



## **Manufacturers Alliance Seminar** **Getting to the True Root Cause**

Practical experiences from practitioners on how to prevent the quick fix and get to the real fix.

**DSI, Inc.**

**Peter Fritsche, VP of Operations**

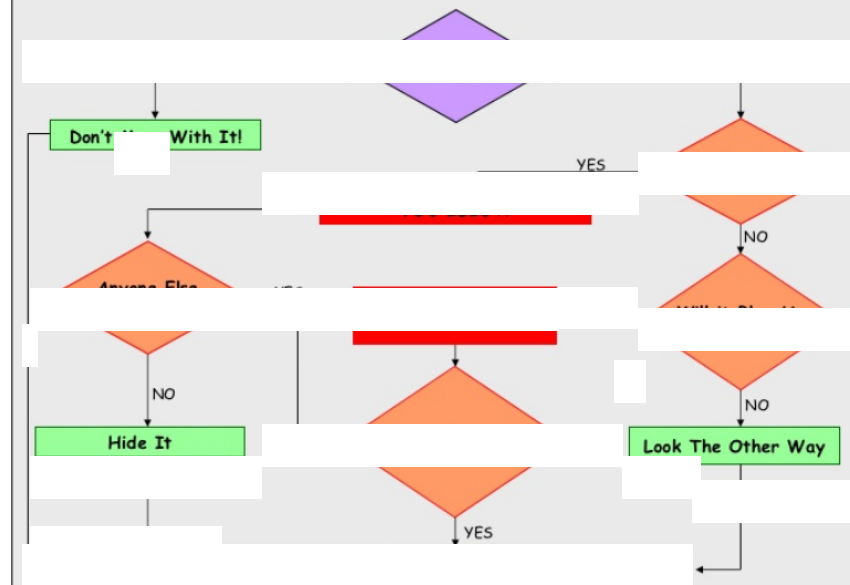
# Root Cause Analysis Seminar



Peter Fritsche

Vice President, Global Operations  
Data Sciences International

## Flowchart For Problem Resolution



## Most Companies' Problem Solving Results

Where most investigations end

- Operator error
- Procedure

Action

- Employee
- Update procedure

Is this familiar?



Typical results

- Not fully understand the problem or the causes
- Not implementing "right" solutions
- Same (or similar) problem repeats itself..

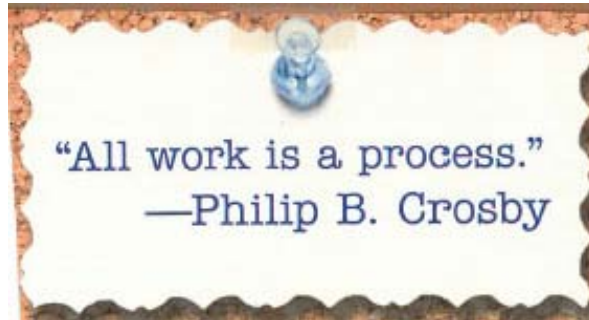
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Imagine a Tool that can Create this Reality



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## What is RCA?



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## RCA is a Process

Process for identifying the causes of a problem

- Eliminate causes to prevent recurrence
- Apply learnings to all similar situations



For

If you can't describe what you are doing as a process, you don't know what you're doing.

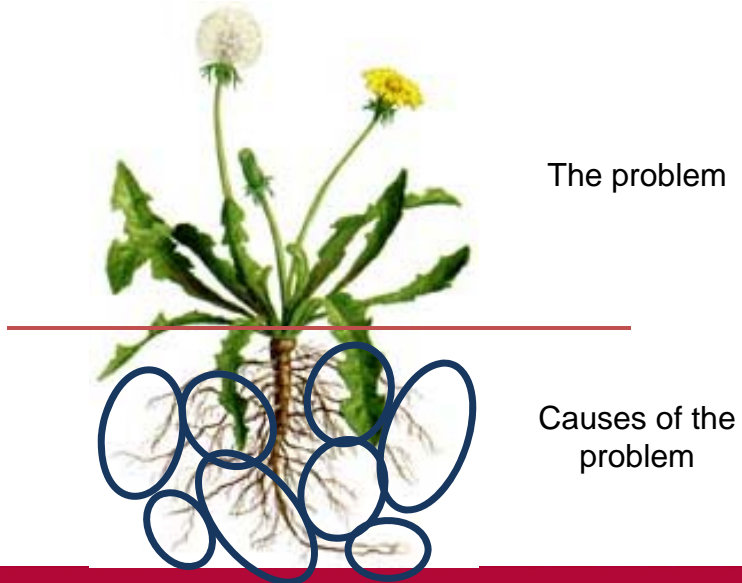
— W. Edwards Deming —

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## We Have a Problem



## Root Cause Analysis



If there were "One Root Cause,"  
what would it be?

## RCA Tool: Cause Mapping



The problem solving discipline for *your* business.

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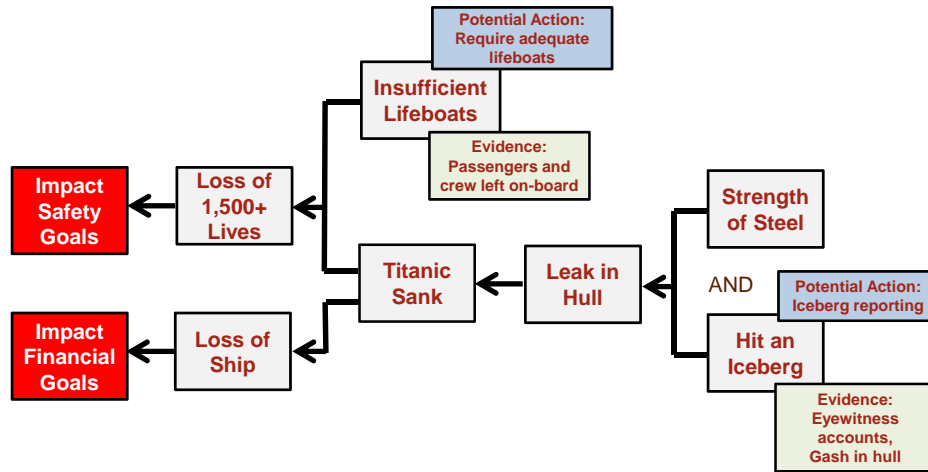
If You Don't Think a Leak can be a Problem



Think Again!

Why did the Titanic Sink?

# Why the Titanic Sank



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### 1 Problem Definition

What	Problem(s)	Titanic sank, ship hit iceberg, weak rivets
When	Date, Time	April 14th, 1912
Where	Physical Location	North Atlantic
	Process Location	Passengers UK to US

Impact to the Overall Goals

Safety	1500 Fatalities	
Vessel	Lost entire ship	\$ 7,500,000
Business	Liabilities, business loss	\$ 16,500,000
Frequency	1x	

### 2 Cause Map

Step 2 is the Analysis of the Incident. The cause-and-effect relationships are identified by asking "Why?" questions starting with the Goals that were impacted. While the Cause Map may start loosely, as more information is added the Cause Map expands to provide a detailed view of the entire event.

Basic Level Analysis (zoom out) Start as a simple 5-whys

```

graph LR
    A[Ship Hit Iceberg] --> B[Titanic Sank]
    B --> C[Loss of 1500 Lives]
    C --> D[Safety Impact]
    
```

More Detailed Analysis (zoom in) Expand to as much detail as necessary

```

graph LR
    A[Ship Hit Iceberg] --> B[Titanic Sank]
    B --> C[Water Filled Hull]
    C --> D[Opening in Hull]
    D --> E[Steel Plates Buckled on Hull]
    E --> F[Ship Hit Iceberg]
    B --> G[Loss of 1500 Lives]
    G --> H[Safety Impact]
    B --> I[Insufficient lifeboats]
    I --> J[Broken Hull from Rivets]
    
```

### 3 Solutions

No.	Cause	Action Item	Owner	Due Date	Status
1	Insufficient lifeboats	Add more lifeboats			
2	Speed (18 knots)	Slow down with known iceberg			
3	Saw iceberg late	Improve bow watch comm process			
4	Strength of steel	Change steel hull design, materials			

### Titanic Cause Map

Step 1 is the Definition of the Problem. It is written in an outline format so that it is easy to capture and easy to read. The problem is always defined by the specific impact to the organization's overall goals - the deviation from the ideal state.

Cause Mapping is a visual systems-based approach that focuses on fundamental cause-and-effect relationships supported with evidence. The three basic steps of Cause Mapping are shown here:

**CAUSE MAPPING**  
Problem Solving - Incident Investigation - Root Cause Analysis

Step 1 **Problem** What's the Problem?

Step 2 **Analysis** Why did it happen?

Step 3 **Solutions** What will be done?

Step 3 is the selection of specific Action Items to prevent the issue from occurring. Many possible solutions may be considered, but the only the best solutions are selected for implementation. Each action item in the Action Plan will have a specific owner with a scheduled due date.

Dr. David L.

**ThinkReliability**


Solve Problems. Prevent Problems.

Houston, TX

Office: 281-413-7786

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## Recent Workshop: Cause Map Example

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## Cause Mapping Applications

Make sure you're sitting down....

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## Keys to Success

- Right team members
  - A desire to understand & ask questions
- Understand the process that created the problem
  - Do not place blame
  - Take the time needed to identify causes
  - Watch out for interactions!
- Identify possible solution opportunities
  - Ensure new problems will not be created
  - Prioritize solutions

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## Keys to Success

- Take action & implement solutions – follow-through
  - Transfer knowledge / communicate changes (including why)
- Monitor and assess results
- Apply knowledge to all similar situations

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Which Will You Chose?

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# Thank you!

Peter Fritsche, Vice President, Global Operations

Data Sciences International

[pfritsche@datasci.com](mailto:pfritsche@datasci.com)

651-414-5562



**Manufacturers Alliance**  
Thank you for joining us!

[www.mfrall.com](http://www.mfrall.com)

763-533-8239

[ma@mfrall.com](mailto:ma@mfrall.com)