Test Management – A Systems Perspective

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Agenda

- Complexity
- Test Manager – Need for Systems Approach
- Multiple Frameworks
- Big Picture
What is “Complexity”

• The original Latin word “complexus”, which signifies "entwined", "twisted together".
  (This may be interpreted in the following way: in order to have a complex you need two or more components, which are joined in such a way that it is difficult to separate them. )
• Similarly, the Oxford Dictionary defines something as "complex" if it is "made of (usually several) closely connected parts".

• Complexity
  – Number of parts
  – Number of interactions
  – Numbers of states ( Variety) it can exist

Software Complexity

The complexity of software is an ESSENTIAL property, not an ACCIDENTAL one. (The Mythical Man-Month.. Frederick Brooks)

ESSENTIAL
difficulties inherent in the nature of software
(isues pertaining to mental crafting of the conceptual construct)

ACCIDENTAL
difficulties related to the production of software
(isues pertaining to implementation)

• Testing primarily focuses on identifying and removing defects which are due to ACCIDENTAL complexity.
“Systems thinking is a discipline for seeing wholes, recognizing patterns and inter-relationships, and learning how to structure those inter-relationships in more effective, efficient ways”

Peter Senge
Test Management – Multiple Stakeholders

- Business
- Users
- Product Vendors
- Dev Team
- Env Support Team
- Team Members
- External Systems
- Senior Mgmt

Role of Test Manager

- How to achieve Innovation
- How to minimize COQ
- How to encourage CPI
- How to minimize time to mkt
- Defect Prevention
- How to leverage Automation
- How to increase productivity
- Test Case Optimization
- How to leverage Offshore

Operational

- Test Strategy and Test Plan
- Resource Allocation
- Environment Mgmt
- Execution Monitoring
Influence Diagram

Test Manager – Systems Perspective

- Test Management is **NOT** just managing a testing project(s)

- As a Test Manager it is necessary to understand that
  - There exists multiple stakeholders
  - Each Stakeholder has a different need(s) or expectation from Test Manager
  - There exists multiple levels of complexity and
  - Each level of complexity needs a different frame of thinking
Multiple Frameworks

Strategic
- Systems Thinking
- Balance Score Card
- Value Stream Mapping
- …etc..

Tactical
- Lean Principles
- Six Sigma Framework
- Kaizen
- …etc..

Operational
- Resource Allocation
- Project Management
- Estimation Models
- …etc..

Balance Score Card

FINANCIAL PERSPECTIVE
What financial objectives Must the team accomplish to Ensure the success of project?

CUSTOMER PERSPECTIVE
What customer Objectives Should be met?

INTERNAL PERSPECTIVE
To achieve customer and financial Objectives, what processes will Have to be worked out?

LEANING PERSPECTIVE
To achieve all the above goals What additional knowledge is Required for the team?
Test Manager – Strategic and Tactical Role

**REDUCE**
Which factors can be reduced well beyond standards

**ELIMINATE**
Which factors that industry takes for granted should be eliminated

**NEW VALUE CURVE**

**CREATE**
Which factors should be created that testing has never offered

**RAISE**
Which factors should be raised well above industry standard

Blue Ocean Strategy – W C Kim & Renee M
Test Manager - Role

…..the essence of leaders and managers is to motivate others toward productivity. In Peter F Drucker’s words,

"Management and leadership are social functions."

To lead effectively in today’s business environment means to understand your organizational dynamics (how your people get along);
To understand your Organizational Dynamics requires a little sociology, a little psychology, and a lot of talking.

Test Manager - Creating Right Environment

Multiple Frameworks
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SYSTEMS THINKING

Creativity Leadership Innovation

Knowledge Of Tools Focus on Improvement

Performance

Teaming & Employee Involvement

Focus on Improvement
Summary

- With the increasing complexity in Software Development process, including Testing, it is a MUST to have
  - The knowledge to understand complexity
  - Ability to see inter-connectedness
  - Ability to see the dynamic nature of complexity, and
  - Ability to think BIG

- Test Manager NEEDS to operate at multiple levels
  - Operational Level
  - Tactical Level
  - Strategic Level

- To operate efficiently at multiple levels, Test Manager SHOULD be equipped with multiple frameworks which are relevant to address specific levels

Systems Approach

- "Adopting a systems approach means putting the emphasis on "the big picture" or the whole and considering the functions of a system’s parts based on their relations with one another and within the system's larger context. This approach has gone by different names at different times and places: systems thinking, general systems research, cybernetics, management science, operational research, decision science, to name a few. All share the concept of a multi-disciplinary approach to defining and solving complex, high-variety, dynamic, continuous, and interactive problems."

**Big Picture**

- Create a Service culture
- Don’t try to create a control culture
- Develop the power of king’s ear
- All projects evolve.
- Well run projects evolve well
- Be ready for late changes

Balancing Act of Quality, Time and Cost

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**Role of Test Manager**

- Essential Complexity
- Accidental Complexity

QUALITY

COST

TIME

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Thank You