ENABLING & SUSTAINING HIGH MATURITY

QAI’s Approach to Creating a Sustainable CMMI Based Transformation
Models, Methods, and Tools - How To Choose

• It’s All About The Business
• Nobody cares how much you improve your processes; they care about how much your processes improve your business.
  – Good processes are a necessity,
  – How might we create them,
  – What they might look like.
• It is critical to instrument the processes so that you can tell if they are beneficial.
• In the final analysis Value must Exceed Cost by enough that it was a good investment of corporate treasure.
It’s a Jungle Out There! – How To Choose

- CMMI, ISO, Lean, Six Sigma, Agile, ITIL, COBIT, AS9100

- A story that makes sense
  - ISO made me do it
  - CMMI (DEV, SVCs, ACQ), ITIL, Baldrige, etc. told me the types of things to do, ISO too
  - Six Sigma helped me count it
  - Lean helped me design it and do it efficiently
  - Agile helped me do it more quickly and nimbly
  - I build / provide “X” therefore I can use “Standard” to identify the particulars
    - Airplanes – AS9100
    - Cars – Automotive SPICE
    - “X” – Your industry’s particulars
Good Processes Are A Necessity

- Every human endeavor benefits from the notion that there’s some amount of right way to do it
  - Necessary
  - Sufficient
  - Consistent
  - Concise
  - Useful
  - Buy-In
  - Congruent with the way work actually gets done
  - Attractors Rather Than Repellants
How We Might Create Good Processes

• The people doing the work, know how to do the work
• The people who document processes, know how to document processes
• They must work together synergistically
  – Process people interview Subject Matter Experts (SMEs) for how to do their particular slice of the project
  – Process people put a wrapper around the processes of the ancillary support information required to make the process steps executable
  – SMEs review the package to ensure the steps are supported by the support information
    • After review and agreement by the technical staff they are more likely to follow rather than resist the processes
What Good Processes Might Look Like

• Both standalone and in an architecture
  – The processes, from an inward focus must be internally consistent
  – The processes, from an outward focus must flow in a value chain from inception to conclusion
Inward Focus Characteristics

- Senior Management Mandate
- Documented
- Planned
- Resources Allocated (Tools, Environments, etc.)
- Resources Allocated (Staff)
- Skill Identification and Provisioning
- Control Levels of Work Products
- Monitoring Progress
- Management Control if Progress Not Optimal
- Participation of Allocated Staff
- Governance and Process Adherence
- Status Briefings to Management
- Continuous Improvement Until The Next Improvement Costs More Than it’s Worth
Inward Focus Components

- Purpose
- Stakeholders (Primary, Secondary) and Roles
- Inputs & Entry Criteria
- Transformative Steps
- Outputs & Exit Criteria
- Controls
- Templates, Samples, Example, Fill-In Guides
- Measures
- Quality Assurance and Process Governance Checklists / Mechanisms
- Training
- Standards, Guides, Procedures
Outward Focus

• The processes must flow in a value chain from inception of project idea to conclusion
  – Swimlanes
  – Value Stream Mapping
  – Process Flow diagrams and modeling
  – Control Flows
  – Data Flows
  – States and Transitions

• Graphical and textual representations for those who receive information differently

• Easy to find from Corporate Intranet
  – User Experience

Step A, Step B, Step C
Measurement and Instrumentation

• Measurement and Instrumentation are the keys to objective understanding of how a project is progressing

• Must baseline current performance indicators by collecting data from all projects
  – Bases of estimates for future projects

• In the future you must be able look back and compare to the baselines of previous similar projects, and estimates for the current projects
Basic Measurement

• Effort and Cost expended should lead to Quantity produced and Quality achieved

• In a Perfect World
  – You would like to know that when you expend “A” much effort, over “B” much calendar time, spending “C” much money, to task a “D” kind of person, with “E” level of experience, to do “F” tasks, by following “G” level of tailored process, you typically get “H” much, of “I” type work product, with “J” quality level, and “K” business value, and therefore you have “L” profitability.

• You Must Set Expectations early on in a project’s lifecycle so you can tell if you achieved them
Base and Derived Measures

• **Base Measures**
  – Counts, Calendar Time, Effort Hours, Quantity, Size, etc.
    • Pages, Screens, Reports, Hours, Days, Dollars, SLOC, Test Cases, Defects, Change Requests, Peer Reviews, Meetings, Audits, Requests for Information, etc.

• **Derived Measures**
  – Productivity, Change Rate, Trends, Aging, Volatility, Density, Arrival Rate
    • Typically a mathematical comparison of two or more Common Measures
    • SLOC/Day, Completion Percentage, Percentage of Test Cases Executed, Average Age at Closure of Defects, Requirements Changes per Unit of Time, Defects per KSLOC, Customer Information Requests per Week, Cost per Meeting, etc.
Was It Worth It?

• **What data do you need to determine if it was worth it?**
  – Cost vs Benefits
    • **Costs**
      – Tools, Environments, Staff, Training, etc.
      – Lost Opportunity while staff wasn’t available / up to speed
      – Unable to Bid
    • **Benefits**
      – Schedule Performance, Cost Performance, Quality, Customer Satisfaction, Business Wins, etc.
  – Did the “Value” exceed the “Cost” by a large enough margin that this was the correct investment to spend corporate treasure on?

• **Was there a Positive Return On Investment (ROI)**
CMMI CONSULTING & APPRAISAL

OVERVIEW OF QAI
QAI Global

To create a measurable, and sustainable competitive advantage to our clients

Facilitating Operational Excellence

People

Process

Performance

Software Engineering & Management
Software Testing & Quality
Service Management
Project, Program & Portfolio Management
Innovation Management
Business Process Improvement
Human Capability Management

Career Framework Design
Skill Assessments
Learning Design
Learning Delivery (ILT)
Online Learning
Certifications
Org. Assessment
Process Definition
Process Implementation
Process Benchmarking
Appraisals & Audits
Process Outsourcing
Metrics Program
Enabling High Maturity
Productivity Improvement
Workforce Transformation
Centers of Excellence
Innovation

“Multi-faceted interventions resulting in process improvements and innovation help organizations deliver business goals better, faster and cheaper.”
LEADERS TRUST US FOR ORGANIZATIONAL IMPROVEMENTS

FACTS
- 600+ Yrs. Consulting Experience
- 400+ Excellence Journeys
- 800+ Improvement Projects
- 400+ Six Sigma Projects
- 150+ Professionals
- 300+ High Maturity Programs
- 30+ Countries, 5 Continents

LEADERS ENGAGE US
- Top Fortune 500 Companies
- World’s Top Software Enterprises
- Top USA IT Companies
- World’s Top Semi Conductor Cos.
- Big 5 Consulting Firms
Trusted Advisor for Organizational Improvement
CMMI EXECUTIVE OVERVIEW
ARCHITECTURE OF THE MODEL
QAI’s INTEGRATED APPROACH FOR ACHIEVING HIGH MATURITY

1.1 Identify Business Need
1.2 Sign-off Vision & Goals
1.3 Obtain Commitments & Launch

2.1 Plan for Gap Analysis
2.2 Conduct Gap Analysis
2.3 Report Findings & Recommendations

3.1 Establish Plan & Priority
3.2 Review & Refine QMS
3.3 Create Ability to Implement

4.1 Pilot Rollout
4.2 Review Feedback & Refine
4.3 Formal Enterprise Rollout

5.1 Finalize Plan & Team
5.2 Train the Team
5.3 Readiness Review

6.1 Sustenance Planning
6.2 Sustenance Audits
6.3 Transfer Knowledge & Assets

7.1 Sustenance Planning
7.2 Sustenance Audits
7.3 Transfer Knowledge & Assets
## 1.0 INITIATE PROCESS IMPROVEMENT PROGRAM

### PHASE 1

#### Business Strategy & Goals are defined and available

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify Business Needs &amp; Drivers</td>
<td>Meet Sponsor &amp; Stakeholders, Understand Scope, Understand Challenges, Document Inputs &amp; Scope, Obtain Signoff on Input</td>
</tr>
<tr>
<td>Define Vision &amp; Goals of Process Improvement</td>
<td>Define Vision, Define Guiding Principles, Define Approach &amp; Goals, Build Consensus &amp; Priority, Obtain Signoff on Goals</td>
</tr>
<tr>
<td>Obtain Approval for Resources &amp; Launch</td>
<td>Check Environment, Specify Efforts &amp; Resources, Build Consensus &amp; Priority, Obtain Signoff, Announce the PI Program</td>
</tr>
<tr>
<td>Sign-off Scope &amp; Needs</td>
<td>The needs, expectations and constraints of the sponsor must be determined in order to best tailor the implementation &amp; transition.</td>
</tr>
<tr>
<td>Sign-off Stakeholders</td>
<td>Stakeholders usually have good reasons why an organization should launch a SPI program, but their reasons are rarely couched in business terms or aligned with the organization’s business needs.</td>
</tr>
<tr>
<td>Draft PI Proposal</td>
<td>The purpose of this step is to build a proposal for senior management that will explain what the SPI program is, why it should be initiated, what it will cost, how long it will take to see results, and what approach is selected</td>
</tr>
</tbody>
</table>

2 – 4 weeks

Depending on scope and span of the organization
## 2.0 DIAGNOSE & DISCOVER OPPORTUNITIES

### PHASE 2

<table>
<thead>
<tr>
<th>Needs, Goals and Resources are signed off</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan for Gap Analysis &amp; Discovery</td>
</tr>
<tr>
<td>Conduct Gap Analysis &amp; Discovery</td>
</tr>
<tr>
<td>Report Findings &amp; Recommendations</td>
</tr>
</tbody>
</table>

- **Plan for Gap Analysis & Discovery**
  - Formalize Scope
  - Select Team Members
  - Brief on Expectations
  - Brief on the Methodology
  - Review & Finalize Plans

- **Conduct Gap Analysis & Discovery**
  - Review Goal Achievement
  - Review Existing QMS
  - Review Implementation
  - Collect Project Data
  - Interview & Validate Finding

- **Report Findings & Recommendations**
  - Analyze Data Collected
  - Prepare Draft Findings
  - Validate & Discuss Findings
  - Formalize Findings Report

### Findings & Recommendations are Provided

- **Gap Analysis Plan is Formally Announced**
- **Complete Data & Evidence Collection**
- **Formal Findings & Recommendation Report**

To accomplish base-lining activities requires a significant amount of coordination of people, data, facilities, training activities, and support services. Hence, it is recommended that sometime be spent on planning the initiative, especially because this activity involves drawing out the future implementation action plan.

In this step, we focus on collecting actual data at a project instance level to identify gaps in definition, implementation, improvement, and institutionalization. We also check if the enablers are adequate and the reasons for gaps, if any.

The purpose of this activity is to provide a formal findings report for all to read and internalize on the existing gaps that need to be fixed, and creating visibility and buy-in for improvement.
## 3.0 DEFINE QUALITY MANAGEMENT SYSTEM

### PHASE 3

**Preparation of Formal Action Plan**
- Review Findings
- Define Priority
- Define an Approach
- Define Resources Required
- Review & Finalize Plan

**Review & Refine QMS**
- Review Definition Gaps
- Refine QMS
- Review & Refine Enablers
- Validate with Project Teams
- Publish the Refined QMS

**Create Ability to Implement**
- Prepare a Training Plan
- Enroll Team Members
- Conduct Trainings
- Support Post Training
- Follow-up & Feedback

### Purpose
- **Prepare a Formal Action Plan**
  - The purpose of this step is to develop or refine a strategic action plan for the process improvement program, based on the findings of the gap analysis. This strategic action plan is expected to provide guidance and direction to the Process Improvement program till the successful achievement of the desired level of maturity.

- **Review & Refine QMS**
  - The purpose of this step is to focus and close out the process definition gaps identified during the gap analysis. It is important to formalize the process, before we fix any other gap.

- **Create Ability to Implement**
  - The purpose of this step is to educate the teams on the new process, templates, checklists, and help them understand all the implementation requirements, and benefits. This will ensure that there is common interpretation of the process.

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**5 – 18 months**

Depending on the initial maturity, gaps and scope
# 4.0 Implement Quality Management System

## PHASE 4

### Pilot QMS for Feedback
- Plan Pilot Implementation
- Select Pilot Projects
- Debrief Goals & Expectations
- Pilot Implementation
- Refine QMS & Implementation

### Review & Refine Implementation
- Review Implementation Gaps
- Refine QMS & Enablers
- Refine Implementation
- Publish the Refined QMS
- Prepare a Roll Out Plan

### Enterprise Wide Rollout of Refined QMS
- Publish Improvement Goals
- Launch Implementation
- Monitor Implementation
- Report Progress & Indicators
- Transition to Support

### Refined QMS based on Pilot Implementation (V2.0)

### Final Version of QMS Roll out Plan

### Formal Rollout is Completed

The purpose of this phase is to pilot the QMS 1.0 on a set of pilot projects to understand the nuances and variations to be considered for the final enterprise-wide roll out of the QMS. Based on the feedback, we may have to modify and refine the enablers.

The purpose of this step is to refine the implementation level detail of the QMS – Templates, checklists, guidelines, and training to ensure that there would be no issues during the enterprise-wide roll out.

The purpose of this step is to do a roll-out of the complete process across the organization. During this phase, we create visibility to the team on the infrastructure, support, review, and other critical elements for implementation.

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**5 – 18 months**

Depending on the initial maturity, gaps and scope
# 5.0 Pre-Appraisal & Readiness Check

** Formal Implementation is completed at an organizational level

## PHASE 5

<table>
<thead>
<tr>
<th>Finalize Pre-Appraisal Plan &amp; Team</th>
<th>Train the Appraisal Team</th>
<th>Conduct Readiness Check for Appraisal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Collection Strategy</td>
<td>Identify Appraisal Team Lead</td>
<td>Collect Objective Evidence</td>
</tr>
<tr>
<td>Establish Constraints</td>
<td>Training on Model</td>
<td>Inventory Evidence</td>
</tr>
<tr>
<td>Determine Scope &amp; Coverage</td>
<td>Training on Methodology</td>
<td>Examine Evidences</td>
</tr>
<tr>
<td>Identify Team Members</td>
<td>Debrief on Plan &amp; Strategy</td>
<td>Feedback on Readiness</td>
</tr>
<tr>
<td>Finalize Team &amp; Plan</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Formal Pre-Appraisal Plan

- The purpose of this step is to ensure that the pre-appraisal activities, and the required resources are identified, and budgeted for. We also have to ensure that a team is selected to participate in the readiness review. This is a good practice to create sustenance of internal control.

### Train the Appraisal Team

- Each of the team members need to be trained on the model and the appraisal methodology. In addition, the lead appraiser trains the team on the data collection, and identifying findings, and on documenting observations.

### Conduct Readiness Check for Appraisal

- The purpose of this step is to create visibility to the senior management on the current state of maturity, and also provide them with an indication of the possible readiness for a formal appraisal.

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2 – 4 weeks

Depending on the maturity level & scope
6.0 FORMAL APPRAISAL

**PHASE 6**

**Formal Readiness Review is completed**

**Formal Appraisal Planning**
- Finalize Appraisal Objectives
- Finalize Appraisal Plan
- Finalize Team & Resources
- Get Sign-off on Plan

**Formal Appraisal Plan is signed off**

**Conducting the Formal Appraisal**
- Collect Evidence
- Examine Evidence
- Document Evidence
- Verify Evidence
- Validate Preliminary Findings

**Formal Appraisal Evidence is collected & validated**

**Appraisal Result & Final Submission**
- Rate Goal Satisfaction
- Rate Practice Implementation
- Rate Process Areas
- Determine Maturity Level
- Document Appraisal Results

**Final Report on Appraisal Results**

**Formal Maturity Rating is identified**

The purpose of this step is to prepare a formal appraisal plan for the organization to commit time and resources for the complete scope agreed upon, and identify the team readiness, and risks involved in the same.

The purpose of this step is to collect evidence on the requirements for the CMMI Model, Process Areas, Practices, and the instantiation of the same at a project level. The evidences are collected on the basis of the data collection plan decided in the previous step.

The purpose of this step is to derive ratings of the goal satisfaction, and practice area implementation and the profile of the process areas to determine the overall maturity rating of the organization.

4 – 8 weeks
Depending on the maturity level & scope
| PHASE 7 | Plan for Sustenance & Improvement | Conducting the Sustenance Audits | Transfer Knowledge & Assets |
|------------------------------------------------|----------------------------------|-------------------------------|
| Review Organization Goals | Collect Evidence | Formal Packaging of Assets |
| Review Sponsorship | Examine Evidence | Debrief Team on Sustenance |
| Establish Sustenance Goals | Verify Evidence | Formal Training on Assets |
| Finalize Team for Sustenance | Review Sustenance & Slips | Formal Handover & Sign-off |
| Get Sign-off on Plan & Team | Report Findings | |

The purpose of this step is to prepare the organization to sustain the maturity, and review the required sponsorship, commitment for the resources, and further improvement goals.

<table>
<thead>
<tr>
<th>Formal Sustenance Plan is signed off</th>
<th>Periodic Sustenance Audits are conducted</th>
<th>Formal Handover of Assets</th>
</tr>
</thead>
</table>

The purpose of this step is to check at a regular frequency on the stability, and create visibility to the management team for any early course corrections.

<table>
<thead>
<tr>
<th>4 – 8 weeks</th>
<th>Depending on the maturity level &amp; scope</th>
</tr>
</thead>
</table>

The purpose of this step is to institutionalize the complete process for the organization to own and drive. As part of this step, we provide a complete handover of the assets, knowledge, to the select team members to take over.
IMPLEMENTATION SCHEDULE (indicative)

PHASE 1

PROGRAM KICK OFF
GAP ANALYSIS COMPLETED
QMS 1.0 RELEASED
QMS 2.0 RELEASED

PHASE 2

1ST CYCLE IMPLEMENTATION COMPLETED

PHASE 3

2nd CYCLE IMPLEMENTATION COMPLETED
PRE APPRAISAL COMPLETED
APPRAISAL COMPLETED

PHASE 4

1ST CYCLE IMPLEMENTATION COMPLETED

PHASE 5

2nd CYCLE IMPLEMENTATION COMPLETED

PHASE 6

APPRAISAL COMPLETED

PHASE 7
# RESPONSIBILITY MATRIX

<table>
<thead>
<tr>
<th>PHASE</th>
<th>QAI GLOBAL</th>
<th>CLIENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHASE 7</td>
<td>▪ Plan For Sustenance&lt;br▪ Knowledge &amp; Asset Transfer&lt;br▪ Review Commitment &amp; Sponsorship for SPI</td>
<td>▪ Team Members for Sustenance&lt;br▪ Commitment for Improvement</td>
</tr>
<tr>
<td>PHASE 6</td>
<td>▪ Plan Formal Appraisal&lt;br▪ Conduct Formal Appraisal&lt;br▪ Report Results</td>
<td>▪ Availability of ATM Team&lt;br▪ Commitment &amp; Availability for Appraisal</td>
</tr>
<tr>
<td>PHASE 5</td>
<td>▪ Plan Pre-Appraisal&lt;br▪ Do a Readiness Check &amp; Spot Checks&lt;br▪ Review &amp; Refine Implementation&lt;br▪ Create Visibility</td>
<td>▪ Provide approvals and sign off&lt;br▪ Project Information &amp; Teams for Interviews</td>
</tr>
<tr>
<td>PHASE 4</td>
<td>▪ Process Deployment&lt;br▪ Review &amp; Refine QMS&lt;br▪ Support Implementation &amp; Provide Feedback&lt;br▪ Provide Visibility on the Progress</td>
<td>▪ Infrastructure for Process Deployment&lt;br▪ Availability of Team for discussions&lt;br▪ Availability of Team for Training</td>
</tr>
<tr>
<td>PHASE 3</td>
<td>▪ Process Definition &amp; QMS Development&lt;br▪ Build Enablers (Policy, guidelines etc.)&lt;br▪ Educate &amp; Support Team Members&lt;br▪ Review &amp; Collect Feedback</td>
<td>▪ Infrastructure for Process Definition&lt;br▪ Team Members for supporting this initiative&lt;br▪ Commitment of Resources for Training</td>
</tr>
<tr>
<td>PHASE 2</td>
<td>▪ Prepare Gap Analysis Plan&lt;br▪ Conduct Gap Analysis&lt;br▪ Provide Findings &amp; Recommendations</td>
<td>▪ Access to Project Data&lt;br▪ Availability of Team Members&lt;br▪ Arrange Venue / Logistics</td>
</tr>
<tr>
<td>PHASE 1</td>
<td>▪ Meeting with Sponsor&lt;br▪ Formalize Scope &amp; Goals for PI&lt;br▪ Proposal for Process Improvement&lt;br▪ Build Consensus &amp; Buy-in</td>
<td>▪ Availability of Senior Team Members &amp; Sponsor&lt;br▪ Ensure access to project information &amp; teams&lt;br▪ Ensure Commitment to Improvement</td>
</tr>
</tbody>
</table>
THANK YOU

We look forward to partnering with you on your journey.

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