

# Establishing The Software Quality Organization



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## What is Quality?

“Total quality control is an effective system for integrating the quality-development, quality-maintenance, and quality-improvement efforts of the various groups in an organization so as to enable production and service at the most economical levels which allow for full customer satisfaction.”

- A. V. Feigenbaum, *Total Quality Control*, 1961



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# What is Quality?

“A degree of excellence”  
– Webster’s New Collegiate Dictionary

“Fitness for Use”  
- J. M. Juran



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# What is Quality?

True Quality =  
Quality of Fact +  
Quality of Perception

Source: Patrick Townsend, “Commit to Quality”



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# What is Quality?

“Quality is everyone's responsibility.”  
– W. Edwards Deming



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# Quality Culture

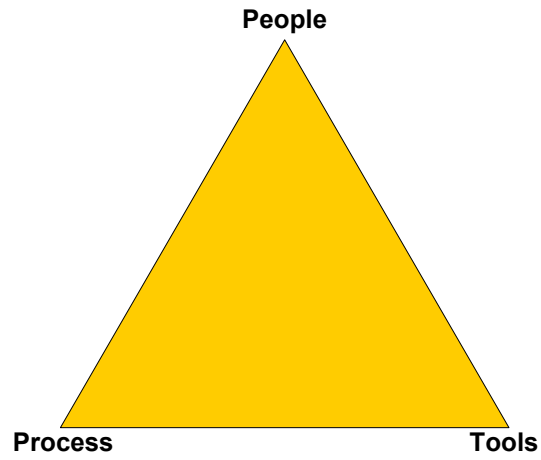
Company needs to establish  
a culture dedicated to  
quality



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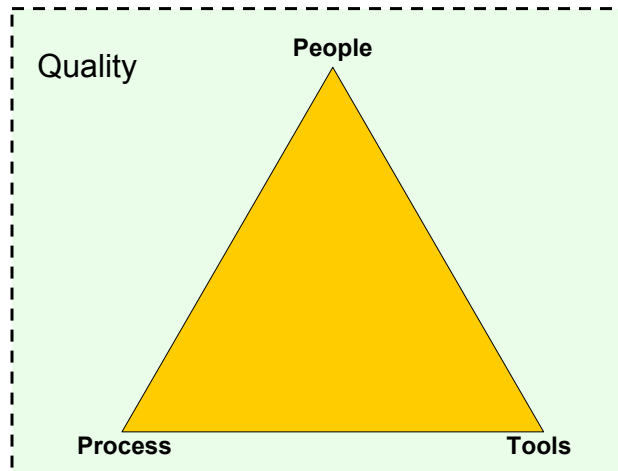
# Golden Triangle



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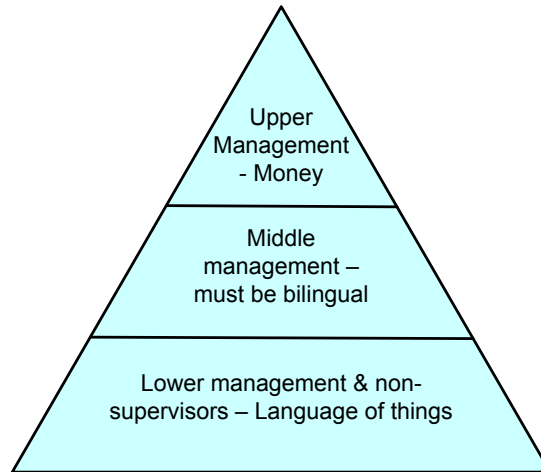
# Quality Culture



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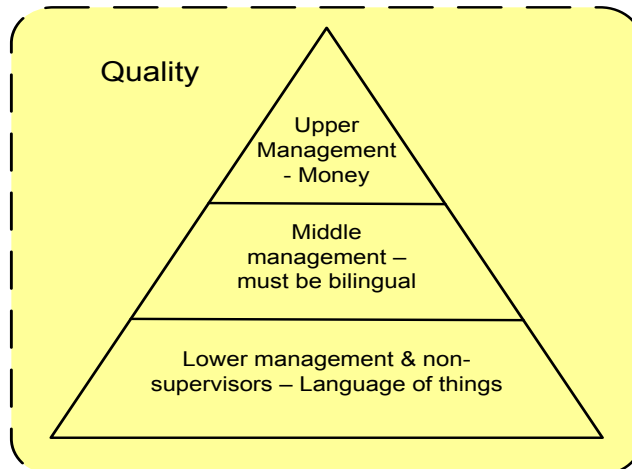
# Common Language



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# Quality Culture



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# Defect Point of Injection

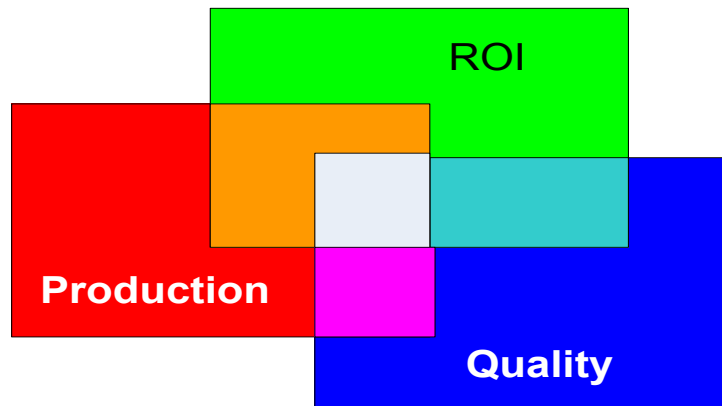
Life Cycle Phase	Caused	Quantity Found	Cost to Correct
Requirements	56%	Few	\$1
Design	27%	Few	\$5
Code & Testing	7%	Many	\$50
Production	10%	Some	\$1000



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# Quality Culture



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## Quality Confusion

- Conformance to requirements is equated to fitness for use
- Quality of design is confused with quality of conformance
- Absence of vocal dissatisfaction is confused with fitness for use



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## Universal Truths

- Software Quality Organization (SQO) improvements need to:
  - Possess a corporate business value
  - Show an ROI from the start
- You cannot change everything at once
- Improvement implementation does not run smooth
- **You will have resistance**



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# Universal Truths

- SQO process improvements
  - Do not stand alone
  - Need to live in the “real world”
  - Do not succeed without strong senior management support
  - Need a strong measurement program
  - Should support the process improvement cycle



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“If culture ruled the organization, everyone would show up at ten a.m. and there would be two-hour lunches. Cultural resistance is not an acceptable excuse for having poor processes. Management has the responsibility to put in place processes that will meet the objectives of the organization.”

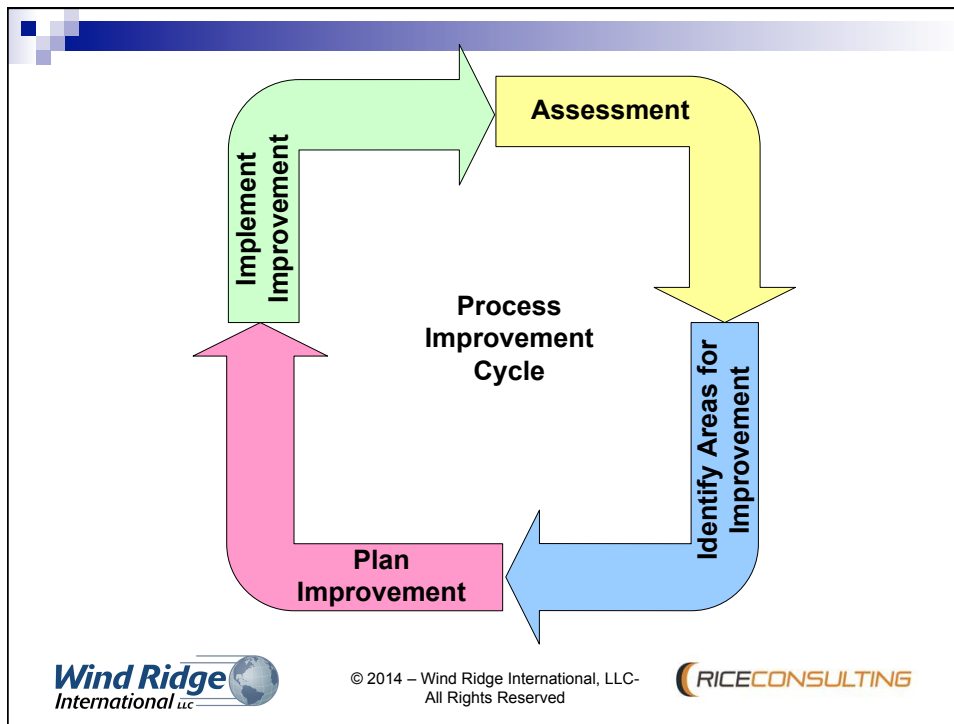
William E. Perry and Randall W. Rice in “Surviving the Top Ten Challenges of Software Testing”



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## Assessment

*Everyone knows how to do an assessment!*

*Assessment can successfully be performed using in-house assets?*

*Assessments need to be viewed as independent!*

## Assessment

- Define present state
  - Analyze current
    - Organization
    - Processes
  - What's working correctly
  - What needs changing
  - Get it down in writing
  - Can you live with status quo
  - Cost of not changing



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## Define Desired State

- Where do you want to go
- What needs to change to get there
  - Why?
- Keep it realistic
  - Specific
  - Attainable
  - Measurable
  - Focused on organizational need

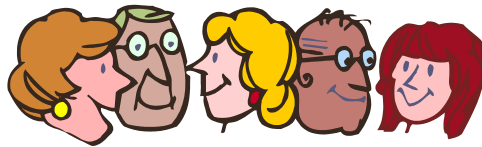


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## Define Desired State

- SQO are the subject matter experts
- They can provide guidance
- They cannot guarantee quality
- They cannot build quality into the system
- They are another tool to use

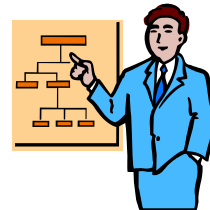


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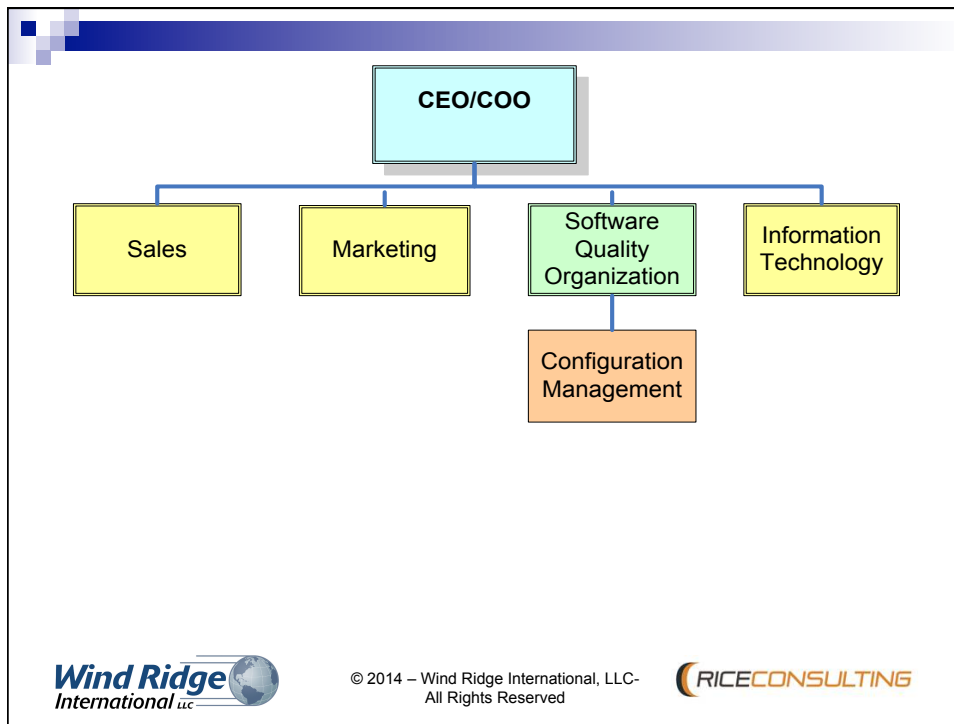
## SQO Organization

- Placement
  - Should report to CEO/COO
- Career ladder
  - Provides advancement potential
  - Allows flexible use of resources
  - Retention
  - Improved training



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# Configuration Management


## Configuration Management (CM)

- A discipline applying technical and administrative direction and surveillance to:
  - Identify and document the functional and physical characteristics of a configuration item
  - Control changes to those characteristics
  - Record and report change processing and implementation status
  - Verify compliance with specified requirements.

- IEEE 610.12



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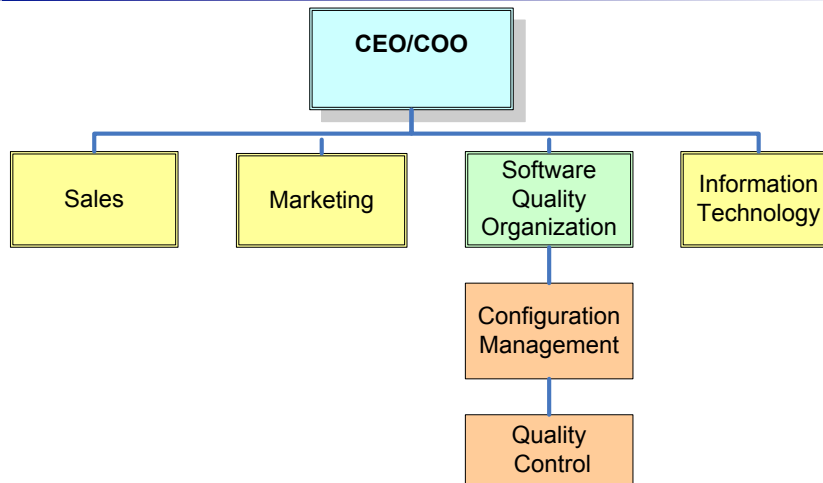


# Configuration Management

- Every CM process is unique
- Why do we need it?
- Can we succeed without it?



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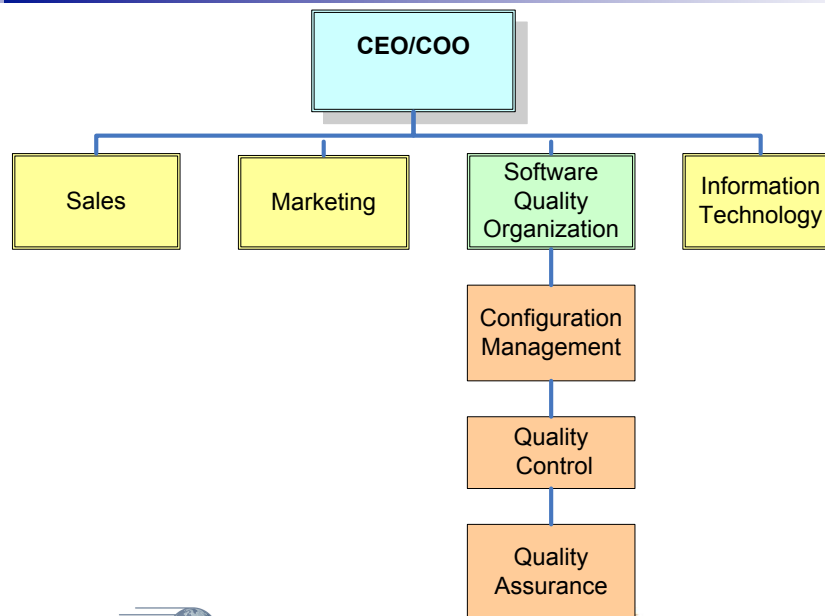


# Quality Control

- Focus on products
- Goal is defect detection and removal
- Some common QC functions are:
  - Test planning
  - Software testing
  - Reviews
  - Inspections
  - Checklists
  - Verification and validation



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# Quality Assurance

- Focus on processes:
  - Defining
  - Deploying
  - Continuously Improving
- Goal is defect prevention
- Functions
  - Auditor
  - Facilitator
  - Educator
  - Quality planner
  - Analyst
- Measurement



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# Line vs. Staff

- Most companies are set up this way
- Terms came from military
- Software Quality Organization is a staff function
- Line function
  - Directly advances organization core work
    - Production
    - Sales
    - Marketing



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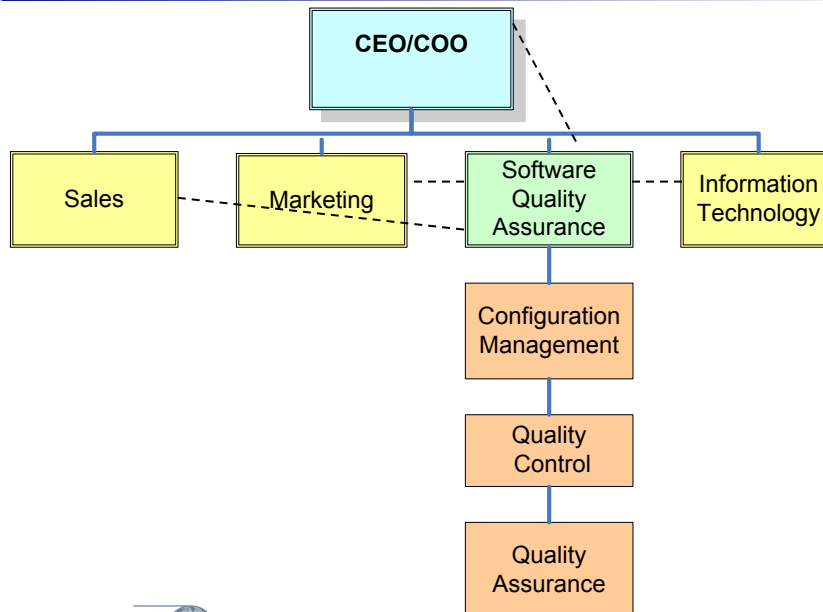
# Line vs. Staff

## ■ Staff function

- Supports organization with specialized advisory or support functions
  - Human resources
  - Accounting
  - Public relations
  - Legal
  - Quality assurance
- Offer advice in an effort to improve operations



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## What About Agile?

- The SQO is a facilitator function, not command and control.
- One of the pitfalls of agile is that teams often lack a cohesive and consistent approach to quality.
- The SQO is above any particular project methodology.



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## Wrap-up

- A high performance SQO organization has different meanings
- Success requires proper infrastructure and governance
- Define expectations
- Base improvements on documented data
- Detail planning and implementation
- Strong senior management support



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## Wrap-up

- Constantly monitor improvements
- Evaluate improvements against expectations
- Take immediate corrective actions
- Process improvement takes courage



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Courage is when  
you're scared to  
death, but you  
saddle up  
anyway.

- John Wayne



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