TEST PLAN: A Remedy on IT Project Challenges

Introduction

Test Plan is a formal document that gives detailed information regarding upcoming testing activities and effort. It provides a template of intended test activities that answers following questions:

- **What will be tested?**
- **What quality level to be achieved and how?**
- **How much time the testing activities will take?**
- **Who will do the testing?**
- **What are the risks involved?**

IEEE 829-2008: Standard for Software Test Documentation identifies test plan as a management planning document that precisely answers above questions.

Standard Test Plan: Key Components

Before finding out more about how test plan and its contents address constraints faced by typical IT system/solution, let's see what individual test plan components mean
As per IEEE 829 following are the key components of test plan document:

1. **Test Plan Identifier:** Unique document identifier showing version
2. **Introduction**: High level summary of test items and features to be tested, type of testing, references used etc.

3. **Test items**: Major test components (Logical/physical) of system under test which will be tested
4. **Features to be tested**: Parts of the software specifications to be tested
5. **Features not to be tested**: Parts of the software specifications to be excluded
6. **Approach**: Details of how the testing process will be followed
7. **Item pass/fail criteria**: Decision rules used to determine if the test item passes/fails the test
8. **Suspension criteria and resumption requirements**: Risk clause that suspends and resumes the testing activities
9. **Test deliverables**: Test documents and other deliverables to be produced
10. **Environmental needs**: Necessary and desired properties of test environment (Including hardware and software components)
11. **Responsibilities**: Lists down the various individuals/groups responsible for test deliverables/environments and other project tasks
12. **Staffing and training needs**: Identifies test staffing needs by skill levels and relevant training needed
13. **Schedule**: Identifies the test milestones. Also estimates the time needed for each testing task
14. **Risks and contingencies**: Identifies the hierarchical risk assumptions and contingency plans for the same
15. **Approvals**: Names and titles of the persons responsible for approvals

IT Solution: Key Challenges

Although there has been considerable and continuous debate about the most important challenges to be managed during development and delivery of IT solution/system, Practitioners seem to be agreeing on the following:

1. **Poor Requirements**
2. **Unrealistic schedule**
3. **Inadequate testing**
4. **Feature Creep**
5. **Poor Communication**

Any standard test plan document developed using standards and formats would list down important content within it, but it is worth noting that, more important is the though process and fact findings that goes into preparing this document which addresses above key challenges.

How?

1. **Poor Requirements:** Author can raise early concerns on requirements which are unclear, incomplete, ambiguous, and not testable while defining the SCOPE of the testing
2. **Unrealistic schedule:** Author can make sure that too much work is not crammed in too little time
3. **Inadequate testing**: Test Planning process starts testing early on, prioritise risk areas and employs correct strategies and techniques

4. **Feature Creep**: Any change/addition to the features of the solution demands Test re-planning exercise
5. **Poor Communication:** Test Plan is a reference for test and non-test teams for all testing activities for a phase/project

IT solution: Key Constraints

Let's discuss key variables IT project managers juggle with all the time throughout the development and delivery of a typical IT solution

1. **SCOPE**
2. **QUALITY**
3. **TIME**
4. **RESOURCE**
5. **RISK**

I'm sure the readers can appreciate that these are nothing but one word answers to the questions described in the Introduction section of this article.

Where do they fit?

- **What will be tested?** - **SCOPE**
- **What quality level to be achieved and how?** - **QUALITY**
- **How much time the testing activities will take?** - **TIME**
- **Who will do the testing?** - **RESOURCE**
- **What are the risks involved?** - **RISK**

Now,

Lets go back to test plan components and compare them with each of these constraints

Figure 1: Test Plan Constraints

Test Plan: Constraint Perspective

From the delivery of an IT solution perspective **Test Planning** is an exercise to balance

- The **SCOPE** and **QUALITY** constraint against,
- The **TIME** and **RESOURCE** constraint,
- While minimising the **RISK**s.

Test Plan: Balanced and Unbalanced

A project will have minimum risk if all four variables SCOPE, QUALITY, TIME and RESOURCE are equally utilized during its lifecycle. Over or under usage of any of these variables will maximize the risk in the project. Figure 2 and Figure 3 shows examples of balanced and unbalanced test plan activities.

All 5 variables are in equilibrium

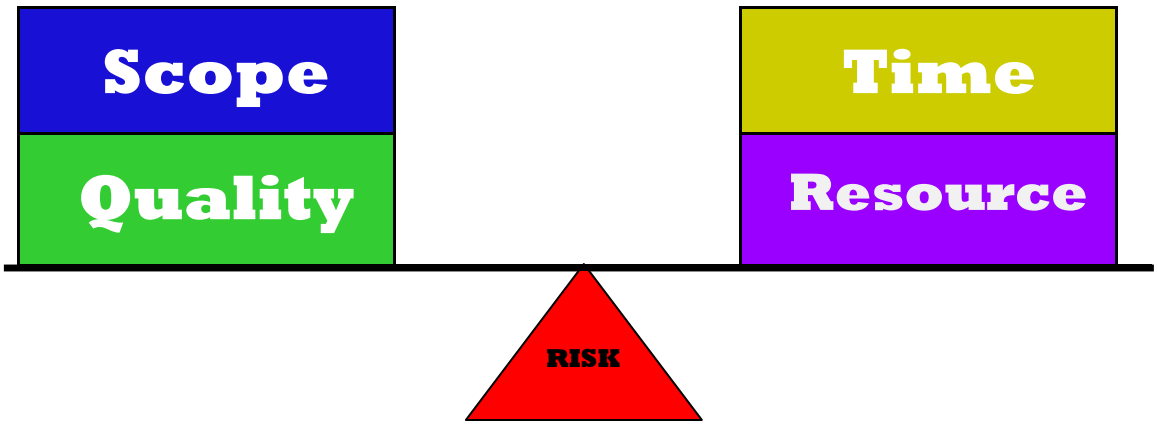
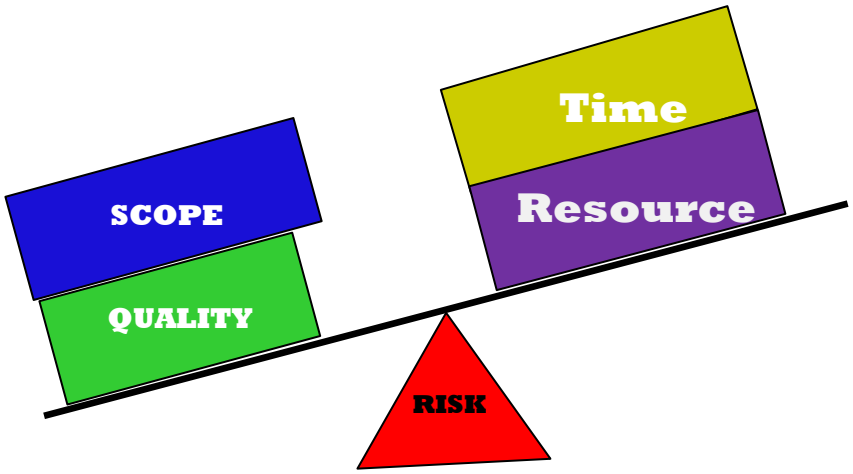
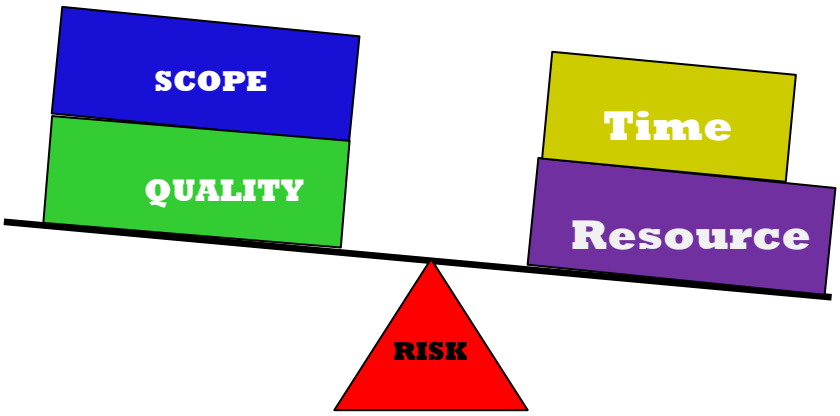


Figure 2: Test Plan: Balanced



Too many things are being tested with given time and resource



Wastage of resources to achieve the planned scope and quality objective

Figure 3: Test Plan: Unbalanced