



We've Met The Enemy And He Is Us

Reasons Projects Fail
And What We've Done About It



Session Objectives

1. Identify common reasons that projects fail.
2. Present changes made to improve project outcomes.
3. Learn about Cause Mapping.

Questions that we will answer

1. Why did we analyze these projects?
2. What did our analyses reveal?
3. What corrective actions did we take?
4. What did we hope to achieve?
5. What could you do?



Why Did We Analyze These Projects?

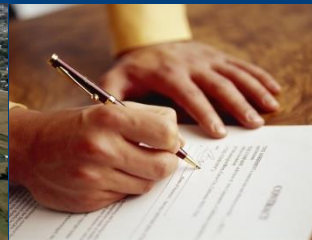


Gannett Fleming

*Excellence Delivered **As Promised***

Gannett Fleming, Inc. Quality Management System

ISO 9001:2008 CERTIFIED



Quality Mindset

Farley Gannett, founder



Gannett Fleming

*Excellence Delivered **As Promised***

Founded August 1, 1915



NOT Benny Goodman



Quality Mindset

Farley Gannett, founder



Gannett Fleming

*Excellence Delivered **As Promised***

Founded August 1, 1915



Path to Action

1. *Quality Mindset*

Continuous Quality Improvement



TQM
Total Quality Management



Six Core Concepts

1. *Definition of Quality - Meeting the Requirements*
2. Cost of Ownership - Client Impact
3. Cost of Quality - GF Impact
4. Improvement Process - Prevention of Errors
5. Responsibility - Each Employee
6. Performance Standard - Strive for Zero Defects

Six Core Concepts

1. Definition of Quality - Meeting the Requirements
2. Cost of Ownership - Client Impact
3. Cost of Quality - GF Impact
4. *Improvement Process - Prevention of Errors*
5. Responsibility - Each Employee
6. Performance Standard - Strive for Zero Defects

Continuous Quality Improvement



Cycle of
Quality
ImprovementTM



Path to Action

1. Quality Mindset
2. *Quality Program (CQI)*


Root Cause Analysis



why?
why?
why?
why?

Root Cause Analysis

“5-Why” Form

**Gannett Fleming**
Excellence Delivered As Promised

Sheet 1 of 2
Version 2.0, September 2012

QA Form SOP 8.01.01-4
Cause Analysis/Five Why's Form and Instructions

Step 1: Write down the specific problem.

Step 2: Ask “Why?” the problem occurred. Your answer is a “cause” of the problem. Write the cause below the problem.

Step 3: If the cause you identified isn't comprehensive enough or detailed enough for you to develop a solution or process improvement ask “Why?” a second time. Again, your answer is a cause of the original problem. Write that cause down.

Step 4: For each new ‘cause’ generated, repeat steps 2 and 3 until you are satisfied that the identified causes are sufficient to allow you to develop solutions and/or process improvements. Your goal is that these process improvements will eliminate the cause of this particular problem in the future.

Typically, if you ask “Why?” five times, you have generated causes that can be used to develop effective process improvements.

Five Why's Example:

Problem Statement: The client submitted a score of 2 for timeliness on the CSE for the recently completed project.

Why? Answer (Cause) – Because the final report was submitted two days late.

Why? Answer (Cause) – Because the report verification comments weren't available until the report due date.

Why? Answer (Cause) – Because the review wasn't started until the day before the due date.

Why? Answer (Cause) – Because the report wasn't finished and ready for review until the day before the due date.

Why? Answer (Cause) – Because the PM underestimated the amount of time needed for review and revision of the report when originally developing the project schedule.

© Gannett Fleming, Inc.

Root Cause Analysis

Causes of Fire



Root Cause Analysis



Causal Analysis

Causes of Fire



Path to Action

1. Quality Mindset
2. Quality Program (CQI)
3. *RCA Tool (5 Why - simplistic)*

Corporate Quality Objectives

ISO 9001:2008
CERTIFIED

“Reduce to zero the number of projects with a negative labor variance both larger than one percent of the labor budget effort and larger than \$5,000 at the time of closeout.”

Path to Action

1. Quality Mindset
2. Quality Program (CQI)
3. RCA Tool (5 Why - simplistic)

Path to Action

1. Quality Mindset
2. Quality Program (CQI)
3. RCA Tool (5 Why - simplistic)
4. *Performance Objective (ISO 9001)*

Path to Action

1. Quality Mindset
2. Quality Program (CQI)
3. RCA Tool (5 Why - simplistic)
4. *Performance Objective (ISO 9001)*
5. *Requirement to Evaluate (ISO 9001)*

“Failed Projects”

Failed Projects?

Fewer than 10%



Path to Action

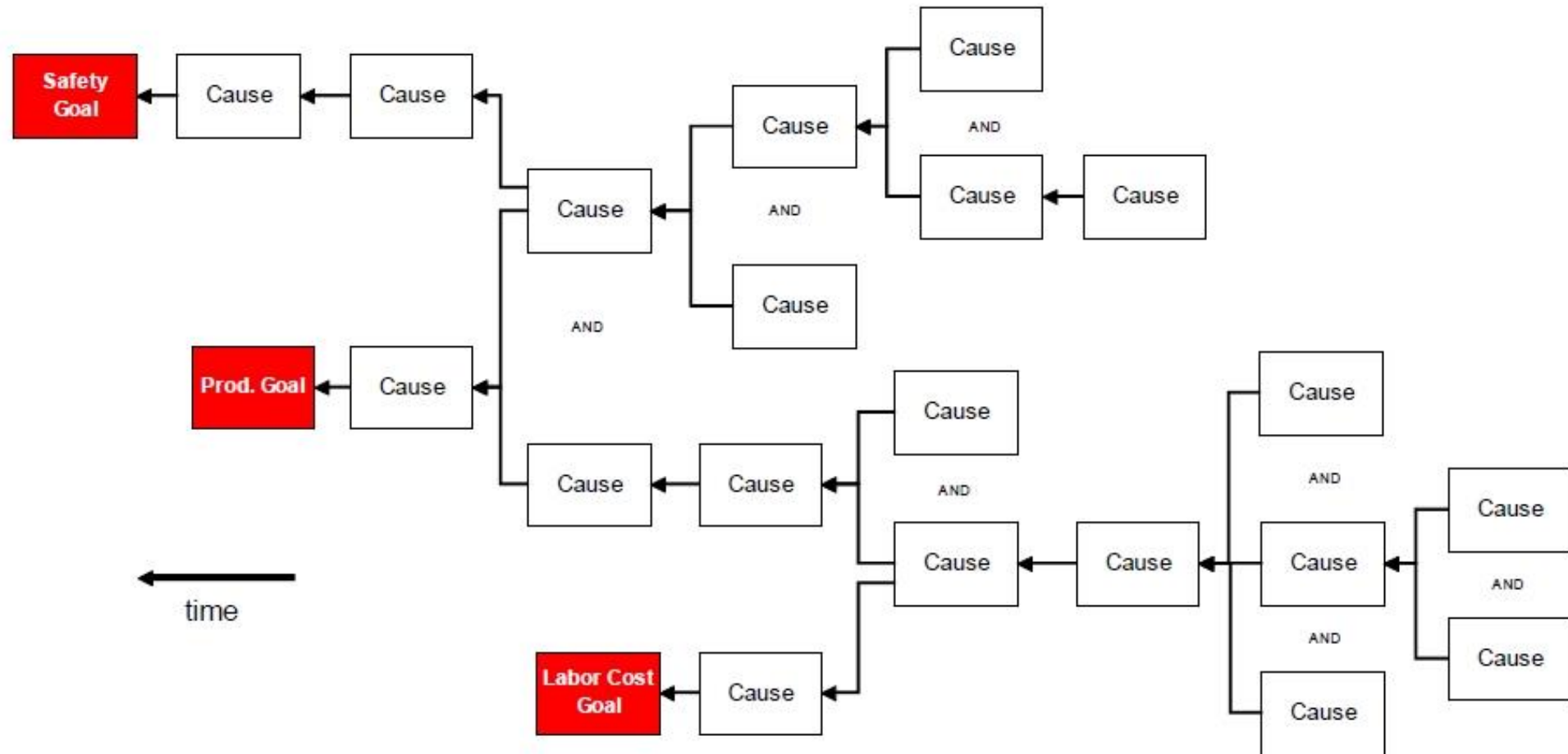
1. Quality Mindset
2. Quality Program (CQI)
3. RCA Tool (5 Why - simplistic)
4. Performance Objective (ISO 9001)
5. Requirement to Evaluate (ISO 9001)
6. *Failed Projects*



Cause Mapping

Cause Mapping

Visual mapping rather than verbal description of causes of problems.



The Value of Cause Mapping

Cause Maps:

- Tie Problems to an Organization's Overall Goals,
- Focus on Cause-and-Effect,
- Focus on Evidence-Based Causes, and
- Focus on Systems Thinking.

The Value of Cause Mapping – System Thinking

Which part of a car is required for the car to function:

- The engine,
- the transmission,
- the battery,
- the steering wheel,
- the tires,
- the brakes,
- or the fuel?

They all are.

Root Cause Analysis

WHY DID THE TITANIC SINK?



We all know why
the Titanic sank:

It hit an Iceberg!

Duh!

What if you did a RCA with a 5-Why tool?



Gannett Fleming

*Excellence Delivered **As Promised***

Sheet 1 of 2
Version 2.0, ---- 2012---

QA Form SOP 8.01.01-4 Cause Analysis/Five Why's Form and Instructions

Step 1: Write down the specific problem.

Step 2: Ask "Why?" the problem occurred. Your answer is a "cause" of the problem. Write the cause below the problem.

Step 3: If the cause you identified isn't comprehensive enough or detailed enough for you to develop a solution or process improvement ask "Why?" a second time. Again, your answer is a cause of the original problem. Write that cause down.

Step 4: For each new 'cause' generated, repeat steps 2 and 3 until you are satisfied that the identified causes are sufficient to allow you to develop solutions and/or process improvements. Your goal is that these process improvements will eliminate the cause of this particular problem in the future.

Typically, if you ask "Why?" five times, you have generated causes that can be used to develop effective process improvements.

Five Why's Example:

Problem Statement: The client submitted a score of 2 for timeliness on the CSE for the recently completed project.

Why?

Answer (Cause) – Because the final report was submitted two days late.

Why?

Answer (Cause) – Because the report verification comments weren't available until the report due date.

Why?

Answer (Cause) – Because the review wasn't started until the day before the due date.

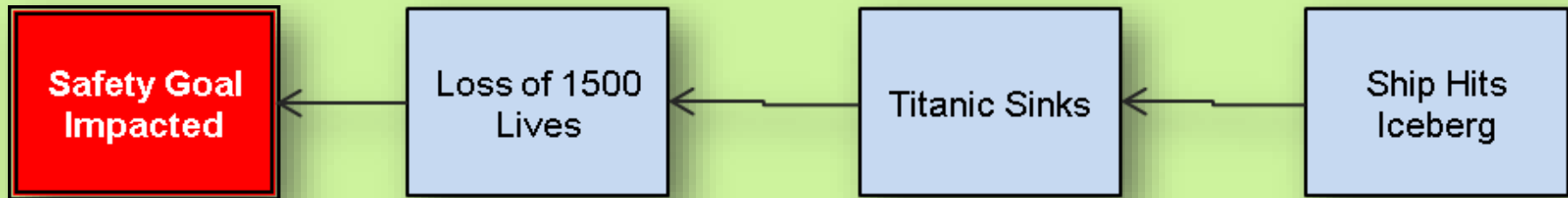
Why?

Answer (Cause) – Because the report wasn't finished and ready for review until the day before the due date.

Why?

Answer (Cause) – Because the PM underestimated the amount of time needed for review and revision of the report when originally developing the project schedule.

Typical Root Cause Analysis

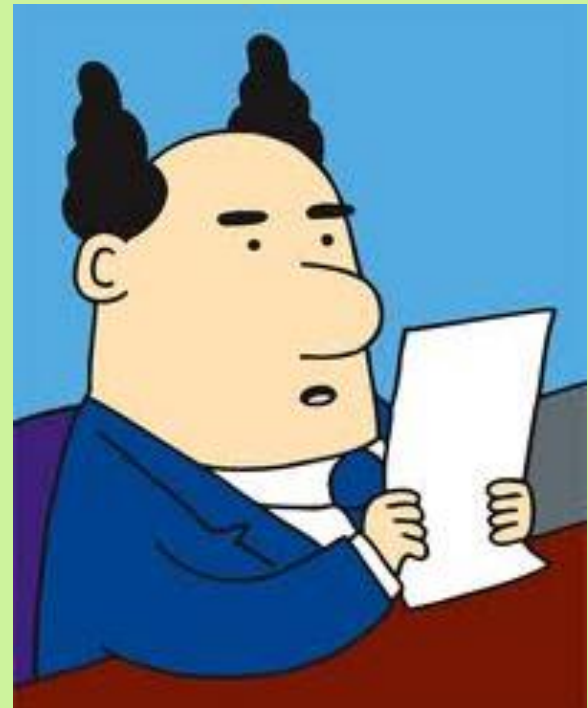


What's the (Typical) Corrective Action?



What Measurably Improved Processes Will Be Followed After This Training?

“You guys need to stop running into icebergs, OK?”

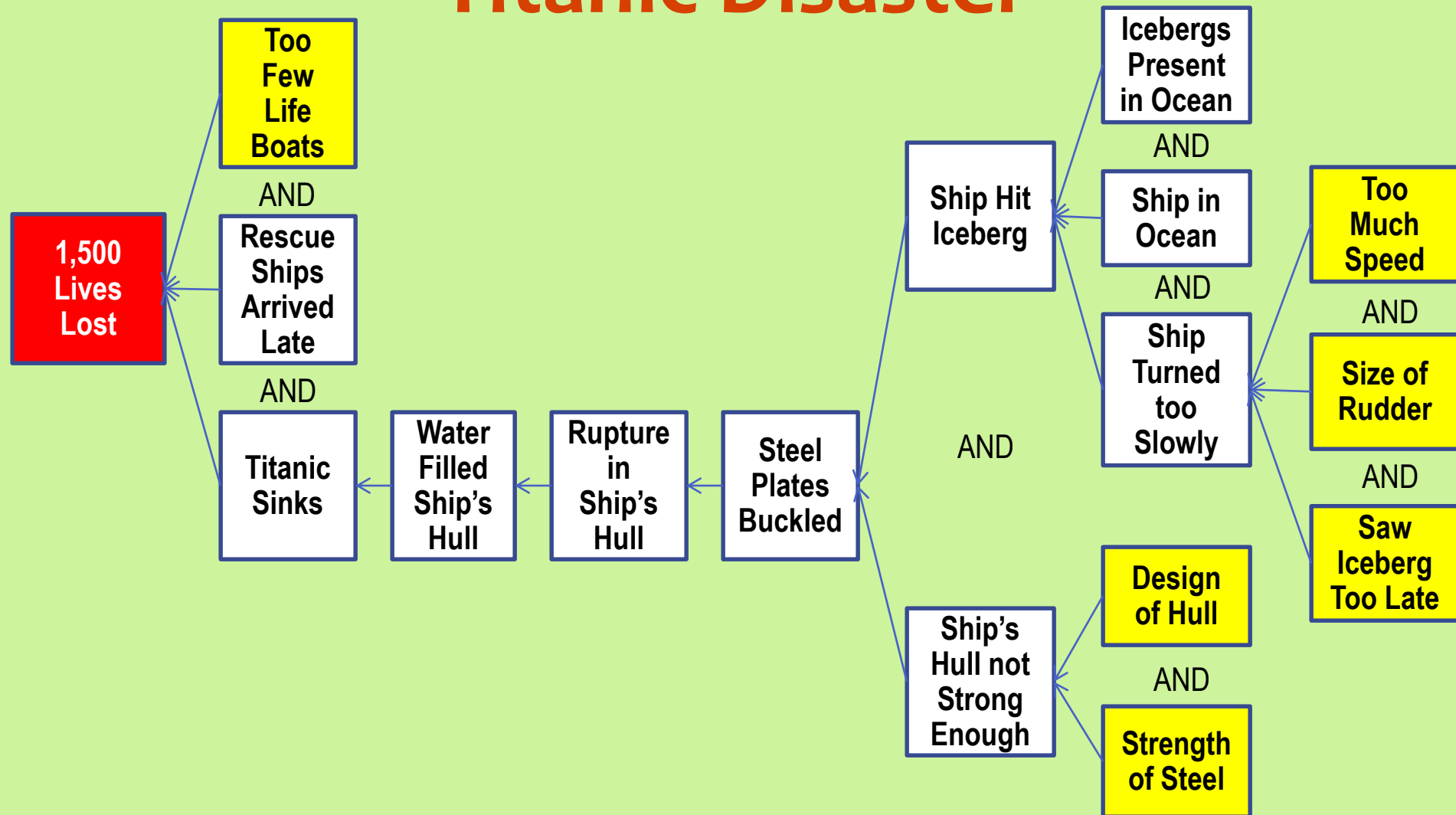


Why is This RCA So Weak?

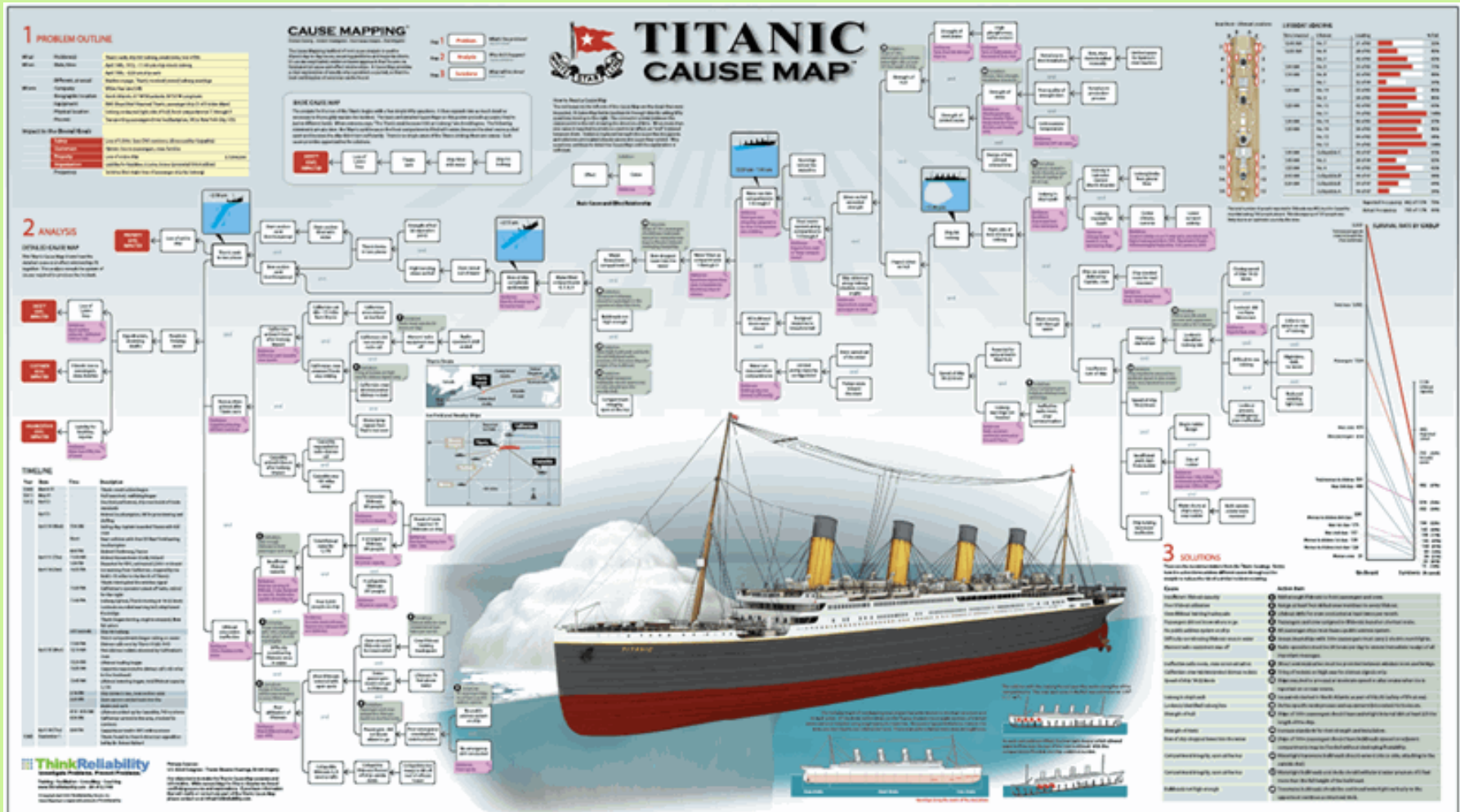
We stopped
digging too early.

We still don't
understand **WHY**
the Titanic hit the
iceberg.

More Effective Causal Analysis of the Titanic Disaster



Over 100 Causes



How Could the Titanic Disaster Have Been Prevented?

Selected Causes	Possible Mitigation	Mitigation Costs
Too few lifeboats	Add more lifeboats	Complete ship redesign
Design of hull	Use thicker steel	Millions of \$\$\$
Strength of steel in hull	Use higher strength steel	Millions of \$\$\$
Too much speed	Slower speed	Miss scheduled arrival date
Size of rudder	Larger rudder	Millions of \$\$\$ Slower speed
Saw iceberg too late	Buy binoculars for lookouts	\$20 per lookout

How Could the Titanic Disaster Have Been Prevented?

Selected Causes	Possible Mitigation	Mitigation Costs
Too few lifeboats	Add more lifeboats	Complete ship redesign
Design of hull	Use thicker steel	Millions of \$\$\$
Strength of steel in hull	Use higher strength steel	Millions of \$\$\$
Too much speed	Slower speed	Miss scheduled arrival date
Size of rudder	Larger rudder	Millions of \$\$\$ Slower speed
Saw iceberg too late	Buy binoculars for lookouts	\$20 per lookout

How Could the Titanic Disaster Have Been Prevented?

Selected Causes	Possible Mitigation	Mitigation Costs
Too few lifeboats	Add more lifeboats	Complete ship redesign
Design of hull	Use thicker steel	Millions of \$\$\$
Strength of steel in hull	Use higher strength steel	Millions of \$\$\$
Too much speed	Slower speed	Miss scheduled arrival date
Size of rudder	Larger rudder	Millions of \$\$\$ Slower speed
Saw iceberg too late	Buy binoculars for lookouts	\$20 per lookout

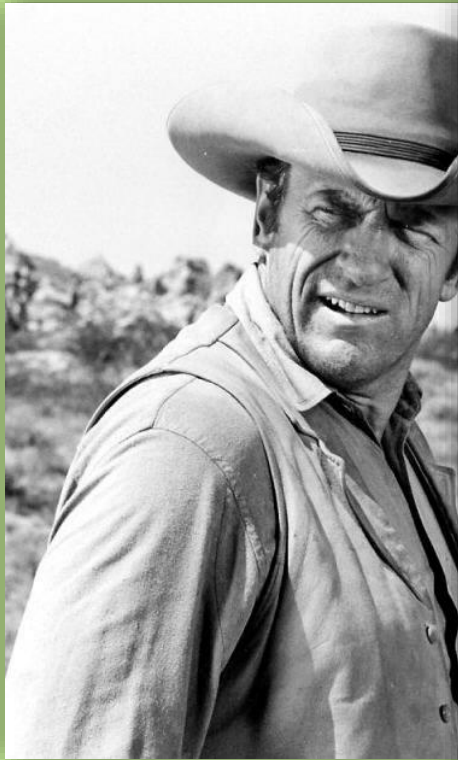
How Could the Titanic Disaster Have Been Prevented?

Selected Causes	Possible Mitigation	Mitigation Costs
Too few lifeboats	Add more lifeboats	Complete ship redesign
Design of hull	Use thicker steel	Millions of \$\$\$
Strength of steel in hull	Use higher strength steel	Millions of \$\$\$
Too much speed	Slower speed	Miss scheduled arrival date
Size of rudder	Larger rudder	Millions of \$\$\$ Slower speed
Saw iceberg too late	Buy binoculars for lookouts	\$20 per lookout

How Could the Titanic Disaster Have Been Prevented?

Selected Causes	Possible Mitigation	Mitigation Costs
Too few lifeboats	Add more lifeboats	Complete ship redesign
Design of hull	Use thicker steel	Millions of \$\$\$
Strength of steel in hull	Use higher strength steel	Millions of \$\$\$
Too much speed	Slower speed	Miss scheduled arrival date
Size of rudder	Larger rudder	Millions of \$\$\$ Slower speed
Saw iceberg too late	Buy binoculars for lookouts	\$20 per lookout

Approach is Important



Path to Action

1. Quality Mindset
2. Quality Program (CQI)
3. RCA Tool (5 Why - simplistic)
4. Performance Objective (ISO 9001)
5. Requirement to Evaluate (ISO 9001)
6. Failed Projects

Path to Action

1. Quality Mindset
2. Quality Program (CQI)
- ~~3. RCA Tool (5 Why - simplistic)~~
4. Performance Objective (ISO 9001)
5. Requirement to Evaluate (ISO 9001)
6. Failed Projects
7. *Causal Analysis Tool (Cause Map)*

Path to Action

1. Quality Mindset
2. Quality Program (CQI)
3. RCA Tool (5 Why - simplistic)
4. Performance Objective (ISO 9001)
5. Requirement to Evaluate (ISO 9001)
6. Failed Projects
7. Causal Analysis Tool (Cause Map)
8. **Action!**

Questions that we will answer

1. Why did we analyze these projects?
2. What did our analyses reveal?
3. What corrective actions did we take?
4. What did we hope to achieve?
5. What could you do?



What Did Our Analyses Reveal?



Common Causes of Failed Projects

Cause Mapping Findings

Cause Mapping Findings

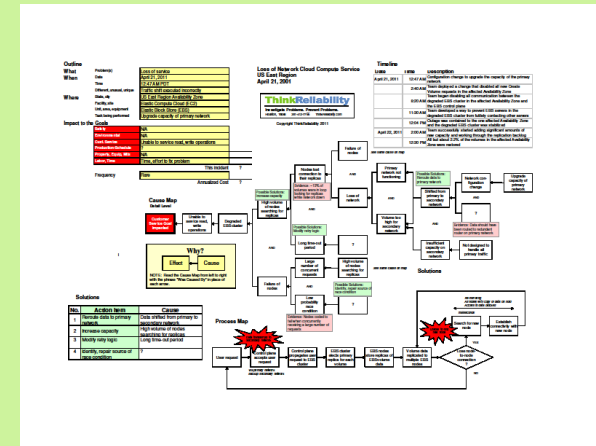
Cause Maps prepared for over 40 projects:

- Most due to **negative variance**,
- Some due to **client dissatisfaction**,
- A few due to **non-conforming work products**,
- One due to a squirrel.



Failures have multiple causes.

Cause Mapping helps you **see** all of the causes.





A scary story...

and too many of us already know the ending...

“I will gladly pay you Tuesday for a hamburger today!”

“We did it again?
Really?”



A tale of woe

Client and Firm agree on:

Scope of work,
Schedule,
Budget.

A screenshot of a project management software interface, likely Primavera P6. It displays a Gantt chart on the right side, showing project activities with their durations and dependencies. On the left side, there is a detailed data table with columns for activity names, start dates, end dates, and other project metrics. The interface is color-coded with green and yellow headers.

All Based on assumptions.



A tale of woe

It doesn't take long until...

- The client changes requirements during design, and
- The optimistic assumptions are proven wrong, and
- “Others” (regulators, funders, operations group) demand revisions and rework.

A tale of woe

Out of Scope Work (OSW)

OSW = Budget & schedule variances

A tale of woe

OSW is completed without supplement in order to:

- Meet (or try to meet) client project schedules, and
- Redeem ourselves in client's eyes.



Why do we need redemption?

Because the OSW put us over budget and behind schedule and the client is upset!

A tale of woe

How about a supplement?

Good idea, but we haven't asked for one.

A tale of woe

Why wouldn't we pursue a supplement?

- We're embarrassed to ask because **we were late and over budget, and**
- We **lack records** to support our position, and
- We don't want to **endanger future work orders, contracts, and**



A tale of woe

Why wouldn't we pursue a supplement?

- We don't want to **endanger** other Firm **offices**, and
- We don't have the time; **“too busy”**.



A tale of woe

Eventually, we submit a supplement, but...



Client rejects our supplement request.

A tale of woe

Why reject our request?

- “Client” had authority to change scope and schedule, **but not budget**, and
- We fouled client's supplementary work **procedures / requirements**, and
- Client “**persuades**” us not to fight their decision.



Outcome

- Client is unhappy.
- Project closes over budget.
- Loads of time wasted explaining why there is negative variance and no supplement. Every month.





Categories of Common Causes

Client Issues

Communication Issues

Project Manager Issues

Management Issues



Client Issues

**“This would be a great business if
not for the clients”**

What to watch out for.

- A **complex** client organizational structure.



Client Risk Factors

- Multiple **internal client groups** that can establish / change requirements.
- Limited, **inflexible** client project **budgets**.



Client Risk Factors

- Client manager with the power to change scope and schedule **but not budget** (“You’ll have to go to the Board for approval.”).
- Clients who **control the approach** to project execution.

Client Warning Signs

- **Conflicting inputs** from within client's organization.
- Client **changing requirements** during project execution.
- Client directing or approving OSW **without interest in additional cost.**



Client Warning Signs

- Postponing supplement discussions until after design and/or schedule crises pass.
- Client leadership or senior **staff changes**.
- Client becomes **difficult to communicate with** (doesn't return your calls / e-mails).





Communication Issues

“I really don’t want to talk about it.”

Communication
problems through the
project execution
process



Development (pre-contract) Phase

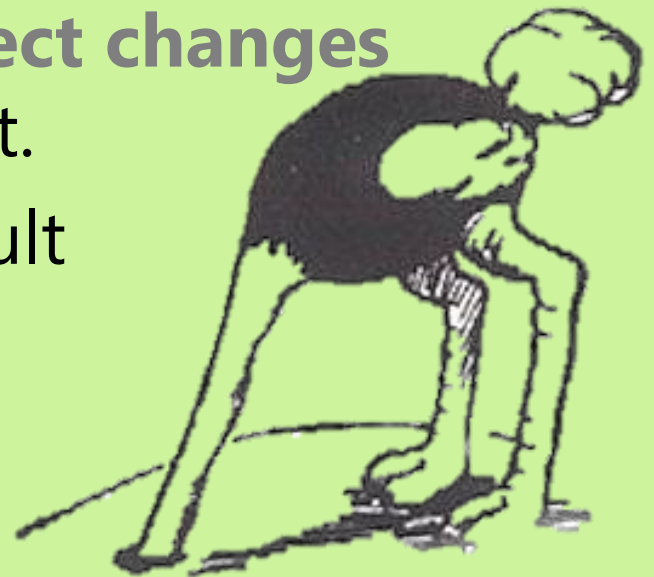
- Trusting that **everyone will remember** and honor commitments that aren't written down.
- No clear, **detailed scope of work**.
- Lack of **practice involvement** in scoping, budgeting, negotiating.
- Accepting client driven **overly optimistic** schedule, and scope assumptions without argument / discussion / persuasion.

Initiation / Planning Phases

- Not planning for and anticipating changes during project execution and **how changes will be communicated and controlled.**
- Not identifying **risks** and how they will be managed.
- Not planning for and communicating a process to document and track **OSW requests.**
- Not planning for and discussing (as a group) expected **practice interdependencies** and schedule impacts.

Execution & Control Phase

- Too few **client progress meetings** and reports.
- Too few **project team meetings**.
- Delivering **bad news late** (instead of early).
- Not clearly estimating, communicating and documenting **impacts of project changes** on scope, schedule and budget.
- **Avoiding the client** and difficult conversations.





Project Manager Issues

Human Factors

“I’m OK.
You, I’m not so sure
about.”



Passivity / Psychology Issues

- Accepting **unacceptable conditions**:
 - Scope, schedule, budget.
 - Conflicting / multiple sources of client direction.
- Allowing the client to take advantage due to **Firm's transgressions** (e.g. errors, lateness).
- More concern about **losing the next project** than success with current project.
- **Feeling powerless** to control internal staff / practices.

Passivity / Psychology Issues

- Not stopping the **avalanche of OSW** (camel's nose under the tent).
- Accepting **client's problems** as the Firm's problem.
 - Re-work w/o compensation due to regulator demands.
 - Re-design w/o compensation of previous engineer's work.
- Bending to threats **not to pay for in-scope** work unless OSW is completed.
- Submitting OSW **before supplement** is secured.



Management Issues



Categories of Management Issues

Resource Management

Project Management

Business Unit Management

Leadership

Resource Management Issues

- Ineffective project manager.
- Assignment of inappropriate staff.
- **Not searching for** appropriate staff (outside B.U).
- Not **work sharing** or looking for assistance.



Project Management Issues

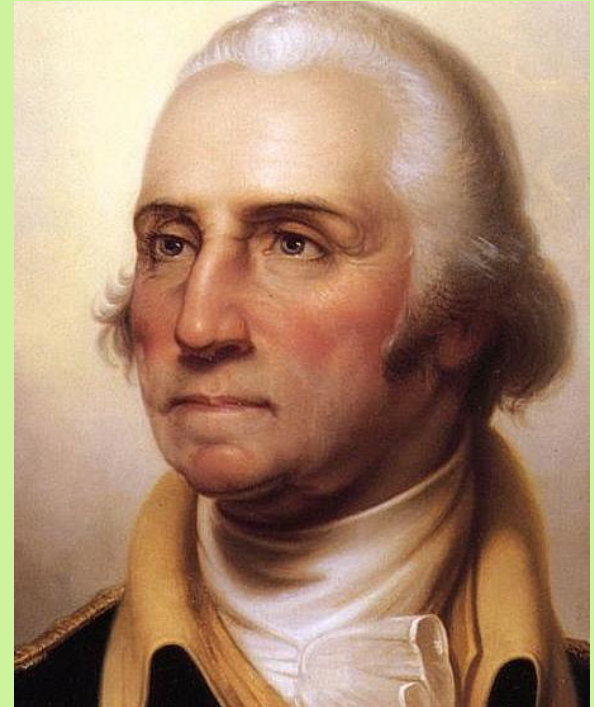
- Failure to recognize and **control risks**.
- Agreeing to do **OSW** without supplement in place.
- **Delivering OSW** w/o supplement.
- Waiting until **OSW is complete** before requesting supplement.
- **Weak practice coordination** and oversight.

Business Unit Management Issues

- Accepting **budget insufficient** to complete the scope.
- Agreeing to **onerous contract conditions**.
- Accepting **risky / low value commissions** to maintain utilization.
- Putting **business unit interests** ahead of the project and Client's interests / not bringing in appropriate staff.

Leadership Issues

- Not replacing weak project managers.
- Not insisting on project lessons learned meetings and root cause analyses.



Questions that we will answer

1. Why did we analyze these projects?
2. What did our analyses reveal?
3. What corrective actions did we take?
4. What did we hope to achieve?
5. What could you do?



What Corrective Actions Did We Take?

Process Improvements
Training

Process Additions / Improvements

Management and Leadership

- Project Principal Reviews.
- Sr. Executive Project Reviews.

ISO Verification

- Internal audit focus on lessons learned.

Process Additions / Improvements

Client Activities

- “Opt-Out” Customer Satisfaction Evaluations.

Risk Officer Involvement

- Involvement of CRO in Failed Project evaluations.
- Development of new “Total Risk Management” process.

Training

Project Principals

- 2-Day Project Principals training.
- **111 participants** (including Sr. Executives).

Project Managers

- 60 Hour Project Management Academy.
 - 8 hours on-line learning.
 - 52 Hours Instructor Lead training.
- **214 participants** December, 2012 to date.

Causes vs. Corrective Actions

Selected Causes	Implemented CAs
Client Issues	<ul style="list-style-type: none">• Project Management Academy• Project Principal training• TRM risk management• CSE “opt out”
Communication Issues	<ul style="list-style-type: none">• Project Management Academy• Project Principal training• Project Principal / Exec. Reviews• CSE “opt out”

Causes vs. Corrective Actions

Selected Causes	Implemented CAs
Project Manager Issues	<ul style="list-style-type: none">• Project Management Academy• Project Principal training• Project Principal / Exec. Reviews• TRM risk management• CSE “opt out”• ISO audit process
Management Issues	<ul style="list-style-type: none">• Project Management Academy• Project Principal training• ISO audit process

Questions that we will answer

1. Why did we analyze these projects?
2. What did our analyses reveal?
3. What corrective actions did we take?
4. What did we hope to achieve?
5. What could you do?



What do we Hope to Achieve?

Satisfied Clients

What it Boils Down To

Satisfied Clients

(Max. Score = 5)

Customer Satisfaction Evaluation Rating Factors	2013	2012	Base-line 2001-2005
Technical Quality	4.7	4.6	4.4
Timeliness	4.6	4.6	4.3
Cost Effectiveness	4.6	4.6	4.3
Dependability / Reliability	4.7	4.6	4.6
Cooperation	4.8	4.8	4.6
Communication	4.8	4.8	4.5
Performance	4.7	4.7	4.4

Questions that we will answer

1. Why did we analyze these projects?
2. What did our analyses reveal?
3. What corrective actions did we take?
4. What did we hope to achieve?
5. What could you do?

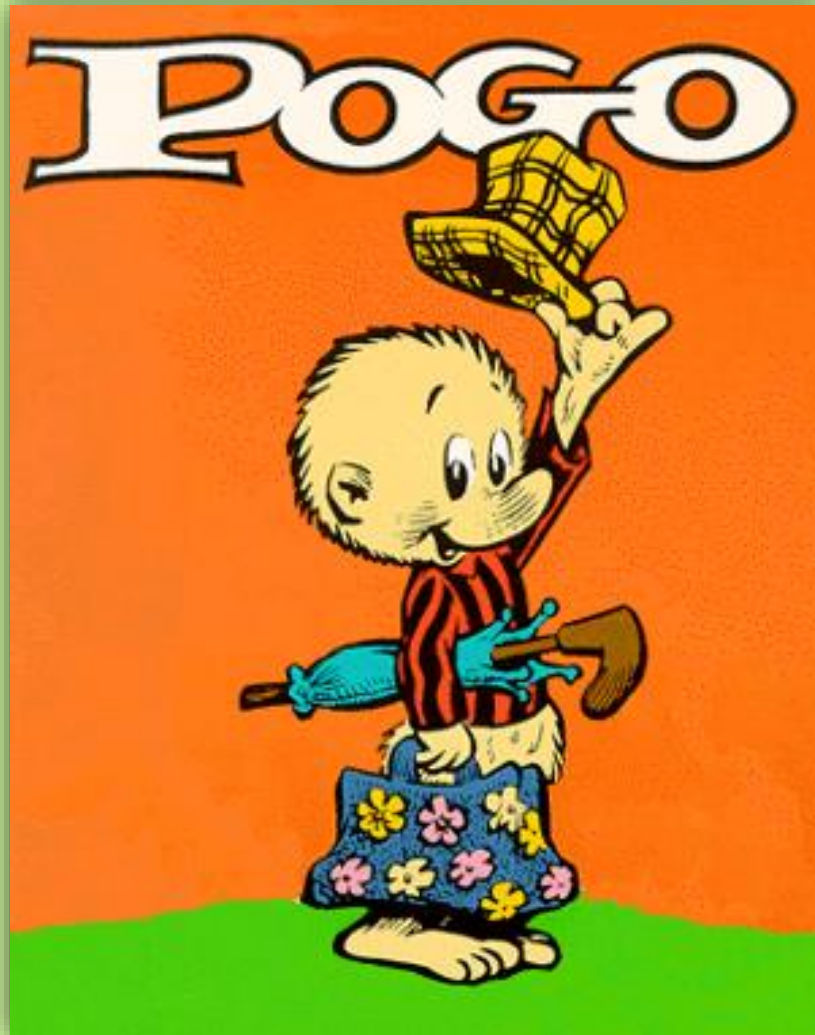


What Could You Do?

Your Path to Action

1. Quality Objective(s).
2. Measure performance.
3. Causes of problems (Cause Mapping).
4. Share what you've learned.
5. Corrective Action / Process Improvement.
 1. Include everyone (not just the bosses).

“We have met the Enemy”



Thank
You!