PM Architecture Design as a Critical Success Factor in CMMI Model Implementation

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Implementing CMMI into Your Organization

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- **Most CMMI efforts begin with noble intentions and senior management support:**
  - Indicates a desire to improve, streamline and standardize how the organization does business and delivers quality

Implementing CMMI into Your Organization

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- **So why do CMMI initiatives fail after they've been authorized and resources allocated?**
- **What can you do to avoid the pitfalls?**

Reasons Authorized CMMI Efforts Fail

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1. **Competing motivators within the organization**

2. **The process implementation design was not well conceived**

Desire to Improve vs. Desire to Win New Business

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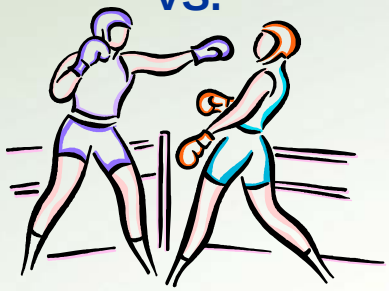
Competing Motivators

Executives
- Win New Business
- Achieve Rating
- Cost Efficiency
- Realists

VS.



Quality Organization
- Improve Delivery
- Improve Quality
- Mature Org Process
- Idealists

- **Executive sponsorship for CMMI is often initially more greatly influenced by obtaining a maturity level, rather than maturing the organization.**
  - Pressure to obtain a rating
  - Gain competitive advantage
  - Meet customer requirements
  - Shorter time requirements

Moving Beyond the "Maturity Rating Motivator"

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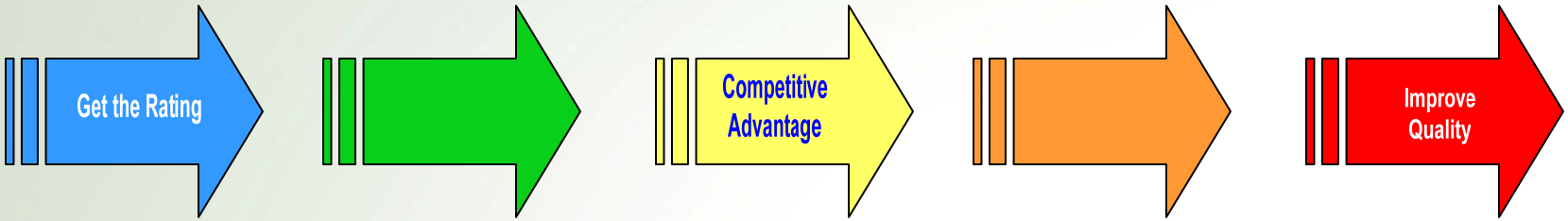
Executive Sponsorship Continuum

Motivators



Signed authorization
Some resources assigned

Champion: fully funded & resourced

Characterization

Lacks Champion & Enforcement

Stakeholders held accountable & actively engaged in key decisions

Reasons Authorized CMMI Efforts Fail

1. Competing motivators exist within the organization

2. The process implementation design was not well conceived

Reasons Implementation Designs Fail

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- Do not support business goals or solve business problems
- Do not plan for managing organizational change
- Do not consider other factors influencing the way the organization does business
- Do not factor other quality model process requirements (i.e. ISO registrations, ANSI 748)
- Do not account for customer constraints
- Do not account for cost and resource constraints
- Provide no mechanism to lead the effort or govern and oversee adherence
- The Process Design is bigger or more complicated than the organization needs or can handle

Reasons Implementation Designs Fail (Cont'd)

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- Do not obtain stakeholder buy-in on approach, methods, and priorities
- Incomplete business requirements
- The design rationale is not fully planned and communicated
- Lack of Planning
- Lose sight of the end goal

What is the End Goal??

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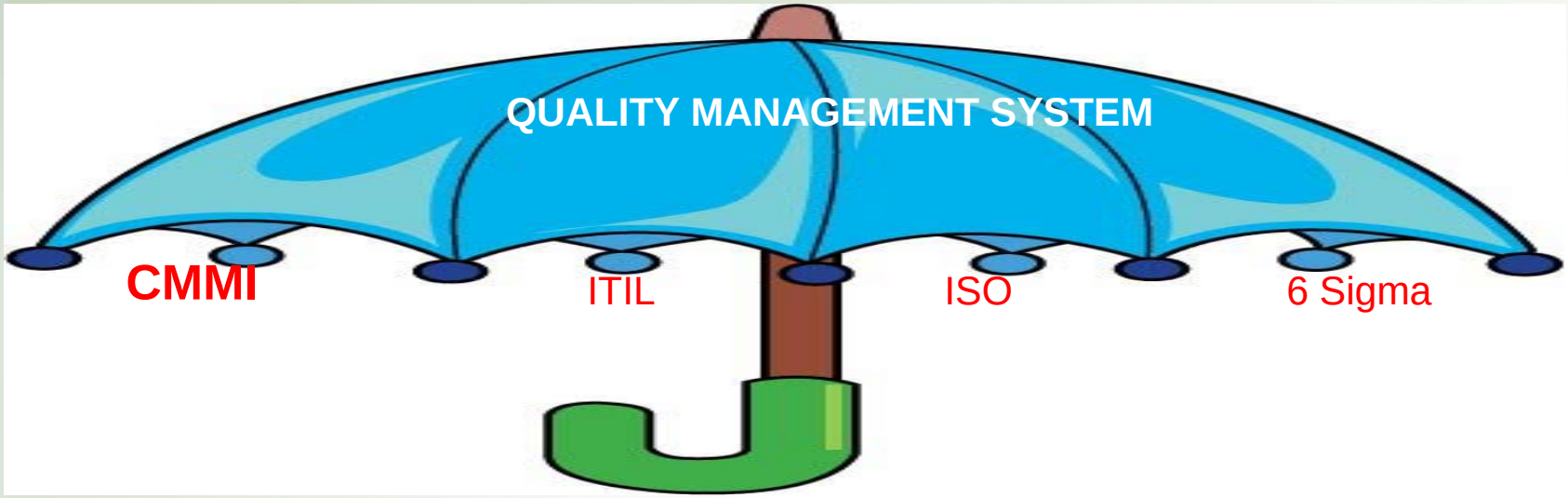
To Improve Project Performance, Delivery, and Quality!!

Building Your Solution: Quality Enterprise Architecture



Project Management Methodology

Required process rigor (greater rigor = less allowable tailoring)

Building Your Solution: PM as a Foundation for CMMI

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PM practices against CMMI process areas

*note: diagram does not represent complete mapping

PM Practice	CMMI PA
Scope Definition & Management	▪ RQEM (L2) ▪ RD (L3) ▪ VER (L3) ▪ VAL (L3)
Estimation ▪ Cost ▪ LOE (Level of Effort) ▪ Schedule	▪ RQEM (L2) ▪ RD (L3) ▪ TS (L3) ▪ PI (L3) ▪ MA (L2) ▪ PP (L2) ▪ PMC (L2) ▪ ISM(L3)
Communication & Reporting	▪ GP 2.7/ 2.10 ▪ MA (L2) ▪ PMC (L2) ▪ IPM (L3) ▪ RSKM (L3)
Knowledge & Data Management ▪ PM Repository ▪ CM System ▪ InfoRQEMation Security	▪ CM (L2) ▪ OPD (L3) ▪ RD(L3)
Change Management	▪ CM (L2) ▪ PI (L3) ▪ TS (L3)

PM Practice	CMMI PA
Performance Management ▪ Schedule ▪ Budget ▪ Deliverables	▪ RD (L3) ▪ PMC (L2) ▪ TS (L3) ▪ VER (L3) ▪ PI (L3) ▪ VAL (L3) ▪ IT (L3) ▪ ISM (L2)
Quality Management ▪ Audit Management (plan & schedule) ▪ Peer Review ▪ Process Improvement Recommendations/Corrective Actions	▪ PPQA ▪ OPD ▪ OPF
Governance ▪ PMO interface (if applicable) ▪ Corrective Action	▪ PMC (L2) ▪ OPF (L3) ▪ RSKM (L3) ▪ PPQA (L2) ▪ MA(L2)
Resource Management ▪ Staff management ▪ Asset management ▪ Subcontractor Management	▪ OT (L3) ▪ SAM (L2) ▪ ISM (L3) ▪ IT (L3)
Risk Management	▪ RSKM (L3) ▪ PMC (L2) ▪ PP (L2)

Building Your Solution: Solution Steps

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- **Select & Define Your PM Framework**
- **Develop Your PM Methodology**
- **Establish a Governance System**
- **Ensure Solution Meets Business Needs**

Solution Step 1: Select & Define Your PM Framework

A Framework provides the basic architecture for the Project Management Methodology

- **Assess the organizational dynamic and current PM competency and processes**
- **Evaluate known frameworks (i.e. PMBOK, home-grown)**
- **Identify synergies between CMMI PA requirements and other quality best practices and map to your business needs**
- **Weight process attributes and level of rigor desired up front**
- **Assess the characterization of your project portfolio**
  - Short, rapid IT development or long term high risk combination efforts?
  - Solution Buyer or Solution Provider?

Key Attributes of an Effective PM Framework

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- **Enables achievement of project objectives and goals**
- **Establishes foundation for monitoring and controlling project performance**
  - Identifies early performance indicators
  - Identifies performance shortfalls
  - Supports methods for corrective and preventative actions
- **Supports implementation of a standardized, but tailorable methodology that facilitates quality and timely development and delivery of products and services.**
- **Is flexible enough to integrate with other quality best practices, models, and most commonly used SDLC's**
  - Build in a way that other quality models, frameworks, and best practices can be "snapped on" and integrated as business needs change and evolve.

Key Attributes of an Effective PM Framework (cont'd)

- **Sets foundation to communicate measures and roles and responsibilities**
- **Supports earlier stakeholder and executive visibility into performance**
- **Establishes or supports requirements for PM repository and PAL**
- **Identifies process interfaces**
- **Defines PM process and procedural requirements, standards and policies that:**
  - Comply with the CMMI Model
  - Comply with Business Requirements
    - Which meet business objectives

Building Your Solution: Solution Steps

- Select & Define Your PM Framework
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Solution Step 2: Develop Your PM Methodology

A PM Methodology is the culmination and elaboration of practices and methods by which project management is executed

- **Elaborate on standards and requirements defined in framework/s**
- **Develop processes, procedures and supporting documents**
- **Choose a specific PM Practice and follow the logical progression of that thread**
- **Prioritize PM practice areas and implement in phases**
- **Begin with a PM practice that helps solve immediate &/or significant problems**

Building Your Solution: Solution Steps

- Select & Define Your PM Framework
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Solution Step 3: Establish a Governance System

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A Governance System Should:

- **Consider authorizing/creating a PMO to:**
  - Facilitate identification of project improvement recommendations
  - Mentor “users”
  - Perform project/program audits to evaluate project/program health (i.e. PfM)
  - Identify corrective and preventative actions
- **Establish Quality Organization to**
  - Perform process quality audits
  - Identify corrective and preventative actions
- **Enable earlier identification and resolution of risks**
- **Help enforce defined process requirements**
- **Establish requirements for process improvements & corrective actions**
- **Provide an independent escalation chain to executive management**
- **Facilitate communication between business operations & line management**

Building Your Solution: Solution Steps

- Select & Define Your PM Framework
- Develop Your PM Methodology
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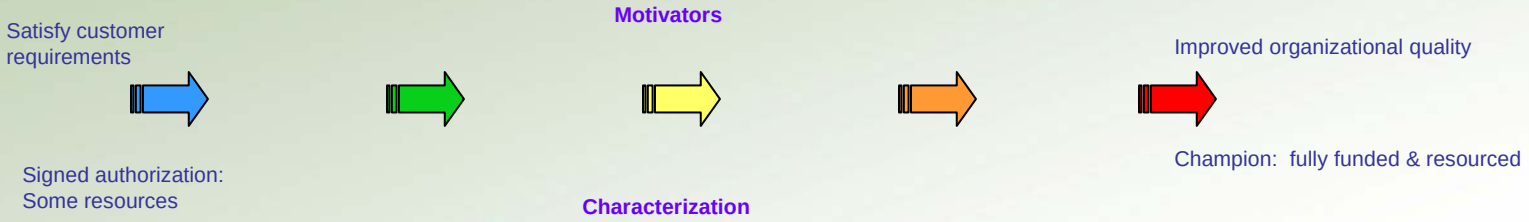
- Ensure Solution Meets Business Needs

Solution Step 4: Ensure Solution Meets Business Needs



- **Continuously Evaluate the Effectiveness of the Implementation Approach:**
  - Ensure defined goals are being achieved as planned
  - Identify performance variances against plan and take corrective action
  - Ensure resource utilization is still appropriate
  - Let Process Improvement Process work

  Demonstrate Business Value of Solution:
  - Measurably improve overall performance and productivity
  - Standardize business processes
  - Reduce chaos
- **Translate Solution into Business Terms:**
  - Reduce costs
  - Increase the rate of successful projects or business initiatives

Ensure Solution Meets Business Needs [Estimating Example]

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EXAMPLE

- **The Value of Estimation Practices to *Those Who Must Implement***
  - Helps ensure defendable, re-traceable estimates via a standardized method and documented BOE (basis of estimate).
  - Sets and communicates stakeholder expectations, system/performance boundaries, requirements definition
  - Facilitates better scope definition
  - Defines criterion for change

- **The Value of Estimation Practices to *Executives***
  - Reduces financial and legal risk—particularly for FFP contracts or on projects where financial resources are limited
  - Reduces cost & schedule over-runs
  - Increases win rate
  - Produces more timely & better identification of requirements
  - Improves customer satisfaction through quality & timely project delivery

The Value of a PM Focus Up Front

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- **Sets foundation for and feeds into CMMI process area requirements**
- **Demonstrates early value by providing business leadership, sponsors, project teams, with measurable, repeatable performance results before committing to full cost**
- **Can be tailored at an organizational level to accommodate other quality process models/best practices/frameworks: ITIL; ISO; 6 Sigma, etc.**
- **Fosters improved communication and defined roles & responsibilities**
- **Trains project teams to work within a defined process framework**
  - Realize value faster: motivate vs. pull
- **Facilitates smoother management of organizational change**

The Value of a PM Focus Up Front (cont'd)

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- **Improves performance faster and "motivates" resisting stakeholders to get on board.**
- **Unifies stove piped organizations.**
  - PM impacts or is impacted by business operations
- **Establishes foundation by which your CMMI project can be managed!**
  - Provides opportunity to continuously improve your new PM processes
- **Key driver behind solution and service success or failure**
- **Increases institutionalization success**
- **Reduces risk of process regression after a successful appraisal**
- **CMMI requires other elements be met, but you cannot meet any CMMI required element without executing project management practices**

War Stories…

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… on the road to a successful CMMI Level 3 Appraisal

The Challenge:

- Developing a unified architecture that recognized many pre-existing formal and informal processes
- Deciding how to fix gaps identified in SCAMPI B
- Different perspectives on the methods, and level of process rigor needed to meet requirements

War Stories…

The Solution:

- **Established a Process Action Team (PAT) to modify existing PM Process Framework**
- **The PAT included representation from the implementing teams who helped design the solution**
- **Leverage and build upon existing PM Processes**

The Result:

- **Resolved most shortfalls**
- **Achieved a Successful CMMI Level 3 appraisal!** 

Lessons Learned

- **Develop your PM Framework & Methodology first**
- **Plan your CMMI Implementation with the entire organizational process architecture in mind when possible**
- **Don't try to eat the whole elephant at once:**
  - Implement good enough for now; improve process later
- **Implement a governing organization to oversee both Quality Process Adherence and Project Health**
  - Poor Project Performance could be an indicator that key CMMI requirements have not been appropriately followed
- **Develop user-friendly process assets and repository (PAL)**
- **Understand the dynamics, structure and culture of your organization**
- **Plan continuous improvement activities to ensure your approach is both CMMI compliant and meets business needs**
- **Be prepared for resistance and know its source/s**
- **Balance quick hits with tackling your biggest problem areas**
- **Communicate, educate, listen & be proactive!**

QUESTIONS?

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Thank you!

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