

# Tug the CFO's Purse String for a "CMMI<sup>®</sup> Program"

Nidhi Srivastava

CMMI is a Registered Trademark of Carnegie Mellon University and is Registered in the U.S. Patent and Trademark Office

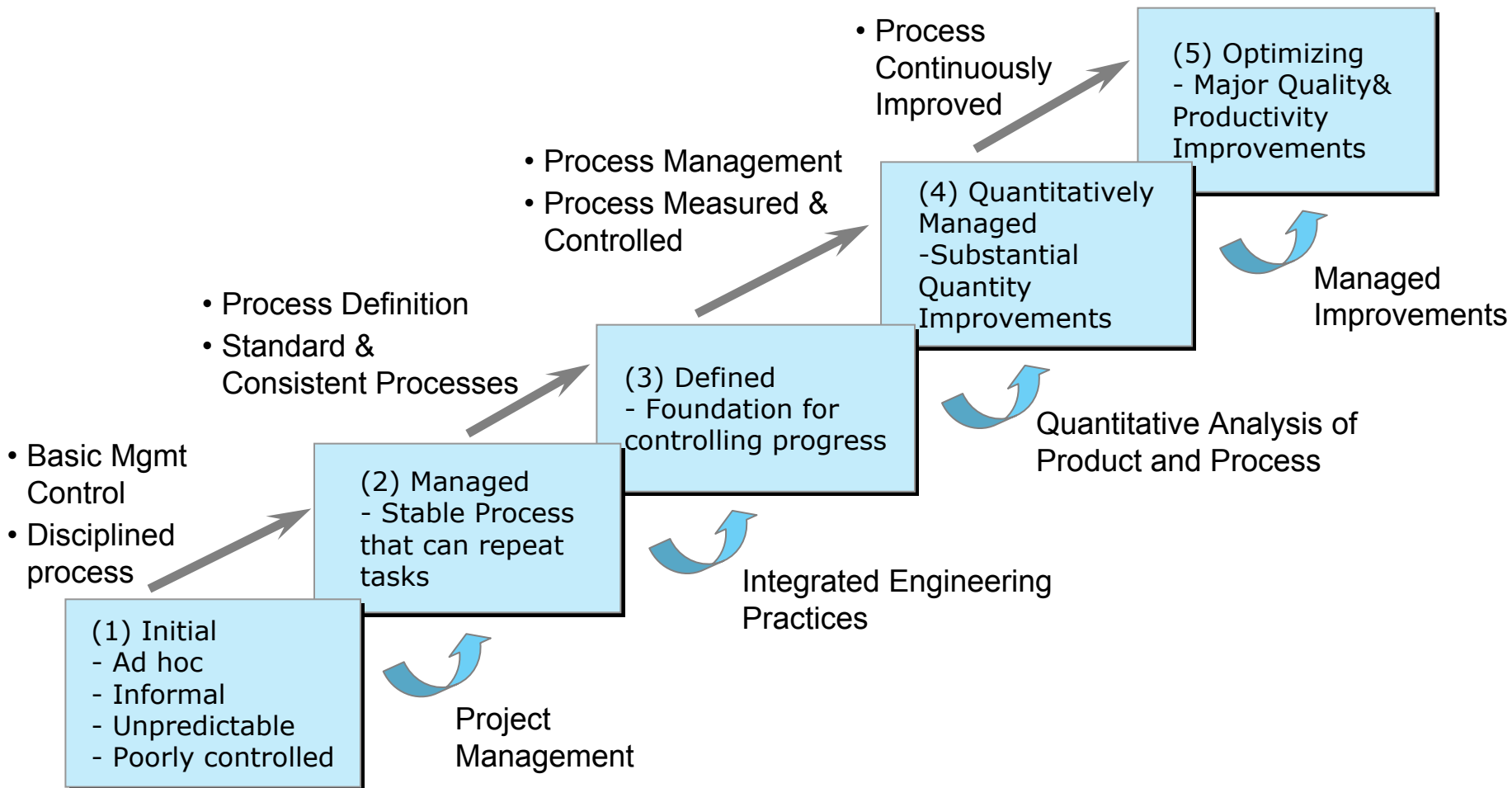
SCAMPI and SEI are service marks of Carnegie Mellon University

Experience certainty. IT Services  
Business Solutions  
Outsourcing

- How To Drive Profitability With CMMI
- How Cost Of Quality Business Case Can Tug The IT Budget Purse
- How To Demonstrate Return-on-Investment To The CFO
- A True Story – Show Me The Money!

# How To Drive Profitability With CMMI

## Adoption Of CMMI For Improvement Leads To Reduction Of IT Expenditure



# How To Drive Profitability With CMMI

## ...And There Has Been Substantial “Acceleration” Towards CMMI In The IT Industry

### Organization's Perspective

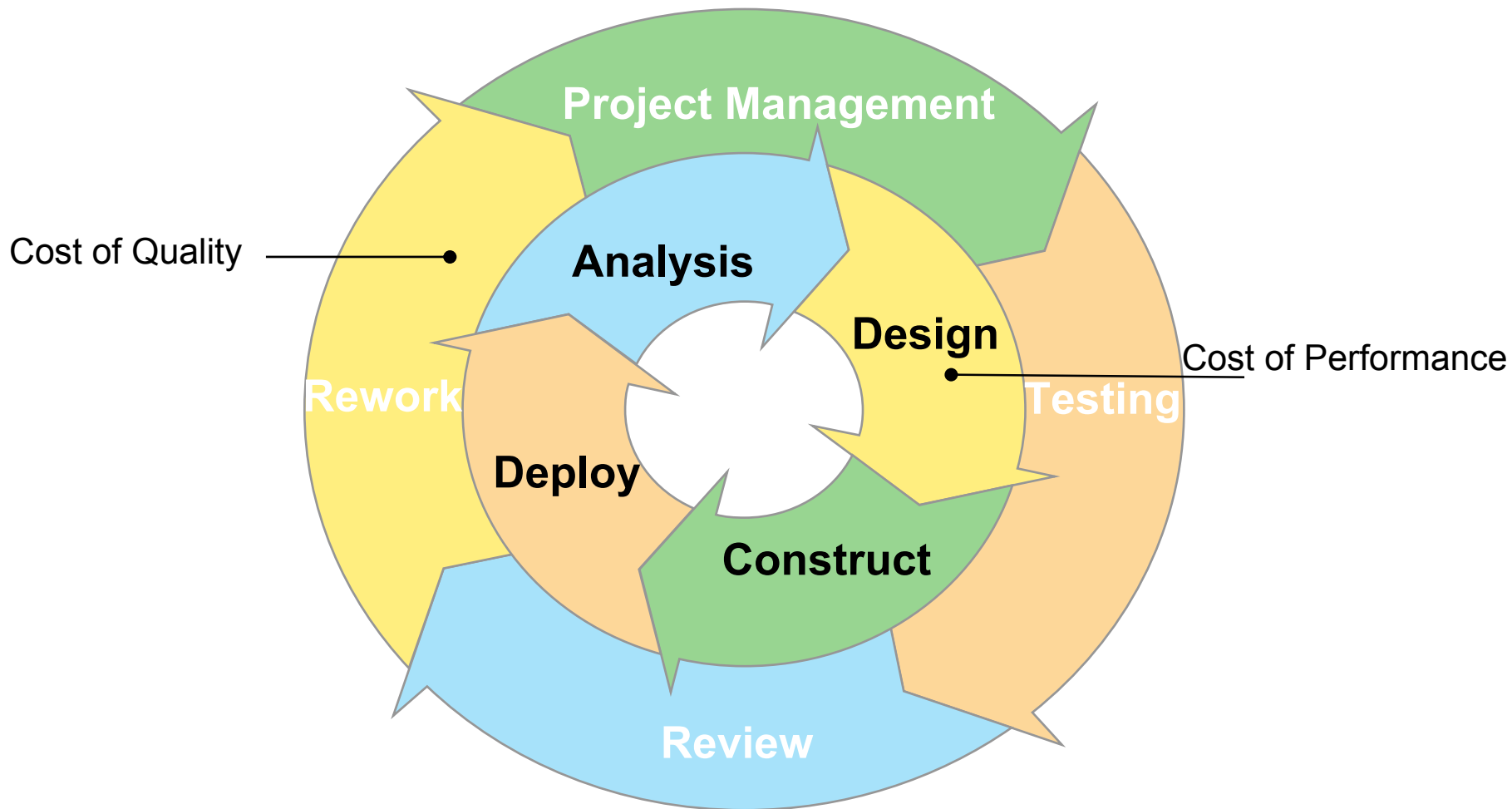
- CMMI model has proven track record
- Provides better vendor hand-shake : smart customer – smart vendor liaison
- Provides a Yardstick for evaluation of a vendor by the customer
- IT shops create global footprints by adopting CMMI
- Creates an employee-friendly environment

### Employee' Perspective

- Emphasizes on enablement of people to perform well and learn new skills
- Supports building a cohesive and effective team through Integrated teaming practices
- Offers the experience of best-in-class process framework
- Improves personal competitiveness and sale-ability
- Emphasizes on employee participation in organizational process change

# How To Drive Profitability With CMMI

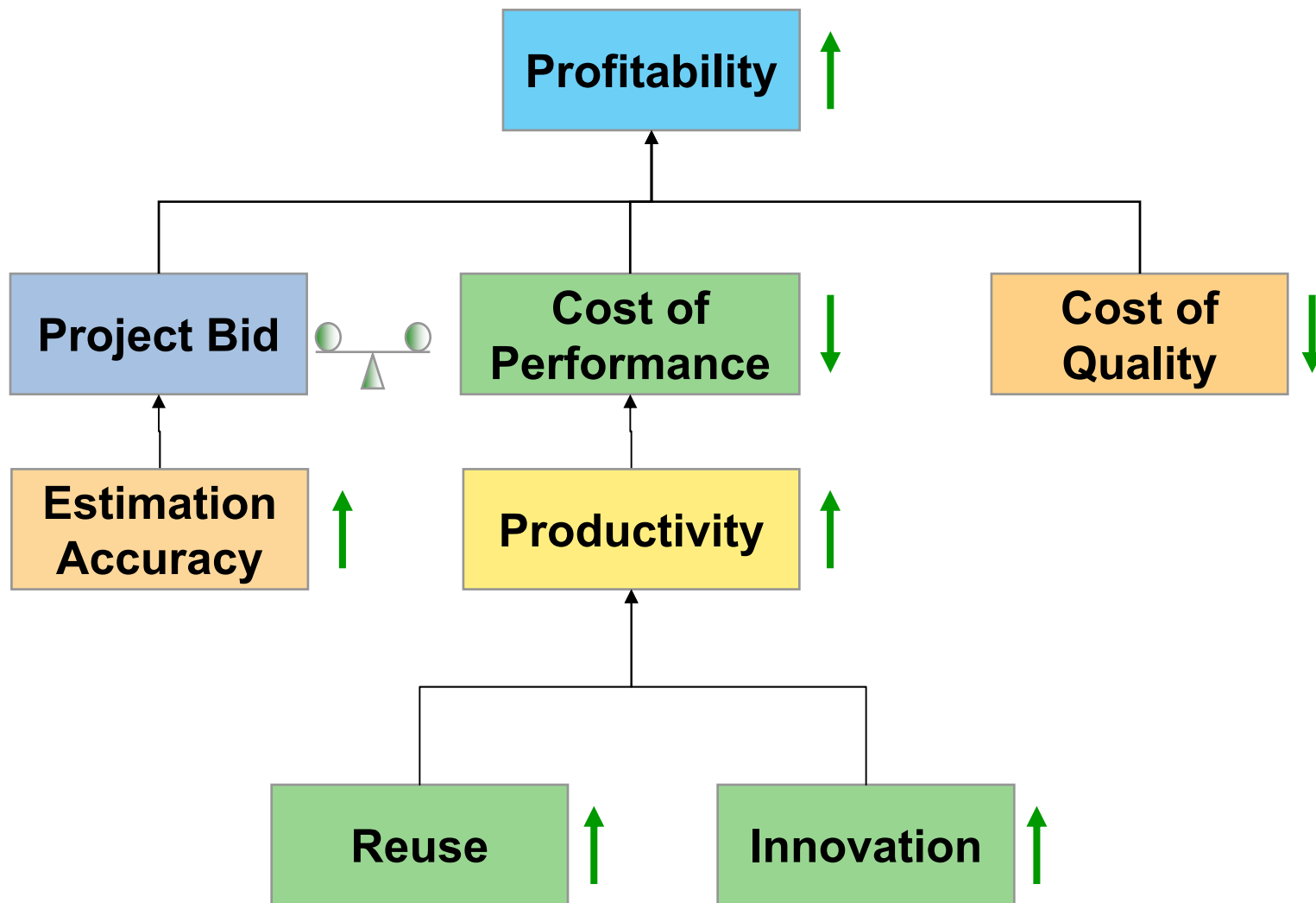
This “Acceleration” Is Driven By The Increase In Profitability



$$\text{Profitability} = \text{Project Bid} - (\text{Cost of Performance} + \text{Cost of Quality})$$

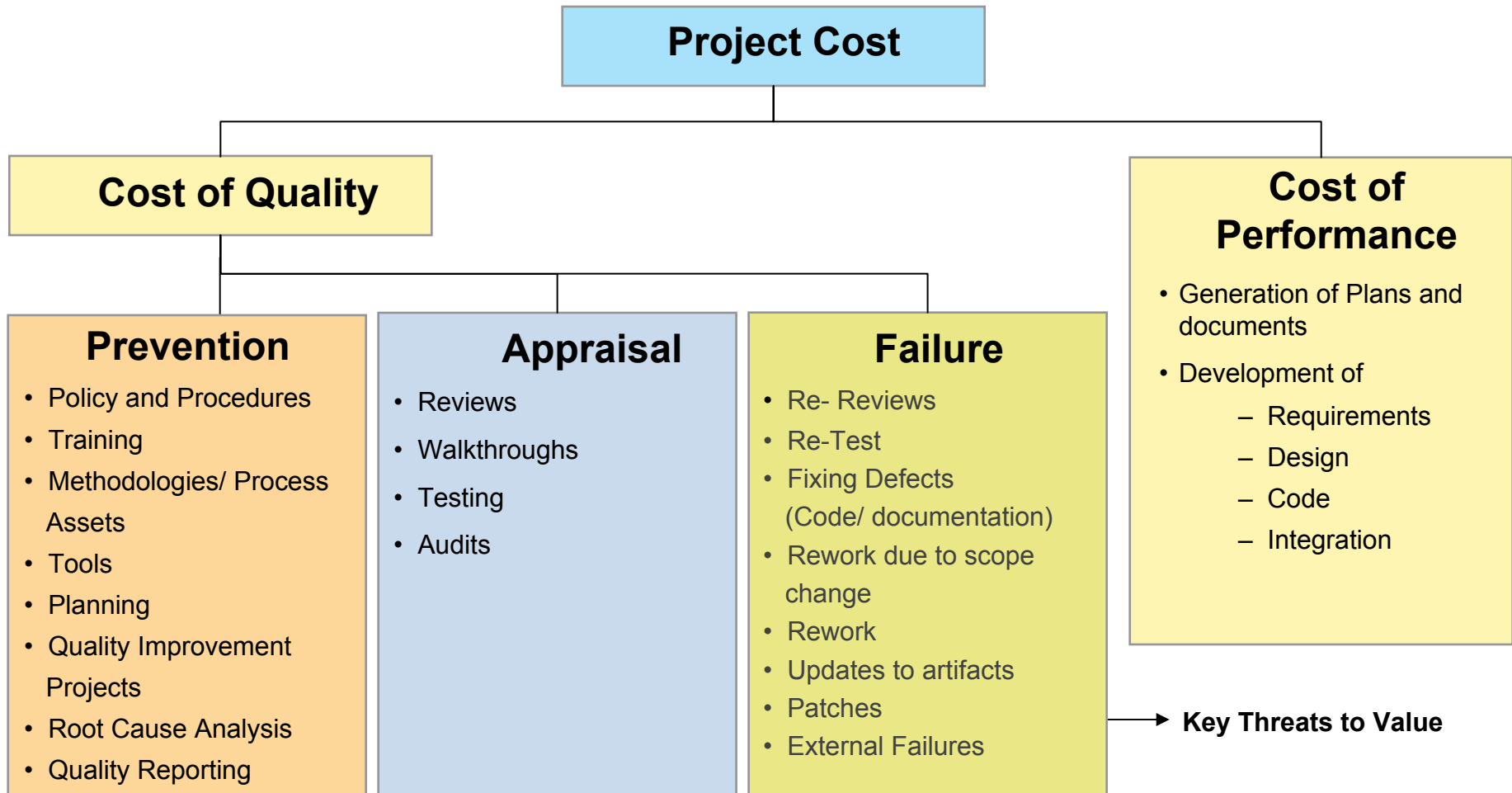
# How To Drive Profitability With CMMI

Higher Profitability Comes From Optimizing Bid, Minimizing Performance Costs And Minimizing Cost Of Quality



# How To Drive Profitability With CMMI

Key Elements Of Cost Of Quality Are Prevention, Appraisal And Failure; Value To Business Is Driven Through Cost Of Performance



Source: Quantifying the benefit of Software Process Improvement, Ray Dion, Raytheon

# How To Drive Profitability With CMMI

---

## Use Cost Of Quality As A Base Metric For Defining Organization's Spending Related To Quality

- Cost of Quality can be compared to overall software solution development costs and benchmarks
- In-depth analysis of Cost of Quality can lead to actions to improve the situation
- The bottom line effect of quality programs and improvement actions can be measured
- Previously hidden costs related to poor quality become visible and demystified
- The economic tradeoffs involved with software quality become visible, thus leading to better decision-making
- Organizations using Cost of Quality have been quite successful in reducing rework; and improving quality and value delivered to the customer



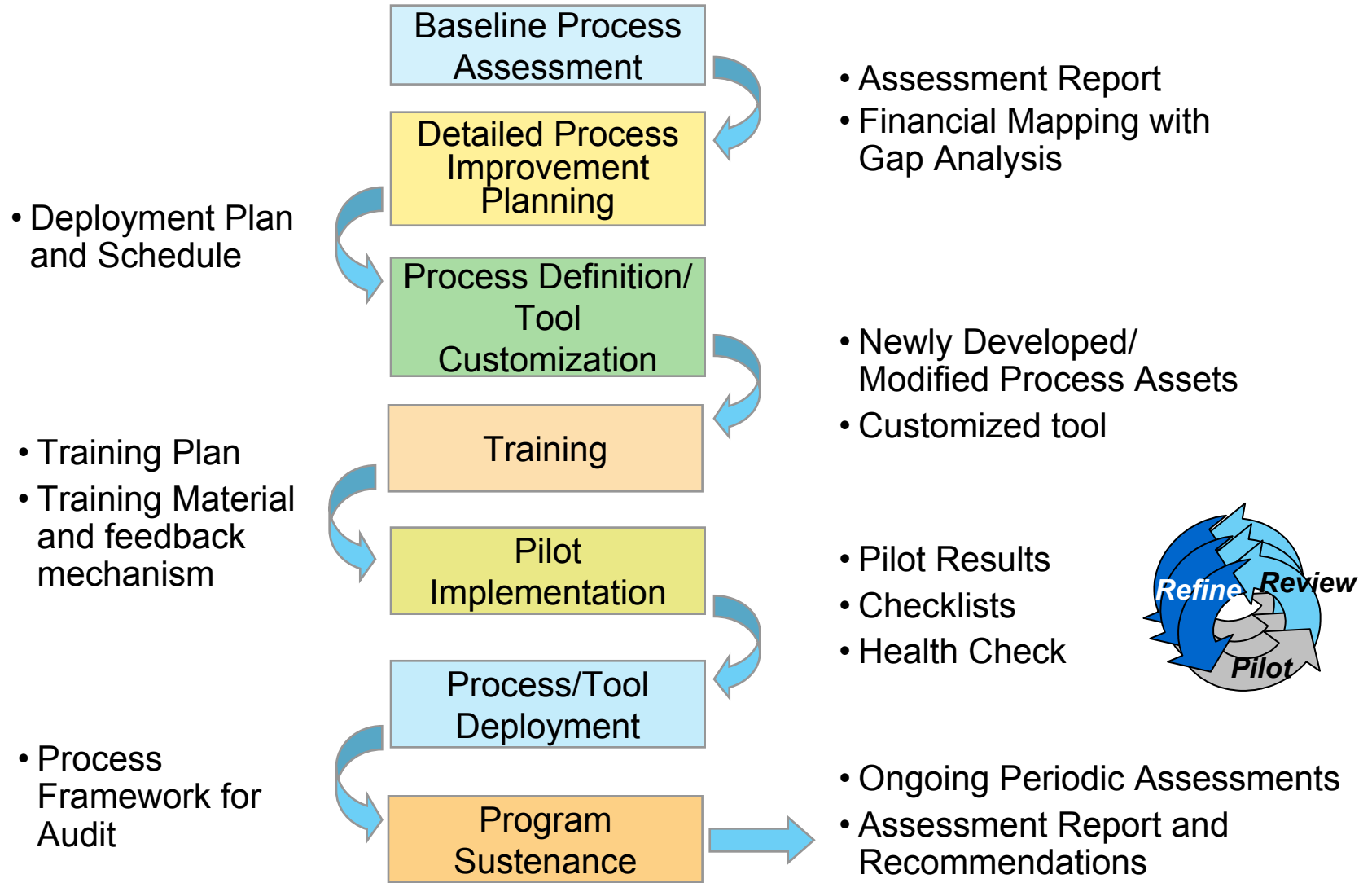
# Agenda

---

- How To Drive Profitability With CMMI
- How Cost Of Quality Business Case Can Tug The IT Budget Purse
- How To Demonstrate Return-on-Investment To The CFO
- A True Story – Show Me The Money!

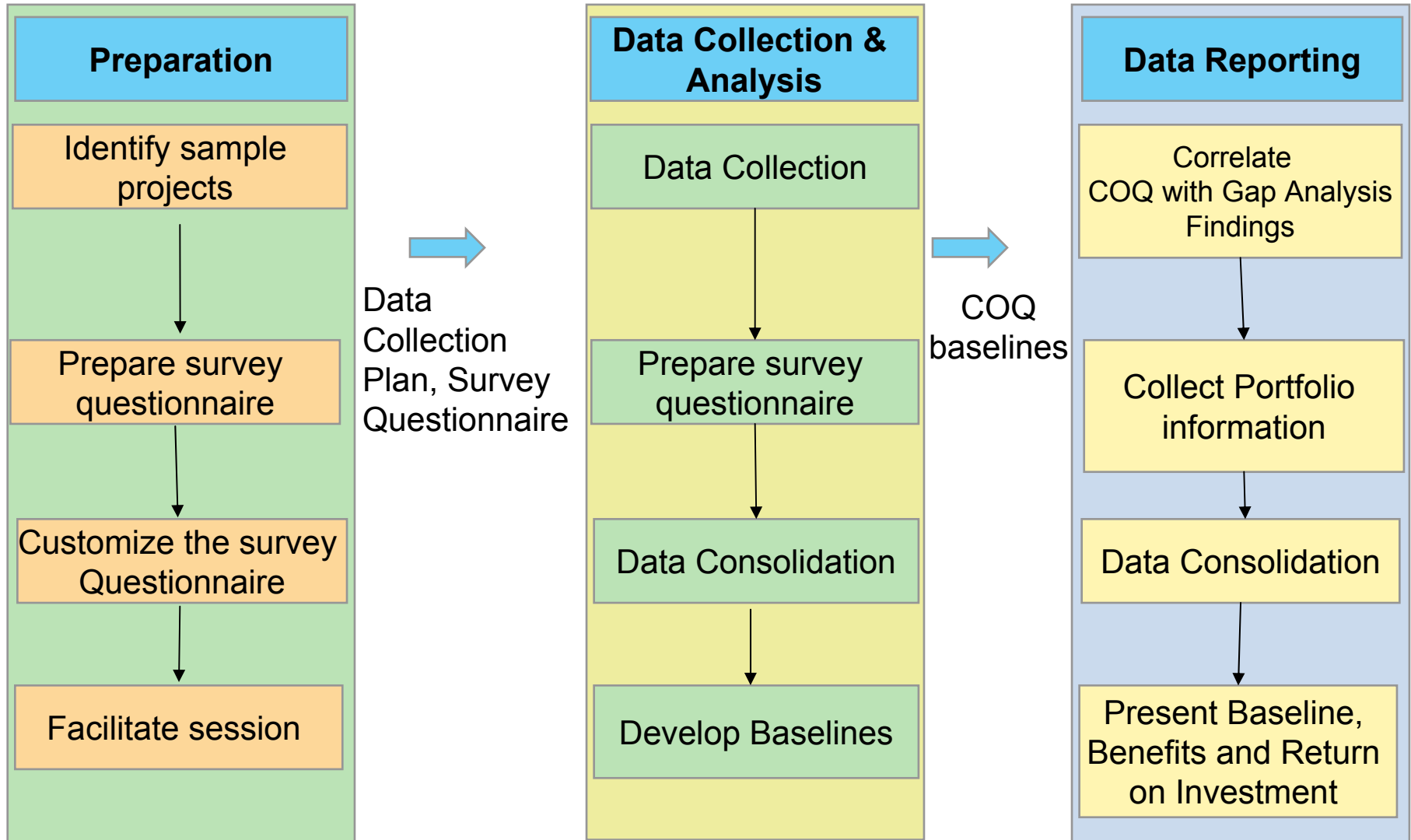
# How Can COQ Business Case Tug The IT Budget Purse

## By Creating A Directional Cost Of Quality Baseline...



# How Can COQ Business Case Tug The IT Budget Purse

...With A Defined Approach For Data Collection And Analysis



COQ: Cost of Quality

# How Can COQ Business Case Tug The IT Budget Purse

---

## ...And Abiding By These Guiding Principles

- Select statistically valid sample size of projects
- Select all types of projects in the sample (based on factors like project size, type, and technology)
- Administer Cost of Quality survey to selected projects
- Consider data points with high degree of confidence
- Correlate results to CMMI Gap Analysis findings

# How Can COQ Business Case Tug The IT Budget Purse

Then By Setting A Target For “Dollar Saves “ Through Correlating Process Maturity With Cost Of Quality...

CMMI Level	Cost of Prevention	Cost of Appraisal	Cost of Failure	Cost of Quality	Cost of Performance
1	7	15	44	66	34
2	12	15	18	45	55
3	7	18	11	36	64

- Set Cost of Quality improvement target for the organization based on Cost of Quality baseline value and target profile of the organization.

For example :

If Cost of Quality baseline = 60% & Target Profile = CMMI Level 2  
Then Cost of Quality Improvement target is 15%

- Significant Reduction in failure costs can be achieved by marginal increase in prevention costs

All values are given in % computed over the total project actual effort

Source: Quantifying the benefit of Software Process Improvement, Ray Dion, Raytheon

# How Can COQ Business Case Tug The IT Budget Purse

---

## ...And Converting Cost Of Quality Profile To Financial Value (Contd.)

- Determine the IT budget for the organization
- Determine current Cost of Quality - Prevention, Appraisal and Failure Costs
- Determine financial value of the Cost of Quality components
- Determine organization's maturity level based on CMMI assessment results
- Identify scope for improvement in Cost of Quality based on organization maturity determined through CMMI based assessment and target profile
- Convert Cost of Quality Improvement target to Financial opportunity

# How Can COQ Business Case Tug The IT Budget Purse

## ...An Illustration Of Converting Cost Of Quality Profile To Financial Value

Current State Cost Profile from Cost of Quality Assessment :

Cost of Quality = 71%

Cost of Performance = 29%

Cost of Prevention = 15%

Cost of Appraisal = 27%

Cost of Failure = 27%

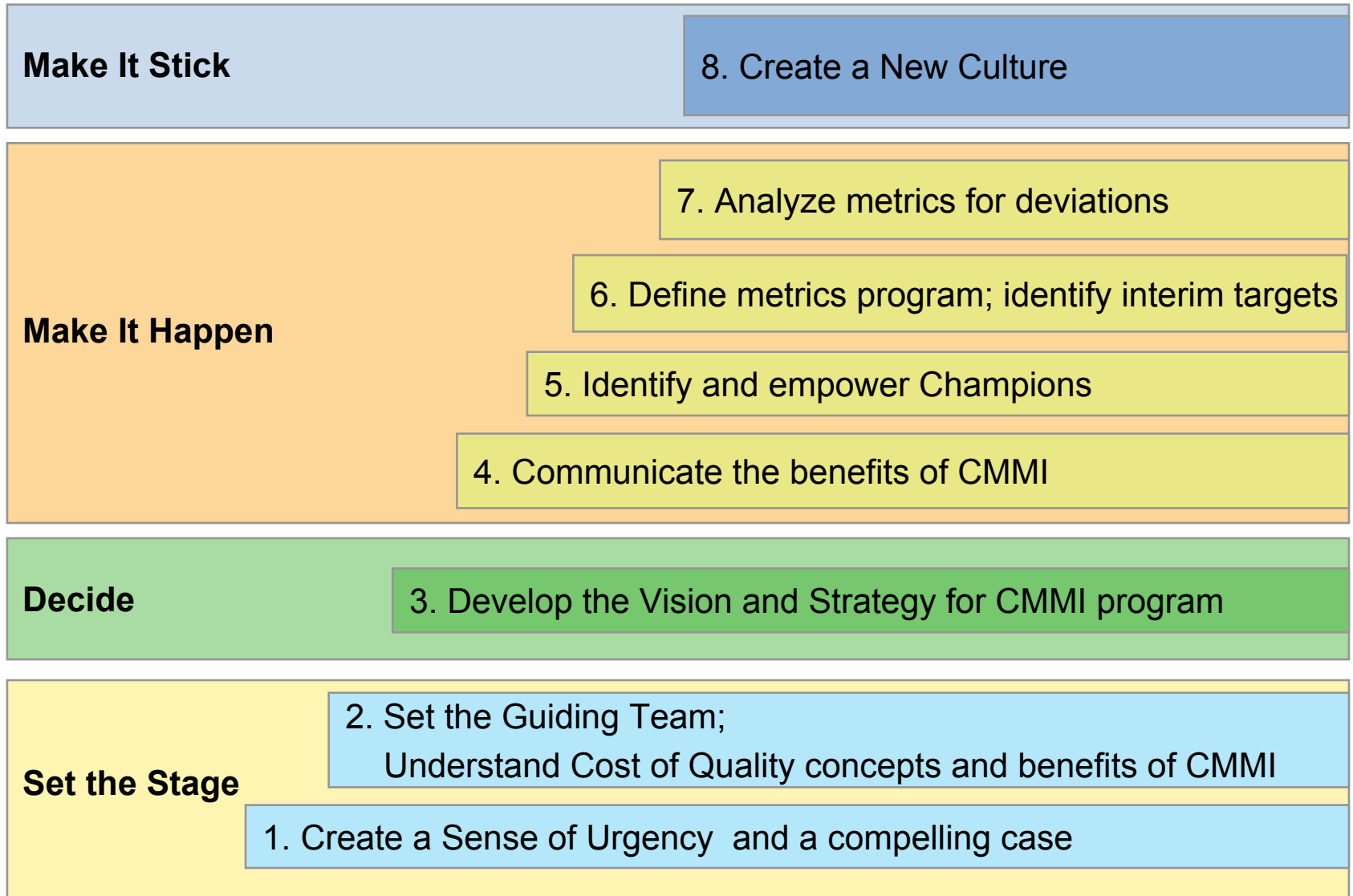


All values in MM USD

Stage	IT Budget Spend	Cost of Quality			Cost of Performance (Value Delivered)	Cumulative Additional (Value Delivered)
		Prevention	Appraisal	Failure		
Current	\$500	\$60	\$135	\$160	\$145	-
Target at Level 2 Maturity	\$500	\$60	\$75	\$90	\$275	\$130
Target at Level 3 Maturity	\$500	\$35	\$90	\$55	\$320	\$175

# How Can COQ Business Case Tug The IT Budget Purse

Finally, By Marketing The Value Within Organization To Get A Buy-in



Source: Adapted from 'The 8-Step Process of Successful Change' by John Kotter



# Market The Value Within Organization

## ...And Leveraging Change Agent To Execute CMMI Based Process Improvement Program



# Agenda

---

- How To Drive Profitability With CMMI
- How Cost Of Quality Business Case Can Tug The IT Budget Purse
- How To Demonstrate Return-on-Investment To The CFO
- A True Story – Show Me The Money!

# How To Demonstrate Return-on-Investment To The CFO

---

## By Designing A Metrics Program That Demonstrates The Achievement Of The Business Case

- Identify and align project activities to Cost of Quality components
- Define Cost of Quality targets – quarterly and milestone based
- Define interim success measures which are directly linked to Cost of Quality.  
Example : % Training Effort, Defect Density, Review Effectiveness
- Ensure correct and complete data collection and reporting
- Closely monitor the Surrogate measures in order to identify any deviations from expected correlation
- Define and track measures to monitor the overall Cost of Quality program - Average data confidence level and Average effort spent in Cost of Quality collection and analysis. Reporting these values will provide insight to program efficiency

# How To Demonstrate Return-on-Investment To The CFO

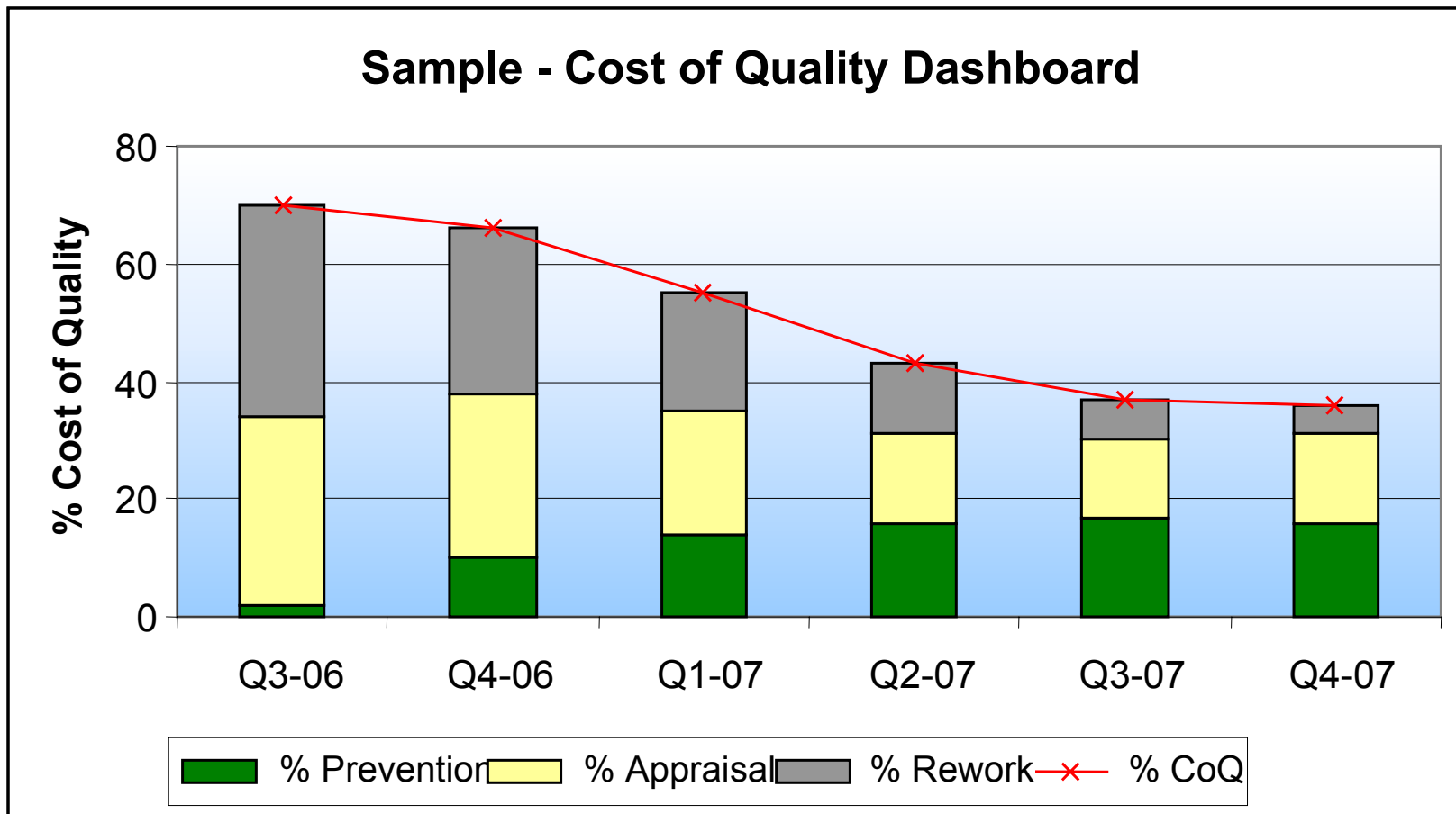
## ...And Monitoring The Interim Success Measures

Surrogate Measures	Definition	Metric to COQ correlation
% Training Effort	$\frac{\text{Total Effort spent on Training}}{\text{Total Project Effort}} * 100$	<ul style="list-style-type: none"> <li>• Directly proportional to COQ Training Effort</li> <li>• <i>Training Effort will first be high and hence create an initial dip in productivity, followed by a gain and will stabilize eventually</i></li> </ul>
Defect Density	$\frac{\text{No. of Defects}}{\text{Unit Size}}$	<ul style="list-style-type: none"> <li>• Directly proportional to COQ</li> <li>• <i>Higher Defect Density leads to lower productivity</i></li> </ul>
% Review Effectiveness	$\frac{\text{Defects found in Reviews}}{\text{Defects found in Reviews + Testing}} * 100$	<ul style="list-style-type: none"> <li>• Inversely proportional to COQ</li> <li>• <i>Higher Review Effectiveness leads to improved productivity</i></li> </ul>
% Rework Effort	$\frac{\text{Total Effort spent on Rework}}{\text{Total Project Effort}} * 100$	<ul style="list-style-type: none"> <li>• Directly proportional to COQ</li> <li>• <i>Higher Rework Effort leads to decreased productivity</i></li> </ul>

# How To Demonstrate Return-on-Investment To The CFO

## Effectively Use A Dashboard To Demonstrate Cost Of Quality Trend

Illustrative



# Agenda

---

- How To Drive Profitability With CMMI
- How Cost Of Quality Business Case Can Tug The IT Budget Purse
- How To Demonstrate Return-on-Investment To The CFO
- A True Story – Show Me The Money!

# A True Story – Show Me The Money!

## A Leading Financial Services Organization Sought To Increase Profitability Through Maturity Level 3 Adoption

### **Customer Profile**

- Financial planning organization with largest advisor network
- More than \$400 billion in assets
- Offers investment, insurance protection, banking and brokerage products and services, mutual funds, and mortgages
- Spun-off from a financial conglomerate

### **Business Situation**

- Inconsistent IT project estimation practices across IT organization
- Increased project management efforts due to poor estimates and re-estimates
- Project owners reluctant to commit early due to inadequate data

# A True Story – Show Me The Money!

## We Defined A Phased Deployment Approach...

### Initiate

- Convince management
- Orient program participants
- Establish quick and directional CoQ estimates
- Establish opportunity for savings using published benchmarks
- Keep it simple

### Standardize

- Finalize CoQ<sup>1</sup> cost types under the 4 cost categories
- Establish data stratification criteria
- Establish data collection strategy
- Publish CoQ definitions and reporting /analysis guidelines in PAL<sup>2</sup>
- Publish training material

### Roll-Out

- Train practitioners/ establish CoQ coaches
- Collect / validate CoQ data and re-establish CoQ baseline, if required
- Define metrics program to track CoQ trends and surrogate metrics vis-à-vis improvements rolled out. Publish metrics reports
- Identify opportunities for further improvement

### Sustain

- Roll-out process improvements
- Seek feedback from practitioners
- Identify OFIs<sup>3</sup> in CoQ methodology
- Improve degree of automation
- Establish and maintain CoQ (re) baselines

(1) COQ = Cost of Quality

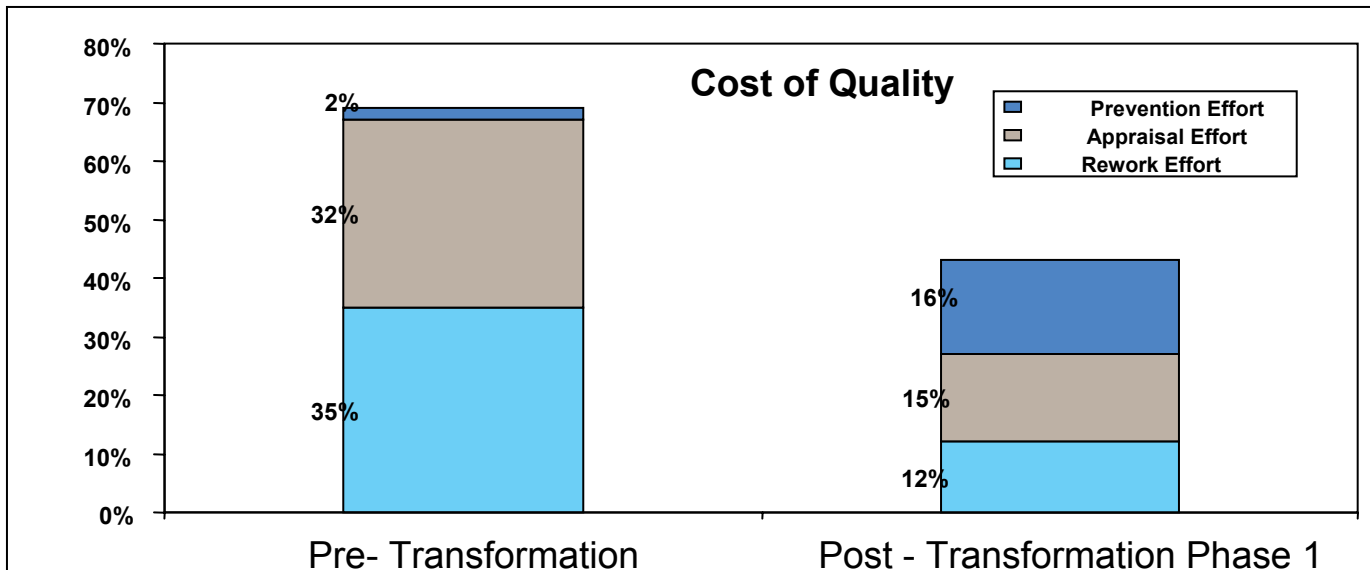
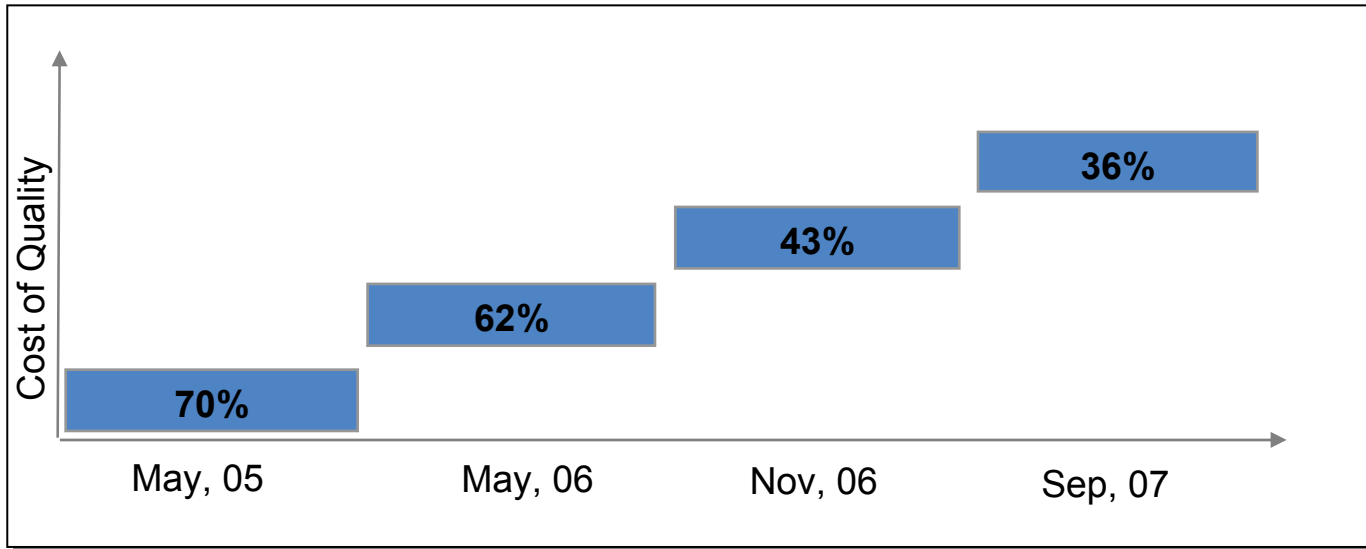
(2) PAL = Process Assets Library

(3) OFI = Opportunities for Improvement



# A True Story – Show Me The Money!

... And Demonstrated That Adoption Of CMMI Increased Profitability



# Thank You

---

For further details, please contact:

Nidhi Srivastava

Director and Quality Head, North America

Email : [nidhi.srivastava@tcs.com](mailto:nidhi.srivastava@tcs.com)

Phone : 630-881-9726