance data that can be added as Governance expectations for any Projects

S.No	Organization Standards and Governance Policies	Other Information
1	Minimum Number of Project Risks	Minimum 2 Project Risks
2	Maximum Number of Project Risks	Maximum 5 Project Risks
3	Minimum Number of Project Dependencies	Minimum 2 Project Dependencies
4	Maximum Number of Project Dependencies	Maximum 5 Project Dependencies
5	Sponsor / Budget Approvals	Dropdown - Yes / No Input
6	Min and Max number of Security / Compliance Approvals	Dropdown - Min and Max number
7	Minimum Budget	Dropdown - Eligibility Criteria
8	Maximum Budget	Dropdown - Eligibility Criteria
9	Reporting Frequency	Dropdown - Daily / Weekly / Fortnightly / Monthly
10	Minimum Number of Milestones	Minimum 5 Project Milestones
11	Maximum Number of Milestones	Maximum 7 Project Milestones
12	First milestone date	Future date
13	Maximum Number of Change Requests	2 CCB (Change Control Board) Approvals
14	Maximum Number for Rebaseling	2 Baseline Request
15	Minimum and Maximum number of design standards	As defined by the Governance Team
16	Minimum and Maximum number of database standards	As defined by the Governance Team
17	Minimum and Maximum number of coding standards	As defined by the Governance Team
18	Minimum and Maximum number of testing standards	As defined by the Governance Team
19	Minimum and Maximum number of deployment standards	As defined by the Governance Team
20	Number of Projects Planned	Automatic (calculated based on the Project Status)
21	Number of Projects In Progress	Automatic (calculated based on the Project Status)
22	Number of Project Completed	Automatic (calculated based on the Project Status)
23	Number Compliance Trainings	Minimum 2 planned Compliance Trainings

* Organization Standards and Governance Policies are indicative and subjected to change based on the requirement

Table - 1

B. Past Project Data

Every IT organization showcases a unique capability in executing and completing their projects. It is imperative to record the vital past project details to predict the success probability of the current projects.

This data enables to calculate the past project trend in the organization and compare with the status of the current projects. This will help to follow the best practices and learning's from the past projects and predicts the success rate of the current software projects

Past project information comprise of the following key parameters, most of these past project data will be calculated

automatically from the completed project status.

Following table (Table 2) demonstrates the past project data that can be loaded and retrieve from the completed projects in the IT Organization

S.No	Past Project details	Other Information
1	Project ID	Mandatory
2	Project Name	Mandatory
3	Business Unit	Mandatory
4	Project Type	Mandatory - Dropdown
5	Number of Completed Projects	Automatic calculation as per the project status
6	Number of risks closed per project	Automatic calculation as per the completed projects
7	Number of dependencies closed per project	Automatic calculation as per the completed projects
8	Number of Security / Compliance approvals	Automatic calculation as per the completed projects
9	Number of design standards	Automatic calculation as per the completed projects
10	Number of database standards	Automatic calculation as per the completed projects
11	Number of coding standards	Automatic calculation as per the completed projects
12	Number of testing standards	Automatic calculation as per the completed projects
13	Number of deployment standards	Automatic calculation as per the completed projects
14	Number of Cancelled Projects	Automatic calculation as per the completed projects

* Past project details are indicative and subjected to change based

Table - 2

C. Current projects

Status of current projects always determines the future of the organization; hence the management focus will be on the latest status and subsequent milestones. As part of this prediction tool, following current project details are recorded with Governance and Past Project details to calculate success rate.

Frequency of capturing the current project data can be aligned with reporting frequency of the Governance Meetings, IT Steering committee meetings or Management meeting. To avoid duplication and redundancy following inputs can be fetched from existing weekly / monthly projects status reporting.

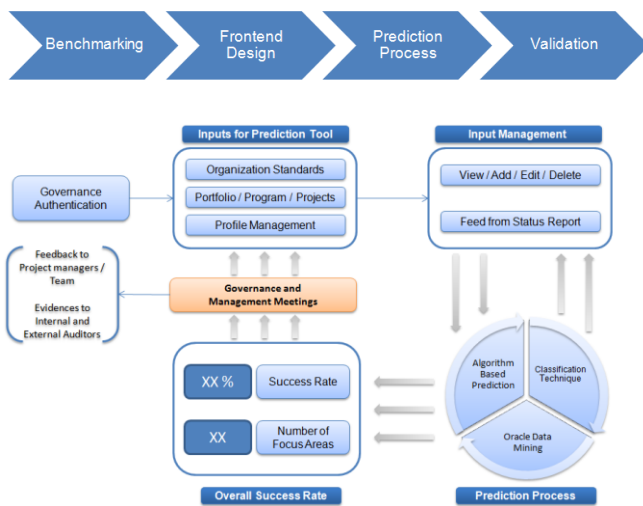
Only a Project Manager can be accountable to provide the current project status, Governance team can just refresh the tool to obtain the success rate and report it to the Senior Management. This approach helps to provide a data specific reporting with maximum accuracy and minimum manual intervention

Project Manager should be informed / trained on this approach, hence they will be able to support and provide relevant information. Status of security approvals and number of expected standards across different phases of the project such as

- Design and Database Standards
- Coding and Testing Standards

Should be analyzed, defined and approved in the requirement stage of the project





Following table (Table 3) provides the structure of the current project details

S.No	Current Project details	Other Information
1	Project Approval	Mandatory
2	Project ID	Mandatory
3	Project Name	Mandatory
4	Business Unit	Mandatory
5	Project Type	Mandatory - Dropdown
6	Project Duration	Automatic (will be calculated based on the Go Live Date)
7	Cost Center	Mandatory - Dropdown
8	Security Approval	Mandatory - Dropdown
9	Milestones Defined	Mandatory - Dropdown
10	Next Milestone date	Future Date
11	Number of design standards	Mandatory
12	Number of database standards	Mandatory
13	Number of coding standards	Mandatory
14	Number of testing standards	Mandatory
15	Number of deployment standards	Mandatory
16	Number of Staff	Mandatory
17	Number of Risks	Mandatory
18	Number of Dependencies	Mandatory
19	Go Live date	Future date

*Current Project Details are indicative and subjected to change based on the requirement

Table - 3

IV. ROLES AND RESPONSIBILITIES

Though we have various roles in an IT organization following are the key participants / actors in this Prediction tool to increase the success rate of the software projects

Project Manager – Inputs from project manager can be fetched from the customized weekly project status report, hence direct input from project manager is not required to avoid duplication. Provide necessary justification and remediation plan if the overall success rate of the project is lesser than expectation

Governance Team / PMO – Key participant of this prediction tool to update, monitor and report the success rate

in the Senior Management and IT Steering committee meetings

Governance Manager / Senior Management – Monitor and track the prediction rate, review the justification and remediation plan from Project Manager. Provide appropriate support and Management decisions to increase the success rate of the project

V. HIGH-LEVEL ARCHITECTURE

Overall structure can be categorized into 4 major pillars such as Inputs, Input management, Prediction Process and Success Rate of the projects with Focus Areas. This can be discussed in Governance and management meetings to provide proper feedback to Project Manager and Track the remediation plans

VI. IMPLEMENTATION PROCESS

Implementation process of this ongoing research activity includes

- Benchmarking – Refining the inputs of Organization standards, Governance and Compliance polices as per the industry regulations
- Frontend Design – Creation of intuitive design that aligns with the inputs and output in the prediction mechanism
- Prediction Process – More detailed investigation on the Classification Technique, Oracle Data Mining (ODM) and Algorithm
- Validation & Deployment – Data set based validation or Real time testing

VII. ADVANTAGES

- Proactive approach to the IT Governance and Management in identifying the project success rate
- Helps to improve the success rate of the software project by providing an algorithm based view
- Provides precise focus areas and enables project manager to plan on the remediation plan
- Milestones and all the project phases can be tracked and monitored
- Enables robust Governance and Compliance process and align the project progress with business goals
- Helps to successfully implement the software applications by providing accurate Management information



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AUTHORS PROFILE



- A result-oriented Project Manager with 12+ years of IT experience
- Implemented and executed project control mechanisms across Banking Platforms

- Experienced in Shared Service Transformation & MI Reporting of world's Largest Integration Programme
- Hands on experience in various project management services such as Change Management & Planning
- Risks & Issues Management, Audit Management, MI Reporting and Finance Management
- Good exposure in Portfolio, Programme and Project Management Services