Driving a Quality Mindset for Continuous Improvement

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IHS Markit
Drive on Quality Lane

Maserati GT sport vs 1994 Supra Twin Turbo
Quality Mindset

Defects

QUALITY IS NOT AN ACT-
IT IS A HABIT.
-ARISTOTLE
What is Quality?

• Degree of excellence – Oxford dictionary
• Fitness for purpose – Edward Deming
• Best for the customer’s use and selling price – Feigenbaum
• The totality of characteristics of an entity that bear on its ability to satisfy stated or implied needs – ISO
• Definition by ISTQB. **quality**: The degree to which a component, system or process meets specified requirements and/or user/customer needs and expectations.
Why Should You Care?

• Enhance your organization’s brand and reputation
• Protect it against risks
• Increase its efficiency
• Boost its profits and position it to keep on growing
• Staff and customer satisfaction
Why Do You Think Quality Initiatives Fail?

• Poor governance
• Ineffective assurance
• Resistance to Change
How Do You Think Organizations Achieve Quality?

- Effective governance
- Robust systems of assurance
- Culture of improvement
How did I help teams achieve quality?
Math Sense

• Passion + Inertia of Change = Opportunity
• Passion + Effectiveness > Resistance to Change = Culture of Improvement
“You’ve been handed autonomy!”
Overcoming Obstacles

It seemed like a good idea at the time
Phase 1 – Mixture of Failures

Method: Improvement Kata

Goals: Get teams to continuously communicate quality

<table>
<thead>
<tr>
<th>Team A</th>
<th>Results</th>
<th>Team B</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominate personalities, highly skilled</td>
<td>Inability to influence whole team. Resulted in influence through SQA resource.</td>
<td>Highly skilled, more agreeable</td>
<td>Easier to influence whole team</td>
</tr>
<tr>
<td>Agile practice in Rally, but no defects recorded</td>
<td>No way to measure quality</td>
<td>Agile practice in Rally, and metrics easily collected</td>
<td>Implemented quality objectives to improve metrics</td>
</tr>
<tr>
<td>Pressure on team to meet delivery deadlines</td>
<td>No time to change</td>
<td>Pressure on team to meet delivery deadlines</td>
<td>Team made time to implement changes</td>
</tr>
<tr>
<td>Overall Results</td>
<td>Conceded to senior management to influence</td>
<td>Overall Results</td>
<td>Effectiveness of quality was slow due to team focus on delivery. Team starts communicating quality.</td>
</tr>
</tbody>
</table>
Turning Point
When stakes are high and emotions run high use Crucial Conversations

“Any time you find yourself stuck, there’s a crucial conversation you’re either not holding or not holding well”
Phase 2 – Small successes

Hierarchy of Team Health

- **Stage**: Autonomy, value delivery
- **Emphasis**: Empowerment, innovation
- **Greatness**: Teams collaborate effectively to deliver on shared goals, using action-oriented retrospectives to eliminate waste and drive improvements
- **High performance**: Teams demonstrate sustainable velocity against a prioritized backlog and regularly deliver quality releases
- **Continuous improvement**: Individuals have the tools and information they need to work on tasks assigned to them
- **Getting stuff done**: Inspecting and adapting, whole team ownership
- **Doing work**: Delivery, transparency, quality

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Phase 2 – Small successes
Method: Improvement Kata + Hierarchy of Team Health
Goals: Get teams to continuously communicate quality

<table>
<thead>
<tr>
<th>Team A</th>
<th>Results</th>
<th>Team B</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>NONE</td>
<td></td>
<td>Continued to use Improvement kata in regular</td>
<td>One developer champion the unit test initiative and then taught the rest of the team</td>
</tr>
<tr>
<td></td>
<td></td>
<td>retrospectives</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Regular retrospectives using GroupMap brainstom</td>
<td>Team communicating, thinking of own ideas, and taking ownership</td>
</tr>
<tr>
<td>Overall Results</td>
<td>Conceded to senior management to influence</td>
<td>Overall Results</td>
<td>Wanted autonomy. No longer needed outside influence. Was self-organized and took ownership of quality</td>
</tr>
</tbody>
</table>
Phase 2 – Small successes – Team C

Method: Improvement Kata + Hierarchy of Team Health

Goals: Get teams to continuously communicate quality

<table>
<thead>
<tr>
<th>Team C</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly engaged, more agreeable, and had management support</td>
<td>Easier to influence whole team.</td>
</tr>
<tr>
<td>Paired with Core Responsibilities (performance management)</td>
<td>Better engagement from the team</td>
</tr>
<tr>
<td>Retrospectives, data collection from Rally and assessed team's baseline</td>
<td>Quality objectives identified for team to improve and be consistent on best practices</td>
</tr>
</tbody>
</table>

**Overall Results**

Survey results did not match actual data. Team shocked.

**Overall Results**

Code Review Best Practices and Test Driven Development

**What level of team health maturity do you feel you and/or your team is currently at?**

- Doing Work - Individuals...
- Getting Stuff Done - Teams...
- Continuous Improvement...
- High Performance...
- Greatness - Autonomous...

Answered: 8  Skipped: 2
Phase 2 – Small successes – Team D
Method: Improvement Kata + Hierarchy of Team Health
Goals: Get teams to continuously communicate quality

<table>
<thead>
<tr>
<th>Team D</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engaged, agreeable, and willingness to learn</td>
<td>Easier to influence whole team</td>
</tr>
<tr>
<td>Paired with Core Responsibilities (performance management)</td>
<td>Better engagement from the team</td>
</tr>
<tr>
<td>Retrospectives and implementation of best practices</td>
<td>Behavior change from leader to support growth of team members</td>
</tr>
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</table>

**Overall Results**
Survey results did not match actual data. Team shocked.

**Overall Results**
Code Review Best Practice and Automation Testing
Phase 3 – Quality matures with a new appreciation for its purposes

Method: Improvement Kata + Refined Focus on quality objectives

– Applied Lessons learned: Narrowed down to 3 areas of quality initiatives whose activities will draw out weak areas to improve

– For example: Test Driven Development
Phase 3 – Quality matures with a new appreciation for its purposes

Method: Improvement Kata + Refined Focus on quality objectives

Results: Creation of Programs/Workshops for Code Review, Automation Testing, and Test Driven Development

• Includes Workshops – WHY, HOW, and Implementation using Best Practices

• Includes Milestones – with quantifiable metrics to measure implementation of best practices

• Includes using Improvement Kata for refinement between milestones
Lessons Learned
Little steps take you to big successes

- Every success and failure is a lesson
- Quality mindset shift takes leadership support
- Improvement Kata works – with quantified goals
  - Modest goals
  - Easy metrics
  - Time frame
- Crucial conversation
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Questions?
Attributes Team Acquired for Culture of Quality

• Autonomy – earn it and own it
• Team Empowerment
• Leadership Support – leaders need to walk the walk
• Improvement Kata/Kaizen – with quantified goals
  • Modest goals, routine measures
  • Easy metrics
  • Use GroupMap Brainstorming tools
• Consistency, systematic thinking
• Continual feedback
• Teamwork
• Crucial conversations
• Willingness to fail – learning and growth
<table>
<thead>
<tr>
<th>Month 1</th>
<th>Automation Testing Suggested Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kick start Your Automation Success</td>
<td></td>
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<table>
<thead>
<tr>
<th>Week 1</th>
<th>Kickoff Session</th>
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<tbody>
<tr>
<td>Choose a Champion (EOW)</td>
<td></td>
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<table>
<thead>
<tr>
<th>Week 2</th>
<th>Train the Champion</th>
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<tbody>
<tr>
<td>Team Activity: Automation Decision Guidelines (Tool Selection)</td>
<td></td>
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<table>
<thead>
<tr>
<th>Week 3</th>
<th>Workshop: Automation Strategy Guidelines</th>
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<tbody>
<tr>
<td>Team Activity: Define Automation Strategy</td>
<td></td>
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<table>
<thead>
<tr>
<th>Week 4</th>
<th>Team Activity: Prepare to Implement Automation Strategy</th>
</tr>
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<table>
<thead>
<tr>
<th>Month 2</th>
<th>Milestone 1: Implement Your Automation Strategy</th>
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<table>
<thead>
<tr>
<th>Week 1</th>
<th>Workshop: Automation Frameworks</th>
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<tr>
<th>Week 2</th>
<th></th>
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<table>
<thead>
<tr>
<th>Week 3</th>
<th>Workshop: Test Case Design &amp; Rally</th>
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<table>
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<tr>
<th>Week 4</th>
<th></th>
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<table>
<thead>
<tr>
<th>Month 3</th>
<th>Milestone 2: Some # of tests are written &amp; executed in each iteration</th>
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<table>
<thead>
<tr>
<th>Week 1</th>
<th>Workshop: Test Techniques in Test Automation</th>
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<table>
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<tr>
<th>Week 2</th>
<th></th>
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<table>
<thead>
<tr>
<th>Week 3</th>
<th>Workshop: Automation Best Practices (TBD) or Exploratory Testing with Automation</th>
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<thead>
<tr>
<th>Week 4</th>
<th>Retrospective: Team should be able to determine Go-NO Go</th>
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Examples

**Objective 1:** Kick-off Session: Understand the WHY of Automation Testing

Activities: Attend or Review Recording: “So You Want to Automate” Presentation

**Goal:** Understand WHY, HOW, and Best Practices to start automating testing in project

**Expected Results:** Team understands the guidelines to building quality into the automation strategy before starting implementation

**Objective 2: Choose a Champion**

Activities: Team will select a champion, or directed by a manager.
Due date: 1 week

**Goal:** Identify a champion who will help the team to stay focus and drive the team’s initiative

**Expected Results:** A champion will be selected within one week of Kick-Off Session
Examples

**Objective 3: Train the Champion**
Activities: Selected Champions will be trained on their role and responsibilities

**Goal**: Champions will understand their role and responsibilities in helping their team

**Expected Results**: Champions will acquire all the knowledge, training materials, program schedule, metrics, support and understanding on how to help support their team in the quality journey

**Team Activity 1**: Automation Evaluation: Automation Decision Guidelines
Activities: Automation Decision Guidelines (see matrix)
Activities: Review UI Automation Starter List with team
Examples

**Milestone 2**: 20% of the User Stories and/or backlog of tests in an iteration have test scripts written, run concurrently with each sprint, and outputs measurable results

Activities: Team (Dev or QA) write and execute 20% of the user stories and/or test case backlog successfully.

+ Refine process: Add 1 new best practice activity/metric to track
+ Repeat until team achieved new best practice/metrics

**Expected Results**: Team should be able to validation ROI at this milestone. May require team retrospection.
Team Health Criteria Examples:

**Doing Work:**
- Test Case Density (# TC per User Story per Iteration)
- Defect density
- Defects per iteration
- Defects per release
- Defects in production
- Unit Tests (per user stories)/CodeCoverage
- Story Points Per Iteration
- User Stories Per Iteration
- Time Estimation Per User Story
- Defect Management
- Terminated vs Active Defects

**Getting Stuff Done:**
- Historical data: Story Points vs Story Count metrics
- What is our velocity/cycle/lead time? (Number of time a story starts In Process to Accepted)

**Burn down chart**
- Prioritized backlog
- Basic SQA Best Practices (Test Strategy, Test Cases, Defects, Regression)
- Basic Coding Best Practices (Code Reviews, Impact Analysis, etc.)
- Reducing defects frequently
- Defect Triage Process
- Code testable by QA (all user stories)

**Continuous Improvement:**
- Continuous deployment
- Continuous integration - automatic unit test scripts
- Automation - Regression test scripts
- Performance monitoring/optimization
- Frequent action-oriented retrospectives (Improvement Kata)
- Refactoring frequently
- Security & vulnerabilities risk management