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

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Implementing CMMI into Your Organization

- **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

- **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

- 1. Competing motivators within the organization**
- 2. The process implementation design was not well conceived**

Desire to Improve vs. Desire to Win New Business

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.**

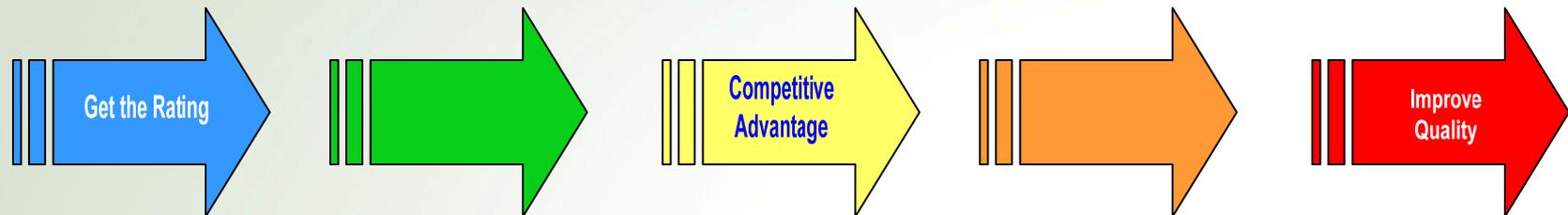
- Pressure to obtain a rating
- Gain competitive advantage
- Meet customer requirements
- Shorter time requirements



Moving Beyond the “Maturity Rating Motivator”

Executive Sponsorship Continuum

Motivators



Signed authorization
Some resources assigned

Lacks
Champion &
Enforcement

Champion: fully
funded & resourced

Stakeholders
held accountable
& actively
engaged in key
decisions

Characterization

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**

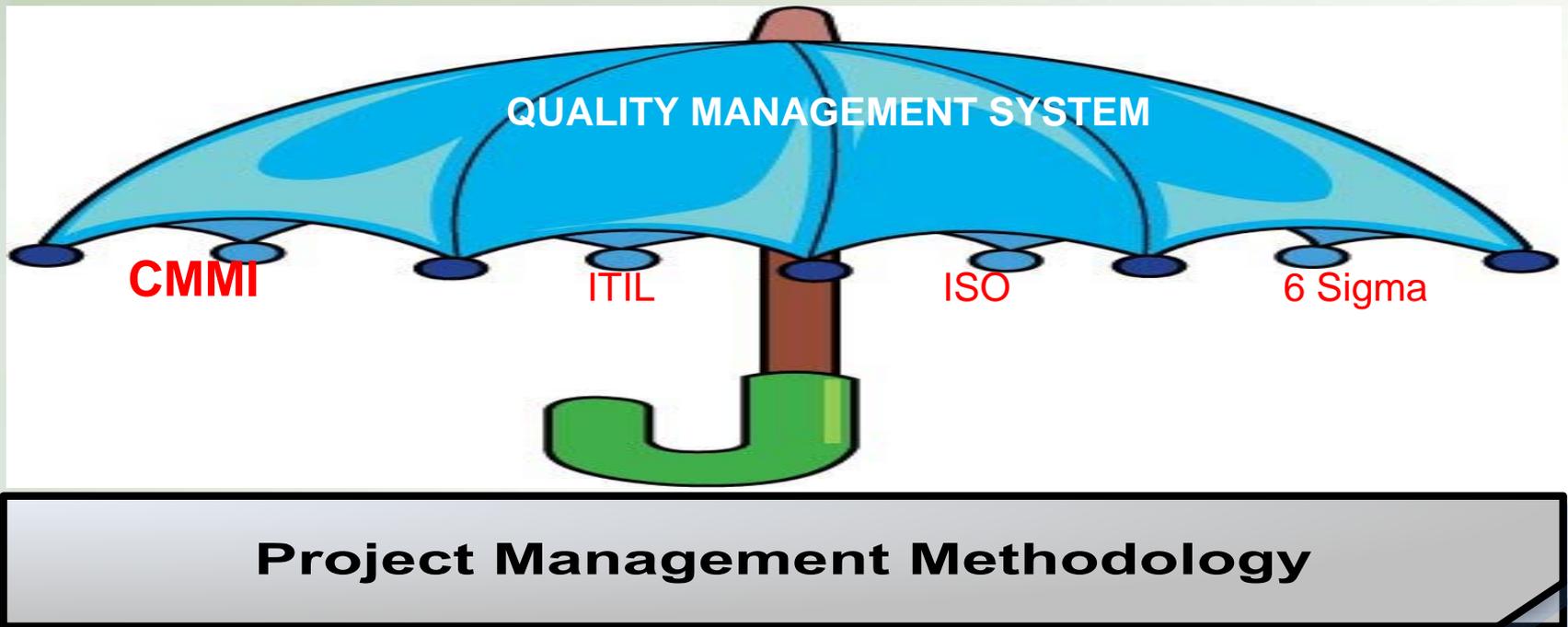
Reasons Implementation Designs Fail (Cont'd)

- **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??

**To Improve Project Performance,
Delivery, and Quality!!**

Building Your Solution: Quality Enterprise Architecture



Required process rigor (greater rigor = less allowable tailoring)

Building Your Solution: PM as a Foundation for CMMI



PM practices against CMMI process areas

*note: diagram does not represent complete mapping

PM Practice	CMMI PA
Scope Definition & Management	<ul style="list-style-type: none"> ROEM (L2) RD (L3) VER (L3) VAL (L3)
Estimation <ul style="list-style-type: none"> Cost LOE (Level of Effort) Schedule 	<ul style="list-style-type: none"> ROEM (L2) RD (L3) TS (L3) PI (L3) MA (L2) PP (L2) PMC (L2) ISM(L3)
Communication & Reporting	<ul style="list-style-type: none"> GP 2.7/ 2.10 MA (L2) PMC (L2) IPM (L3) RSKM (L3)
Knowledge & Data Management <ul style="list-style-type: none"> PM Repository CM System InfoRQEMation Security 	<ul style="list-style-type: none"> CM (L2) OPD (L3) RD(L3)
Change Management	<ul style="list-style-type: none"> CM (L2) PI (L3) TS (L3)

PM Practice	CMMI PA
Performance Management <ul style="list-style-type: none"> Schedule Budget Deliverables 	<ul style="list-style-type: none"> RD (L3) PMC (L2) TS (L3) VER (L3) PI (L3) VAL (L3) IT (L3) ISM (L2)
Quality Management <ul style="list-style-type: none"> Audit Management (plan & schedule) Peer Review Process Improvement Recommendations/Corrective Actions 	<ul style="list-style-type: none"> PPOA OPD OPF
Governance <ul style="list-style-type: none"> PMO interface (if applicable) Corrective Action 	<ul style="list-style-type: none"> PMC (L2) OPF (L3) RSKM (L3) PPOA (L2) MA(L2)
Resource Management <ul style="list-style-type: none"> Staff management Asset management Subcontractor Management 	<ul style="list-style-type: none"> OT (L3) SAM (L2) ISM (L3) IT (L3)
Risk Management	<ul style="list-style-type: none"> RSKM (L3) PMC (L2) PP (L2)

Building Your Solution: Solution Steps

- **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

- **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

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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**

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Solution Step 3: Establish a Governance System

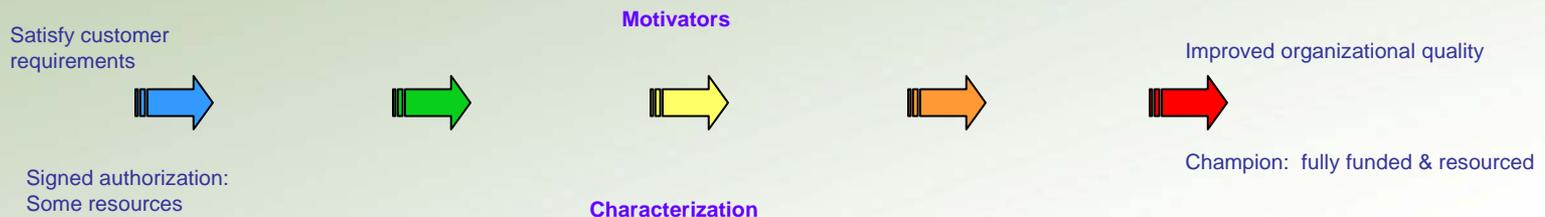
A Governance System Should:

- **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**

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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]

EXAMPLE

- **The Value of Estimation Practices to *Those Who Must Implement***

- Helps ensure defensible, 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 overruns
- 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

- **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)

- **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**

... 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?

Thank you!

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