



The Cost of Quality

Building a Service Management
Business Case and
Preparing for Continual Improvement



Agenda

1. Introduction - IT Service Management and Business Cases
2. Cost of Quality Principles
3. Practical Application of Cost of Quality



IT Service Management and Business Cases



Main Issues

- Failure to make business cases for Service Management initiatives
- Failure to get adequate funding
- Failure to get buy-in

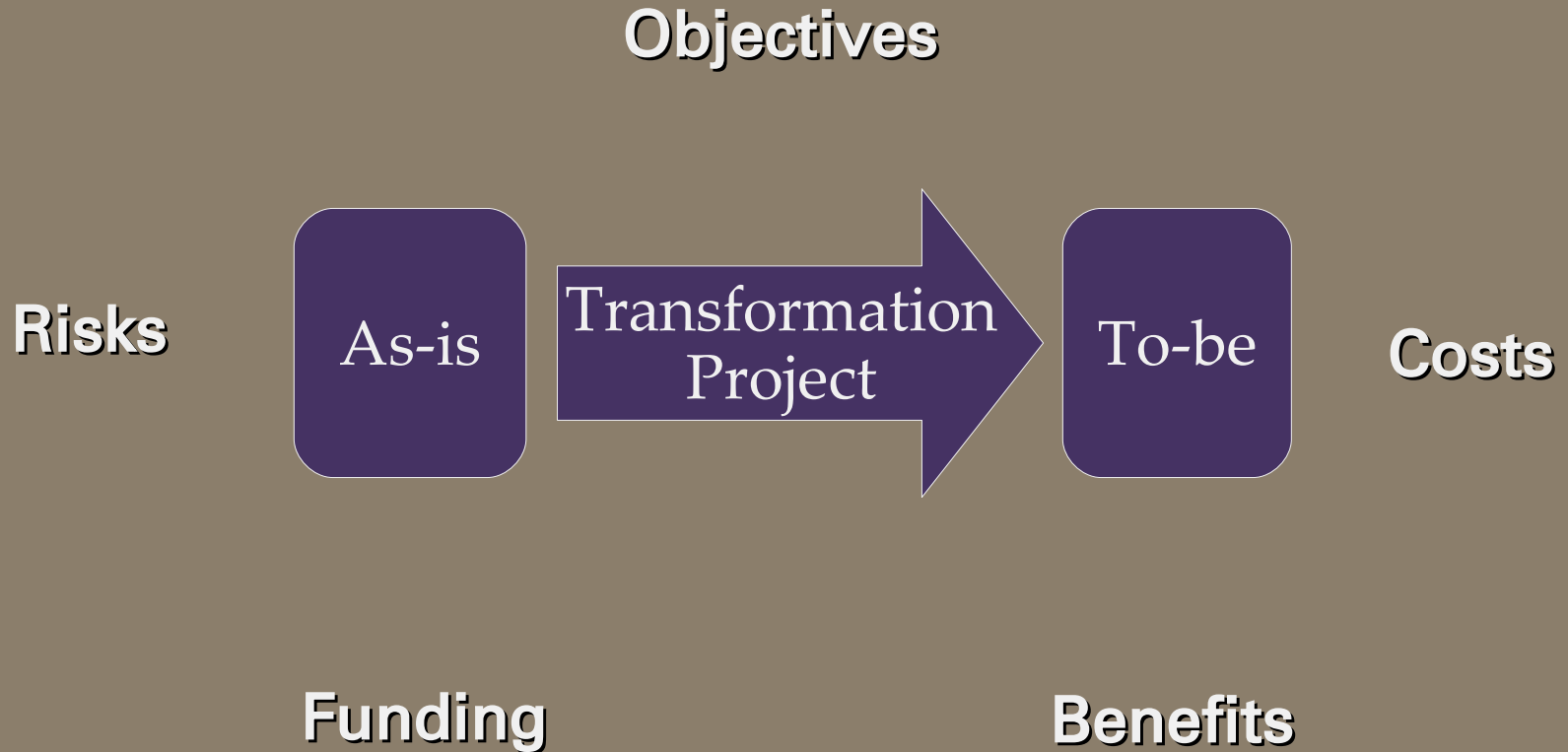


The Main Argument

The Cost of Quality framework provides an intuitive, convincing, proven approach to defining business cases, as well as to plan for continual improvement.



Business Case Elements





But the Situations are often Poorly Understood

Lack of metrics



Inappropriate Tools

Transition poorly planned

As-is

Transformation Project

To-be

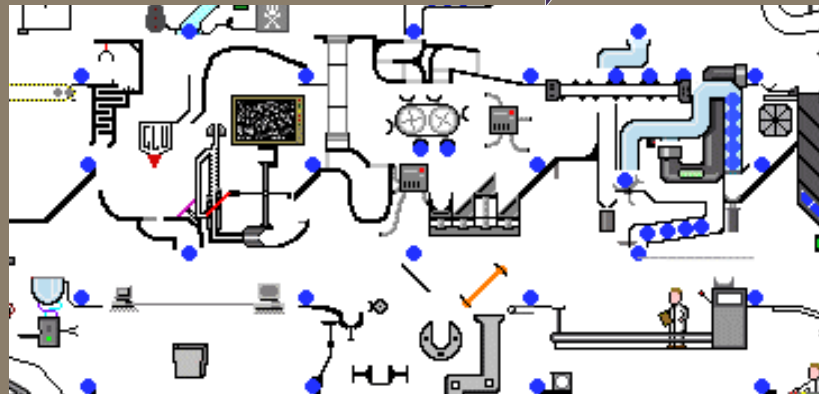


Risks poorly evaluated

Undocumented activities



Poor measurement





Resulting Decisions

Reasons for Service Mgmt.
Project not well presented

Project Rejected, or Accepted with reduced scope or budget

Low Priority Project aborted before benefits delivered

Project Proposal

Project Decision

Project Execution

Project Closure

Business Case not made

Activities ineffective and unrelated to objectives



Why ITIL does not provide a ready-made Business Case

ITIL is designed to be applicable to all types of organizations and all types of services. Therefore, it can never know the as-is situation for a given organization.



Cost of Quality Principles



What are “Quality Costs”?

- Costs incurred in the design, implementation, operation and maintenance of a quality management system
- Cost of resources committed to continuous improvement
- Costs of system, product and service failures
- All other necessary costs and non-value added activities required to achieve a quality product or service.



Types of Quality Costs

- Cost of Prevention – Getting it right
- Cost of Appraisal – Checking it
- Cost of Failure – Fixing it
 - Internal Costs
 - External Costs
- Other costs, such as Opportunity Costs, are included by some analysts



Cost of Prevention

"What are the standards, guidelines and policies that we should apply?"

"We need a new service."

"We are developing new processes to help you."

"Here are the architectures to follow and tools for gathering and analyzing data."

"Great – that will help me get the service right from the beginning, without need for rework."

"Thanks. This service is just what we needed."



Service Management Functions



Service Designer



Customers

- Process Definition
- Training

- Implement Design and Build Tools

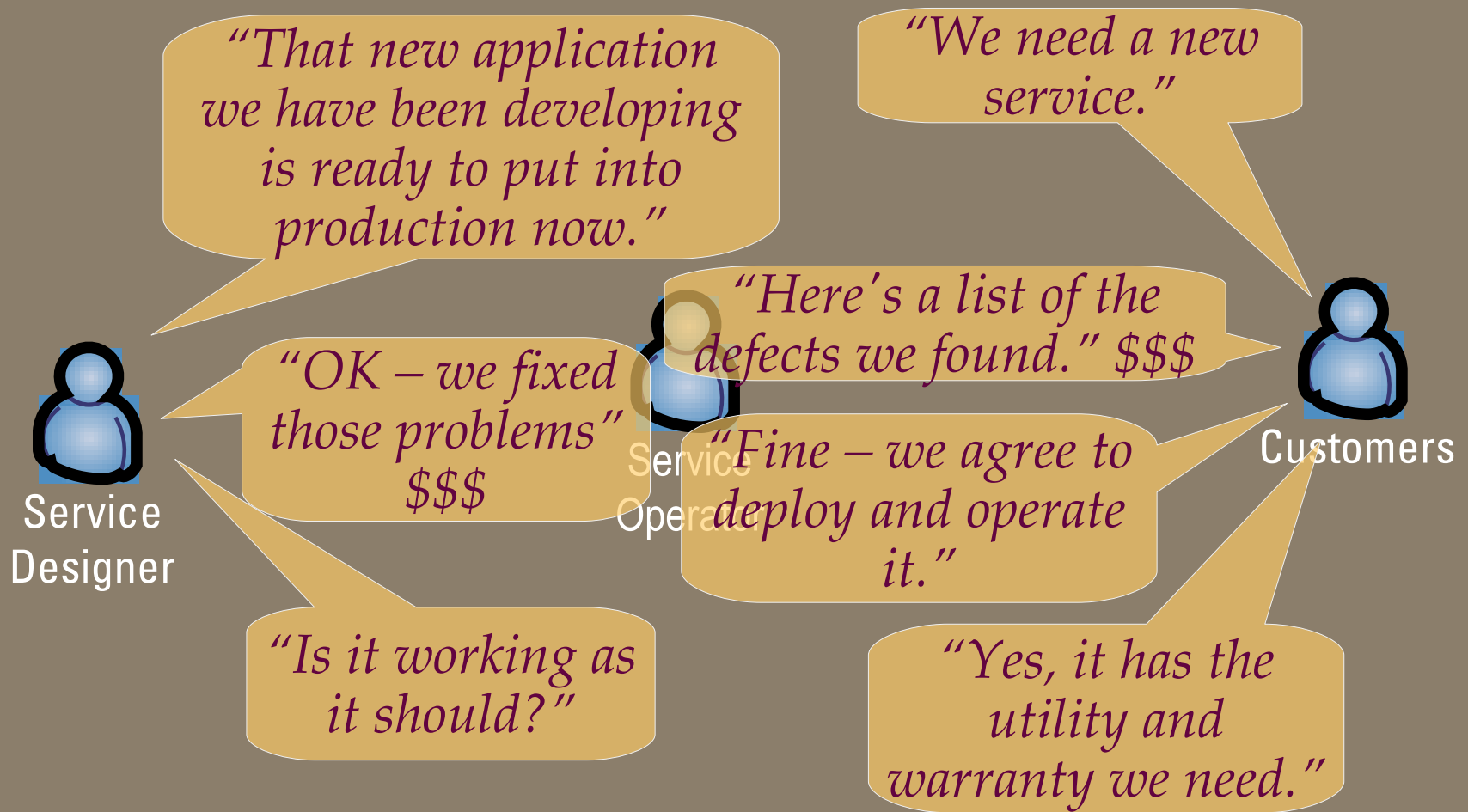


Design to Prevent Waste

Ohno's Types of Waste	Examples of Application to IT Services
Over-production	Infrastructure capacity too large
Inventory	DHS Batch data management
Motion	Field service agents not close to users
Waiting	<ul style="list-style-type: none">•Manual procedures that could be automated•Incorrectly sequenced batch processing
Transportation	<ul style="list-style-type: none">•Inefficient network architecture•Inefficient server architecture•Inefficient application architecture
Over-processing	Service Design not based on real requirements
Scrap, rework, defects	<ul style="list-style-type: none">•Excess infrastructure capacity to reprocess data and redeliver services•Excess personnel to deliver services



Cost of Appraisal

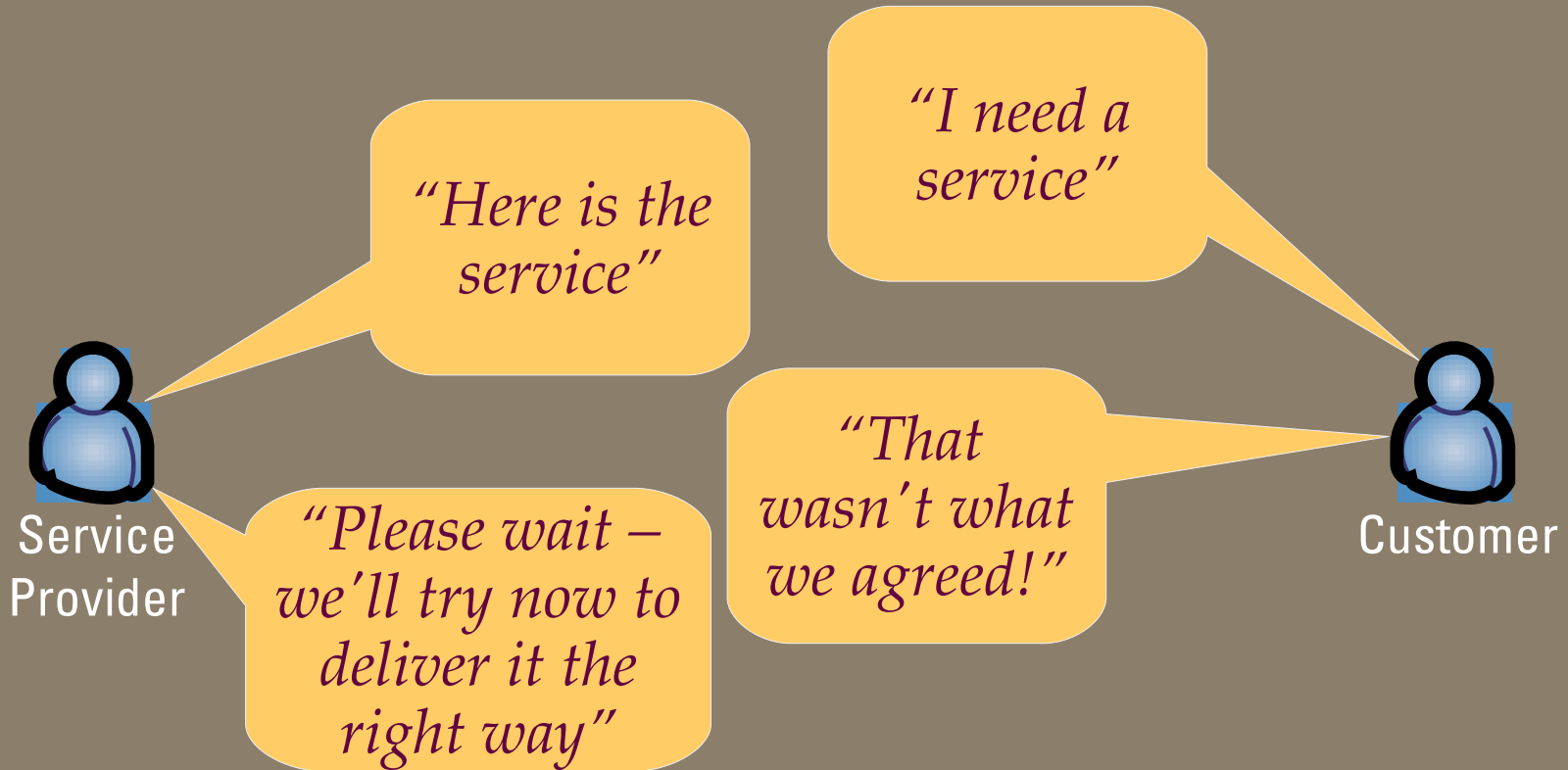


- Testing

- Service Evaluation



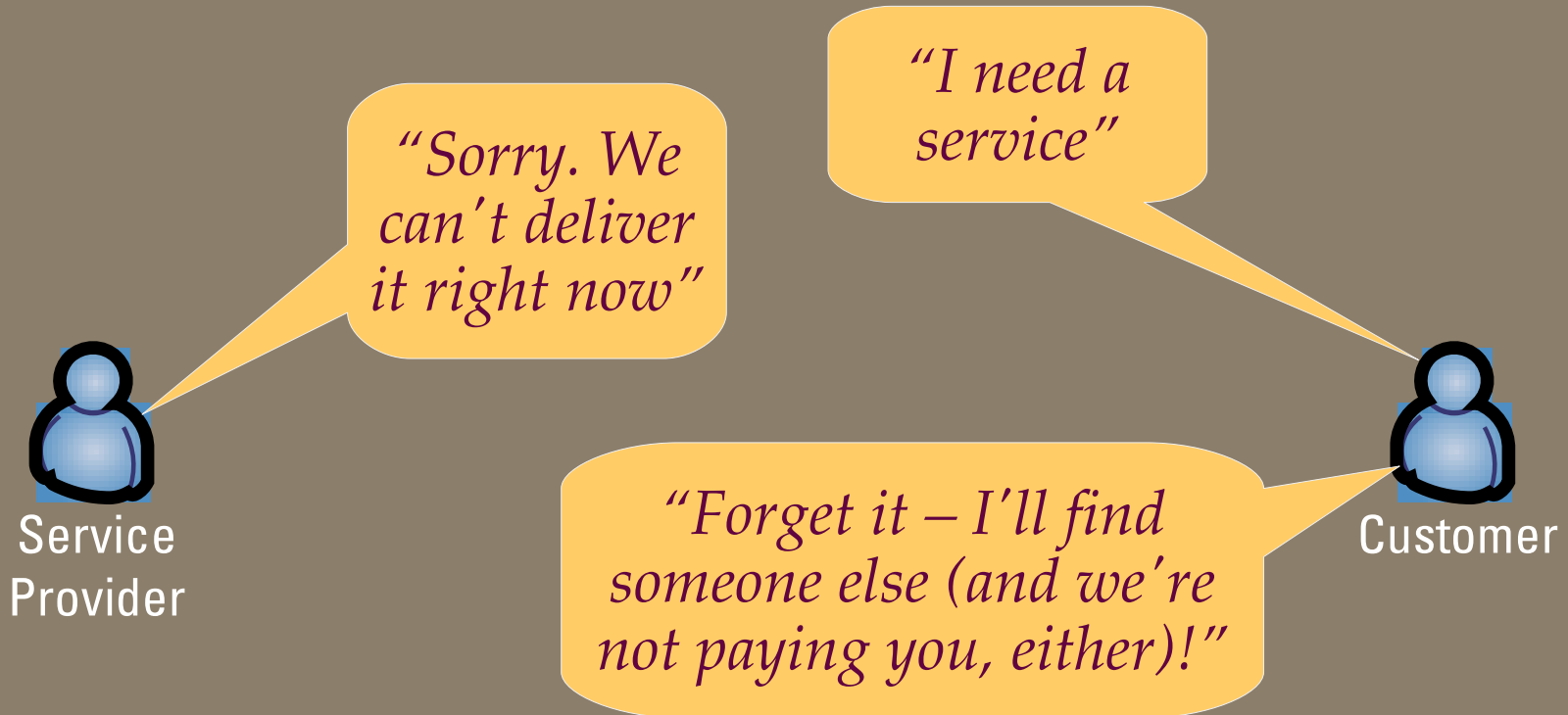
Cost of Failure – Internal



- Loss of productivity
- Rework
- Wasted capacity
- Possibly scrapped materials



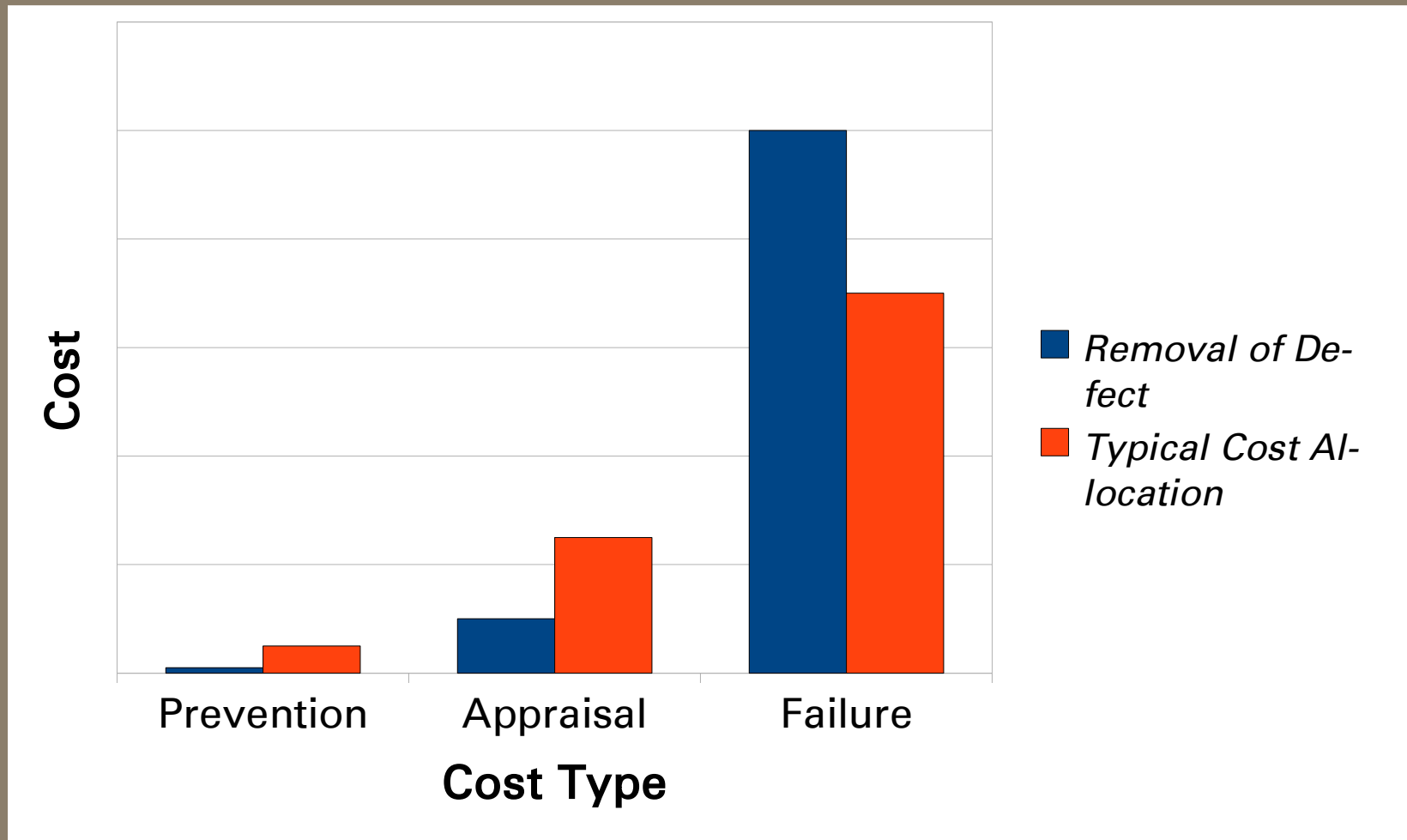
Cost of Failure – External



- Loss of revenue
- Damaged reputation
- Penalties paid

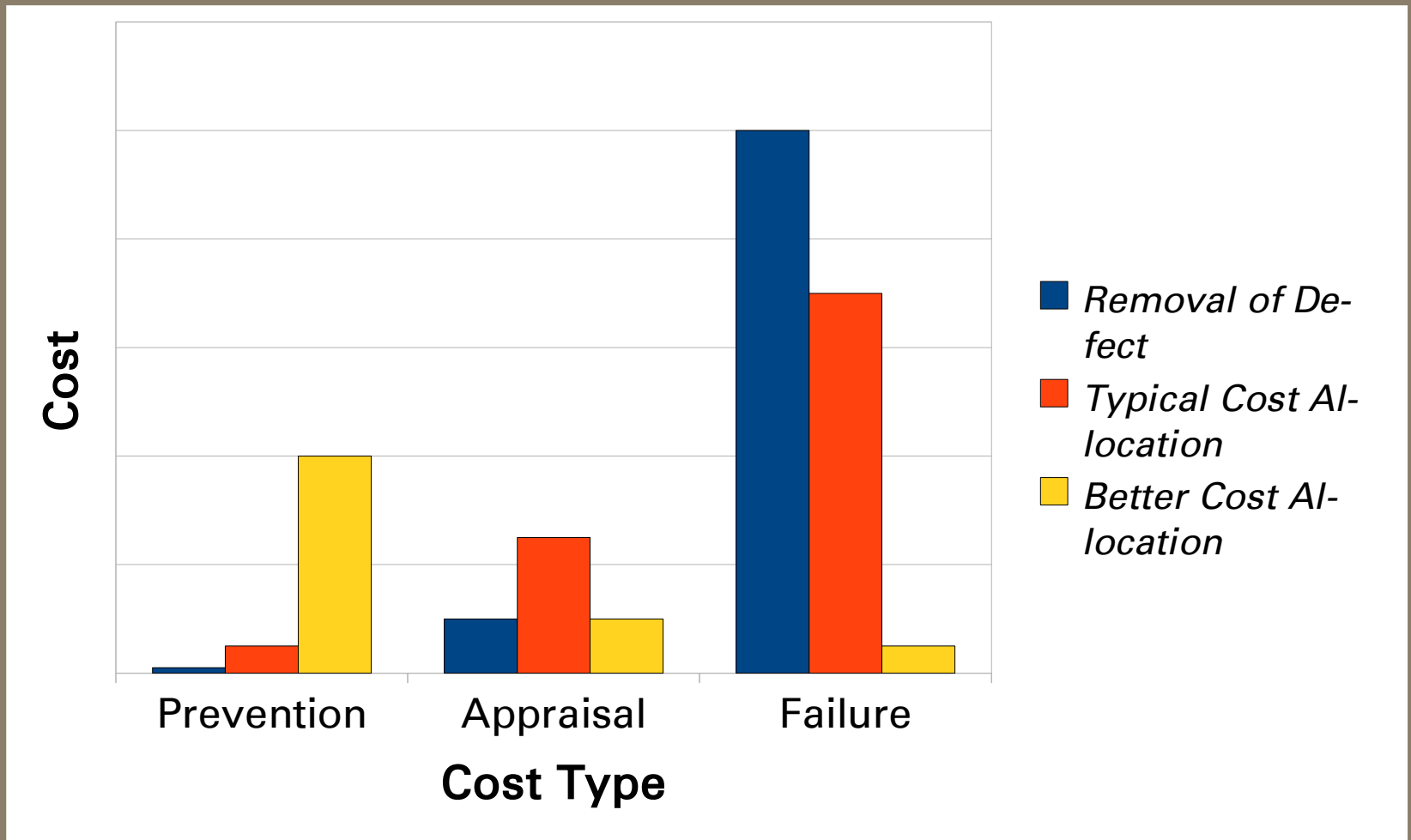


Cost of Defect Removal vs. Typical Cost Allocation





Cost of Defect Removal vs. Better Cost Allocation





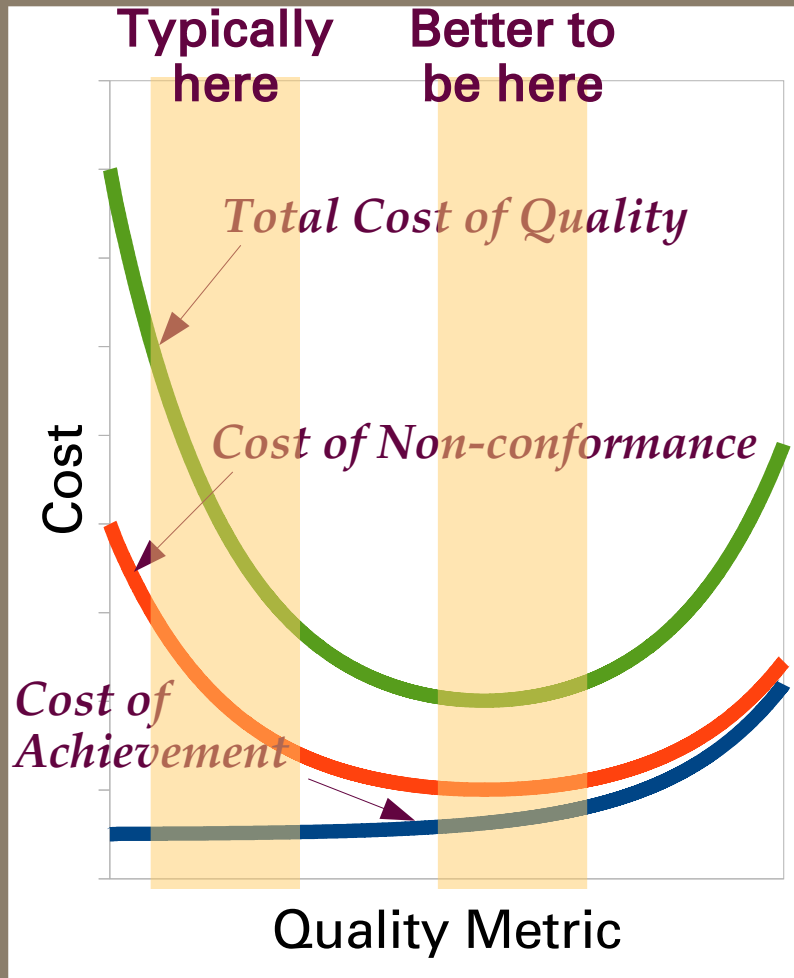
False Model of CoQ

- The Cost of Quality is *not* proportional to the level of quality achieved
- In this model, there is a trade-off between cost and quality.





Better Model of CoQ

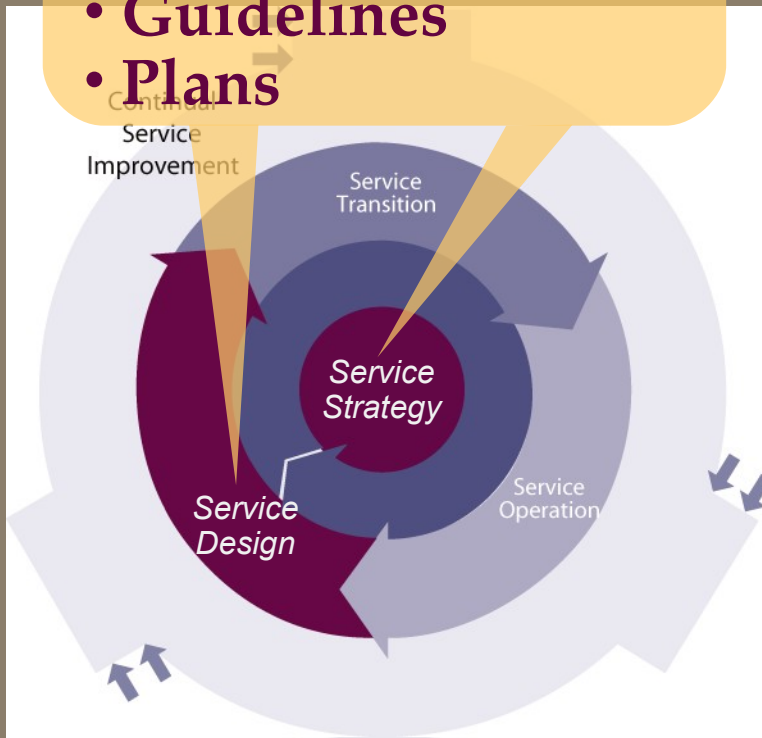


- Total CoQ = Cost of Achievement (Conformance) + Cost of Non-conformance
- Optimum Quality vs. Cost is fewer than zero defects!

Prevention and Service Management Activities

Activities creating:

- Standards
- Policies
- Guidelines
- Plans



- Service Continuity Management (planning)
- Capacity Management
- Availability Management
- Information Security Management
- Service Level Management (SLA negotiation)
- Risk Assessment
- Proactive Problem Management
- *inter alia*

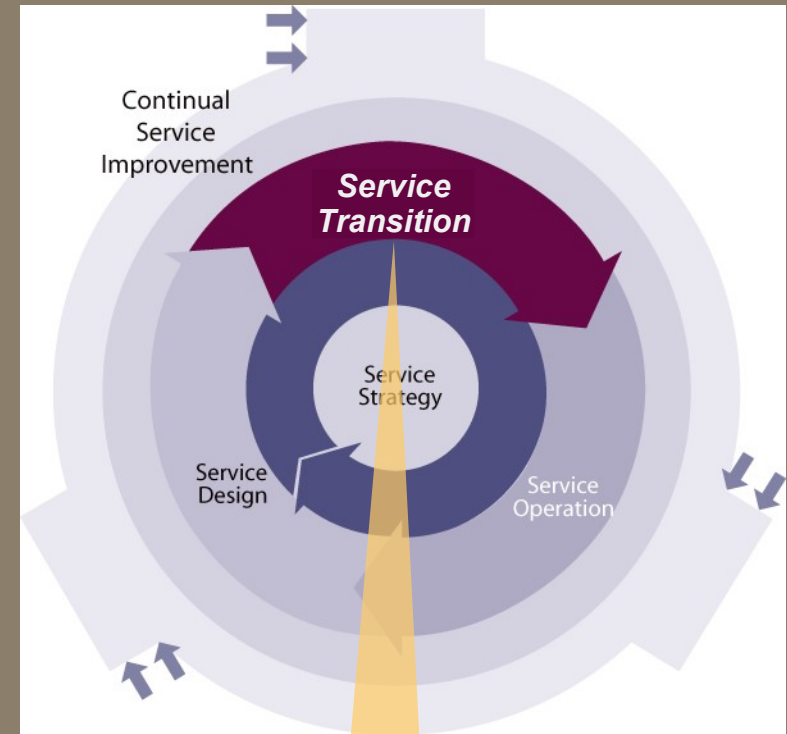


Appraisal and Service Management Activities

- Change Management
- Service Testing
- Service Evaluation

But also...

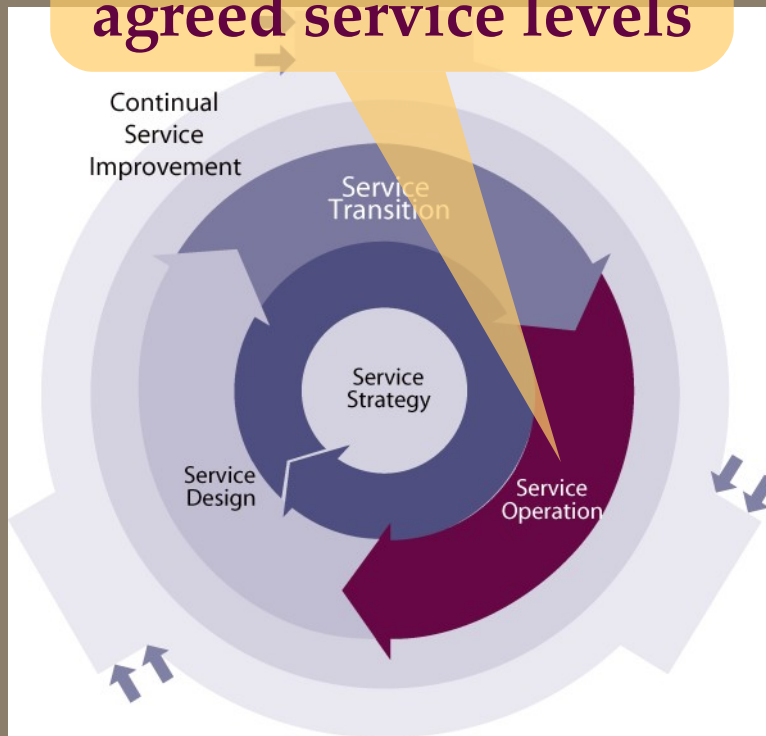
- Service Level Management
 - Reporting
 - Reviewing
- *inter alia*



Activities controlling delivery according to requirements

Failure and Service Management Activities

Activities restoring services to their agreed service levels



- Event Management (for Warnings and Exceptions)
- Incident Management
- Reactive Problem Management
- IT Service Continuity Management (aspects of recovering from disasters)
- *inter alia*



CoQ and IT Today

- CoQ is recognized and is used especially in application development frameworks and methodologies (cf. CMM)
- CoQ is rarely used in Service Management
- CoQ is not explicitly mentioned in ITIL , although CSI refers to Joseph Juran and Philip Crosby, seminal writers on the subject



Practical Application



Overview of Project

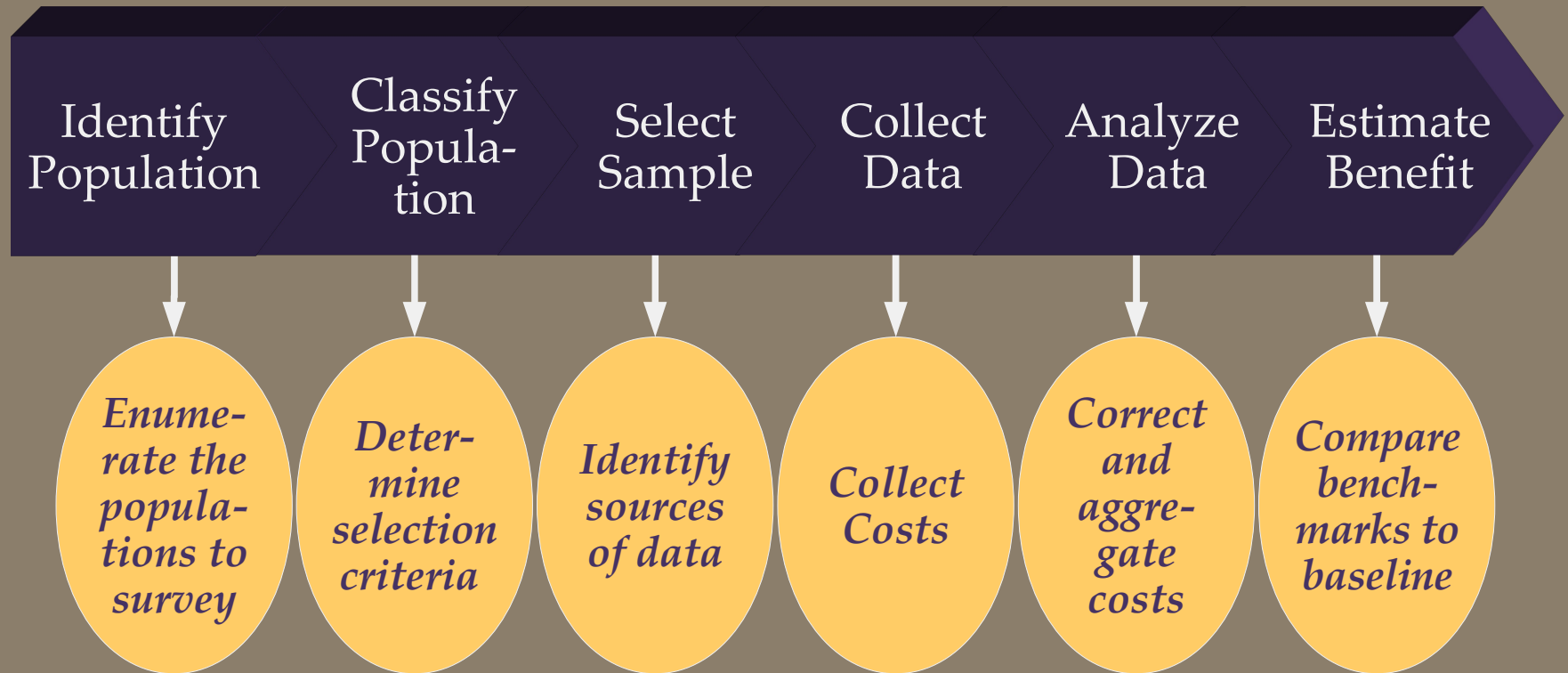
- Goals
 - Increase Process Efficiency
 - Lower Cost of Quality
 - Harmonize Processes under a single Quality Management System
- Scope: All IT global processes throughout the group



CoQ Roadmap

Task Name	4th Quarter			1st Quarter			2nd Qu
	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Establish CoQ Framework	[Task bar]						
Identify Gaps and Priorities		[Task bar]					
Plan for Baseline			[Task bar]				
Create CoQ Baseline				[Task bar]			
Develop Business Case						[Task bar]	

Baseline Plan & Business Case





Issues and Risks

- Wasting effort on inappropriate targets
- Consistent approach

- Full sampling is too costly and time-consuming
- Random sample is easy to misuse

- Varying accuracy and presence
- Conflicts with other cost savings initiatives
- Not aligned with budgets and actuals

- Classifying by irrelevant criteria
- Confusion of organization with process activities

- Many sources
- Lack of buy-in
- Lack of tools for on-going collection
- Lack of data

- Benchmark Accuracy & existence
- Conflicts with other cost savings initiatives
- Not aligned with budgets & actuals

Identify
Population

Classify
Popula-
tion

Select
Sample

Collect
Data

Analyze
Data

Estimate
Benefit



Classify Population

- Use categories that are significant for the business
 - validated vs. non-validated services in Pharma
 - Project size and complexity
 - Relevant business unit, site, etc.
 - Service criticality
- Align categories with activity areas within scope (e.g., by service management process)
- Do not explicitly refer to “Prevention”, “Appraisal” and “Failure”



Issues of Data Collection

Element	Project Team	Activities to be Analyzed
Workload	Very heavy; may force sampling	Well distributed
Accuracy of data	May not understand local practices or assumptions made by individuals/teams	Understand need for accuracy?; falsification of data; confidentiality?
Coherence of data	More apt to apply same analysis to all, and ensure inter-activity coherency	More apt to understand internal coherency of reported data
Collection Tools	If tools exist, project team may be better at using them	If tools are not automated, training is required
Future measurements	There is not likely to be a permanent project team	Use of automated collection tools is highly recommended



Cost Type by Activity Area

Activity Area	Prevention	Appraisal	Failure
Availability	✓	✓	✓
Capacity	✓	✓	✓
Information Security	✓	✓	✓
IT Service Continuity	✓	✓	✓
Event	✓	✓	✓
Incident			✓
Problem	✓	✓	✓
Configuration	✓	✓	✓
Change	✓	✓	✓
Release	✓		
Service Testing		✓	



Detail: Availability Mgmt.

Activity Area	Prevention	Appraisal	Failure
Implement process	✓		
Create and maintain Plan	✓		
Define Reliability Standards	✓		
Define architectures	✓		
Develop monitoring tools	✓		
Train personnel	✓		
Maintain Preventively	✓		
Assess Risk	✓		
Monitor and Report		✓	
Test		✓	
Resolve Incidents			✓



Detail: Change Mgmt.

Activity Area	Prevention	Appraisal	Failure
Implement process	✓		
Assess impact		✓	
Test change		✓	
Plan Remediation	✓		
Remediate failed change			✓
Train personnel	✓		
Report on Changes		✓	
Develop Standard Changes	✓		
Develop tools	✓		



Detail: Incident Mgmt.

Activity Area	Prevention	Appraisal	Failure
Implement process			✓
Resolve Incidents			✓
Develop tools			✓
Monitor and Report			✓
Develop tools			✓
Train personnel			✓
Manage Escalations			✓
Review Major Incident			✓



CoQ and Problem Mgmt.

Detect actual vs. benchmark quality/cost ratio

Detection

Logging

Categorization

Investigation & Diagnosis

Calculates cost of non-conformance; predicts cost of conformance; thus the priority

Work-around needs change?
No
Yes

Implement workaround

Create Known Error Record

Change Needed?
Yes
No

Change & Release Mgmt.

Resolution

Major Problem?
No
Yes

Major Problem Review

Closure

Supports business case for change



Non-conformance Worksheet

Cost of Quality Non-conformance Worksheet

Description of Non-conformance: A certain type of application bug, etc.

Task	Performed by	Number of persons affected	Avg. Hrs. per task per person	Hourly rate	Personnel Costs	Material Costs	External Failure costs	Internal Failure Costs	Total Cost of Non-conformance per event
1 st Line Support Incident	Service Desk Agent	1.0	.04	60.00	2				2
2 nd Line Support Incident	Operations Teams	1.5	.50	80.00	60				60
Escalation Incident	Service Desk Supervisor	1.0	.25	90.00	23				23
Problem Management	Problem Analyst	1.0	4.00	85.00	340				340
Escalation Problem	Problem Manager	1.0	.50	100.00	50				50
2 nd Line Support Problem	Operations Teams	1.0	15.00	80.00	1'200				1'200
3 ^d Line Support Problem	Developers	1.0	5.00	90.00	450				450
Total cost									2'125
Measurement period:	2009	Num. Events per measurement period:	10		Cost per event:	2'125	Total Cost of non-conformance during period		21'249



Data Source Processing



ITSM
Tools

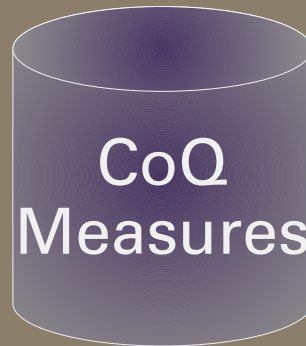
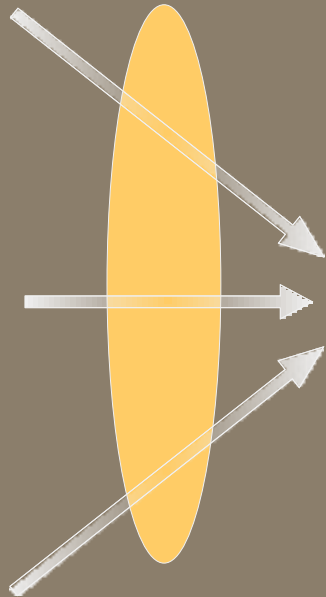
- Validate
- Normalize
- Extrapolate
- Interpolate
- Aggregate



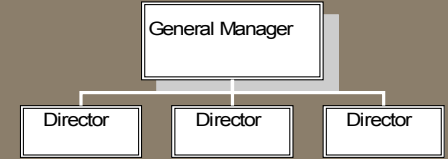
Time-
sheets



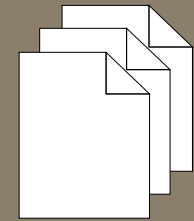
Account-
ing
Systems



- Interpret
- Evaluate
- Extrapolate
- Interpolate
- Aggregate



Organization
Charts



Job
Descriptions

	Job 1	Job 2
Dept 2Dept 1	23.5	10
Dept 2Dept 1	40	7.5

FTE Counts

CoQ Techniques in the Business Case



Business Case Element	Examples			
Objectives	For Email service, reduce CoQ by 10%, keeping defect rate steady			
As-is Costs	<i>Prevention:</i> 100K p.a.	<i>Appraisal:</i> 1.5M p.a.	<i>Failure:</i> 5.2M p.a.	<i>Total:</i> 6.8M p.a.
To-be Costs	<i>Prevention:</i> 1.0M p.a.	<i>Appraisal:</i> 2.5M p.a.	<i>Failure:</i> 2.6M p.a.	<i>Total:</i> 6.1M p.a.
Project Costs	<i>Prevention:</i> 800K Training, Process harmonization <i>Appraisal:</i> 400K Test Tool harmonization, Training <i>Failure:</i> 700K Process harmonization <i>Total:</i> 1.9M			



Strategy for Transformation



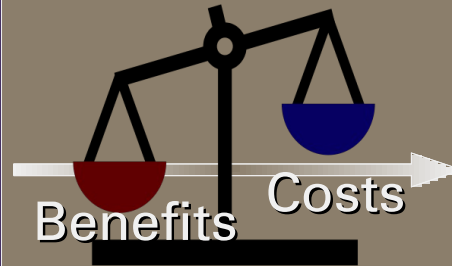
GAP

Current Processes

GAP



Priorities for Improving Prevention and Appraisal



1st Quarter			2nd Qu
Jan	Feb	Mar	Apr
[Blue bar]			[Blue bar]

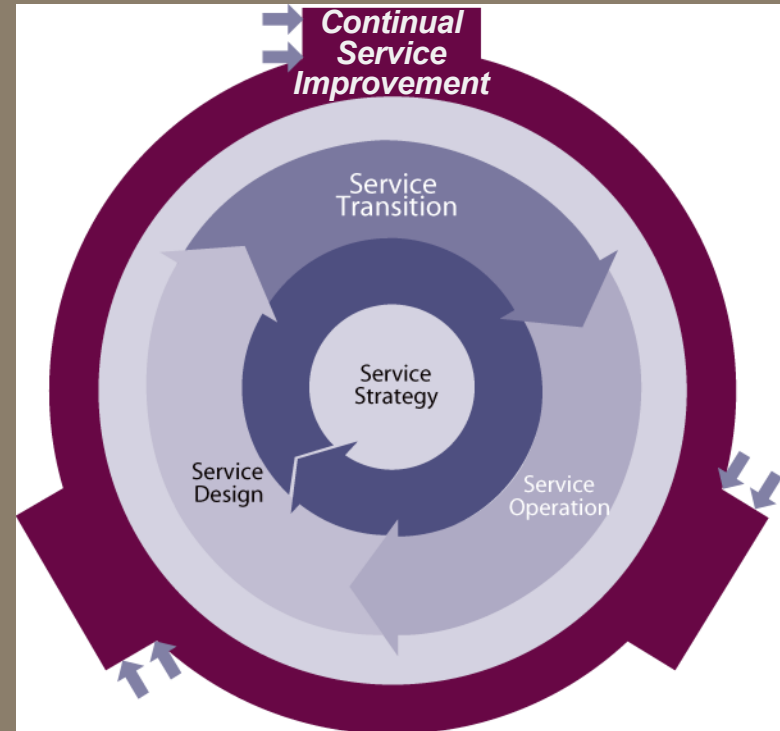
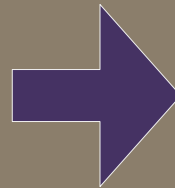


Prepare for Continual Improvement

Framework Creation & Baselineing Project



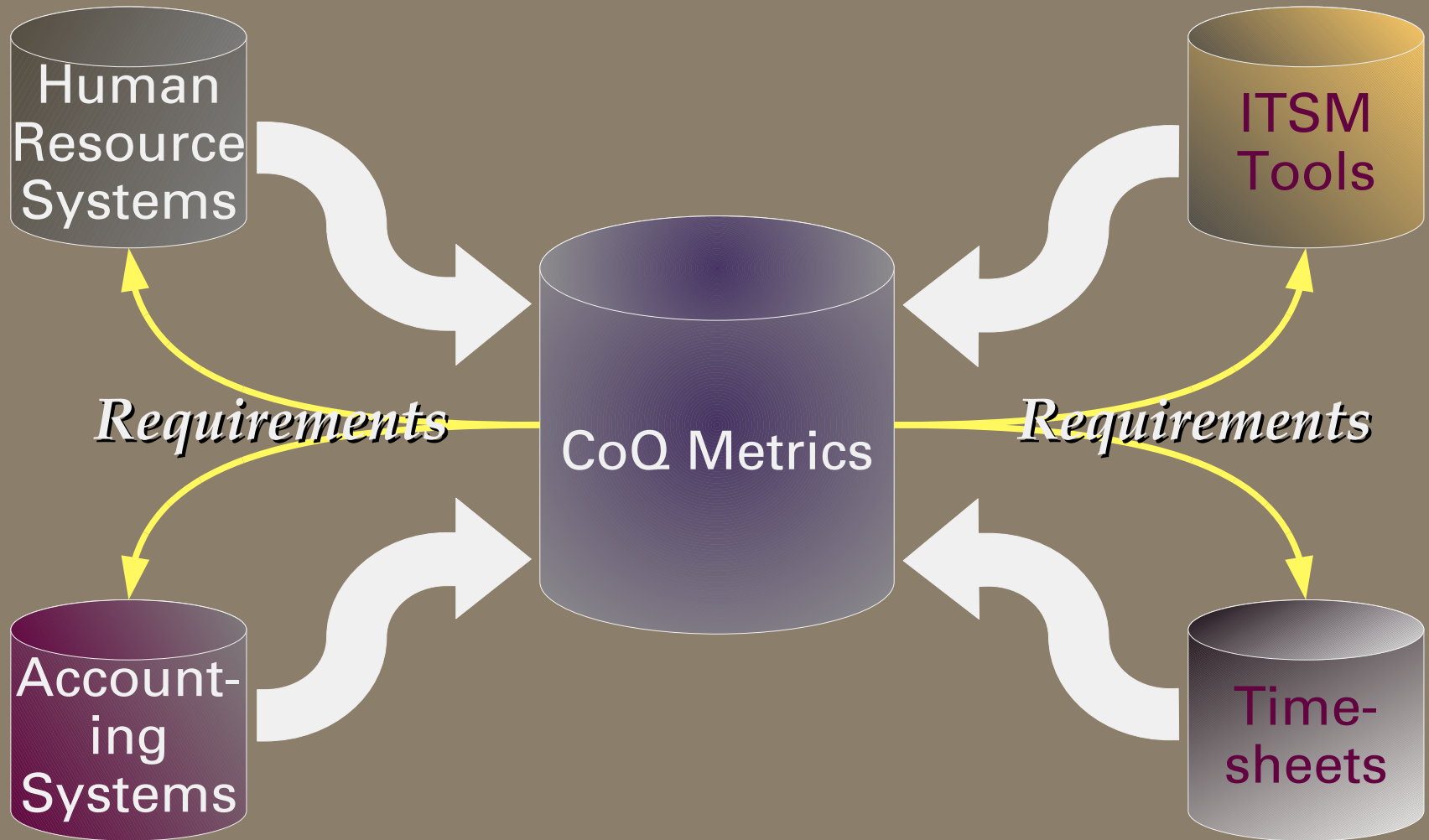
- Roles
- Metrics
- Measurement Tools
- Coherency with other metrics



- Objectives
- Measurements
- Improvements

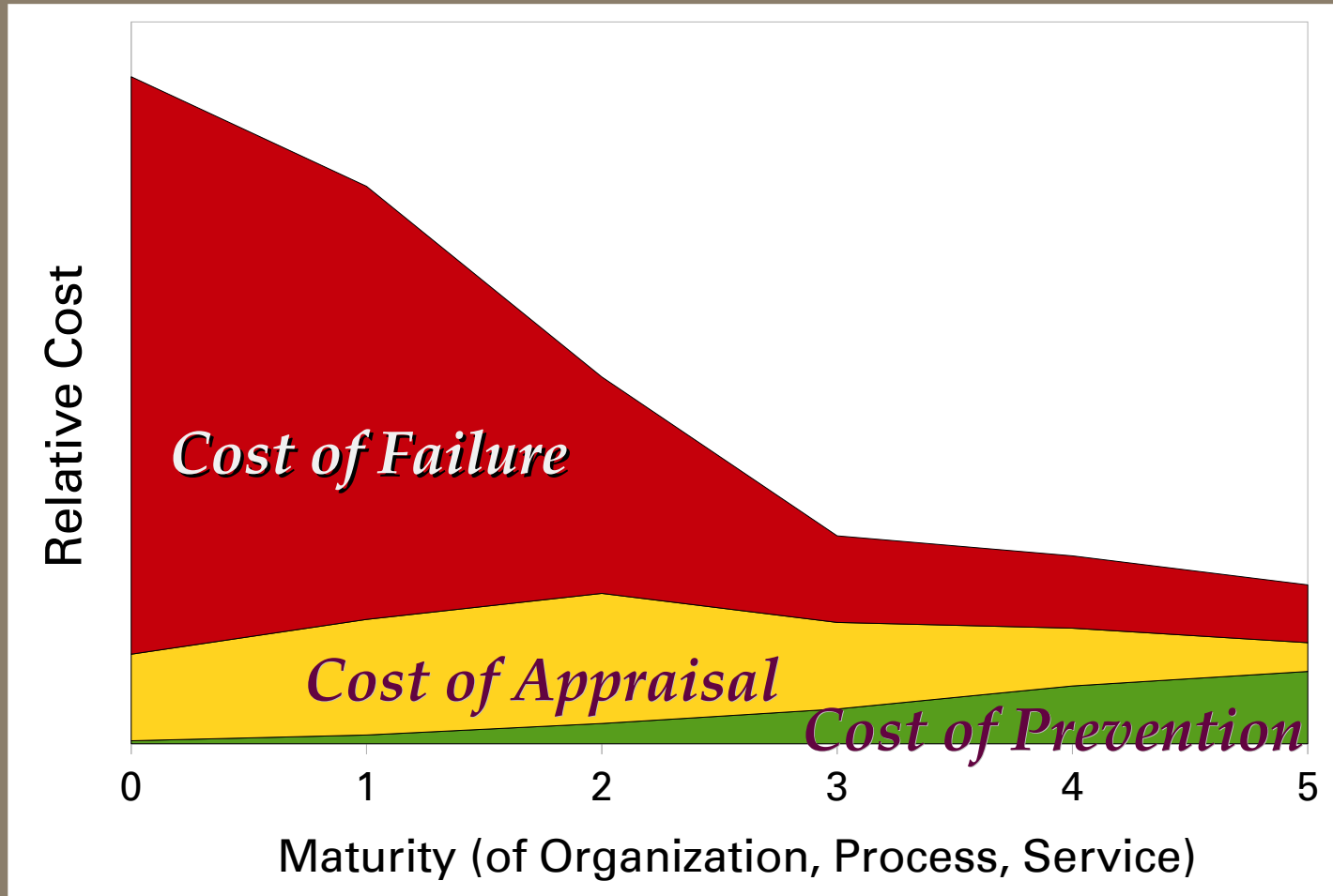


Ensure Metrics Coherency





Evolution of CoQ and Maturity





Summary

- CoQ Concept is easy to understand
- CoQ complements well the service lifecycle
- Good mapping between type of costs and process activities
- Framework for CSI metrics
- Proven approach for significant cost reductions



Reactions?



Comments?

Questions?