Digging out the roots

Or how to avoid "Solutions First Syndrome"

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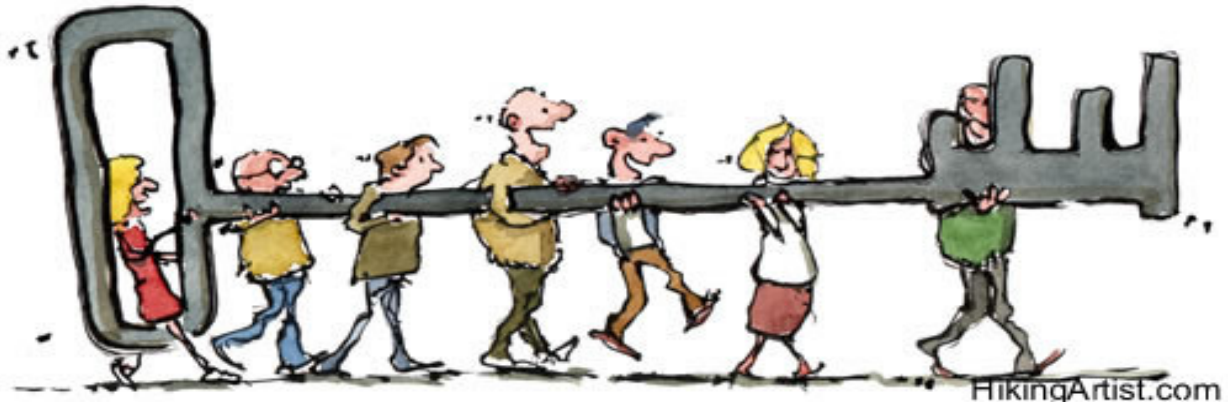
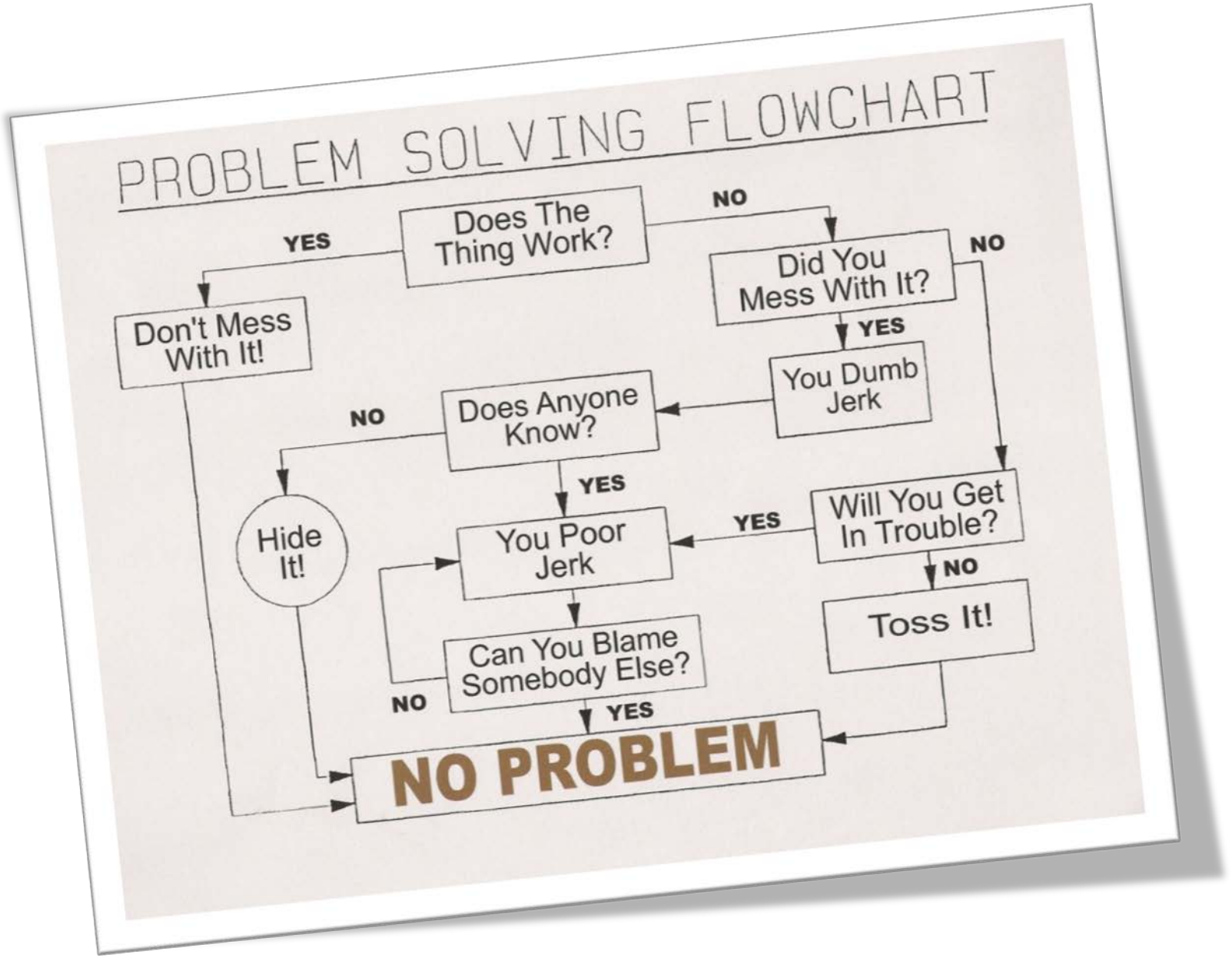
What we're going to unlock



- Solutions First Syndrome
- My two pet hates..
- Dr W Edwards Deming
- Prof James Reason
- Dean Gano
- The Binary Model (tool 1)
- The ISO 9001 NC-CA-PA sequence (tool 2)
- The 10 questions (tool 3)
- *Some stories…*

If all else fails……



Solutions First Syndrome

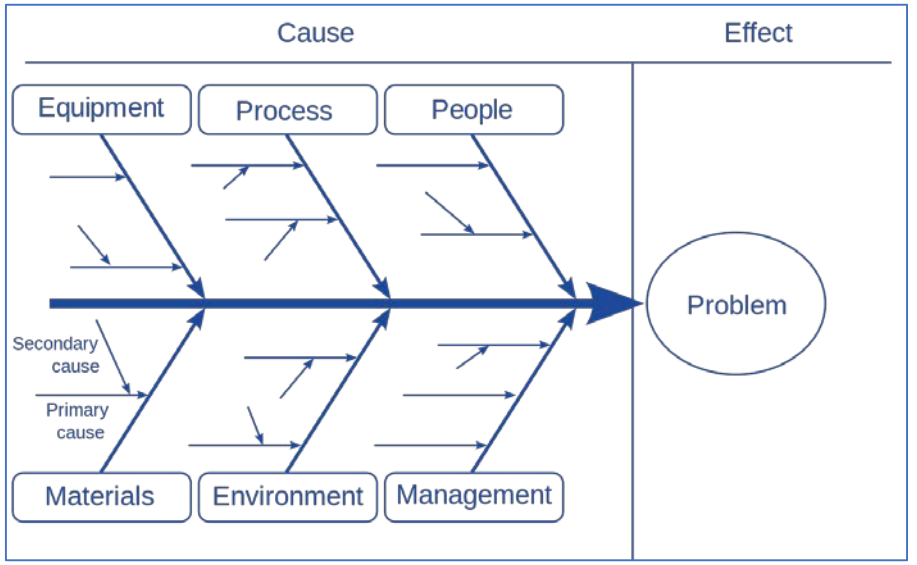
We are a solutions based organisation!

Don't worry about that, I know how to fix it!

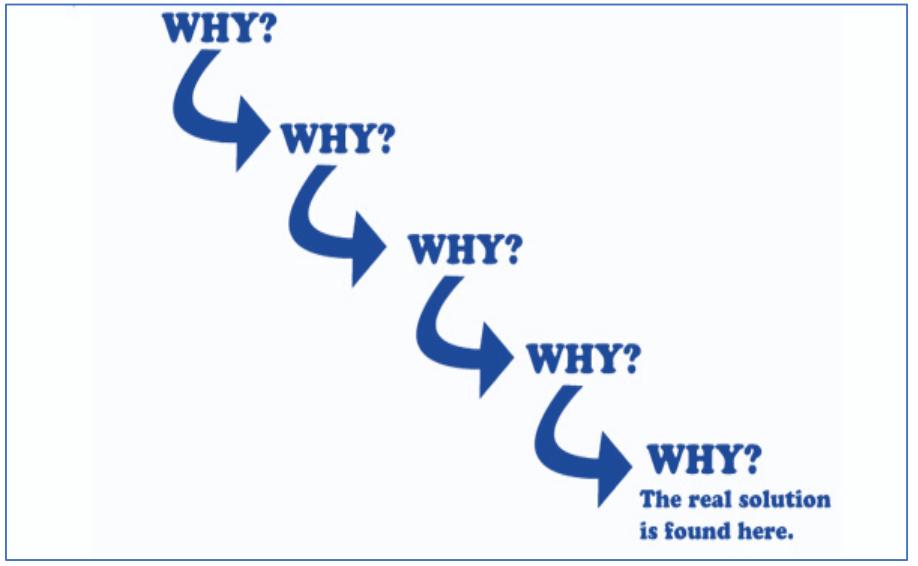
Been telling 'em about this for years!

My two pet hates

- The Ishikawa Fishbone Diagram
  - Vote – Using this tool
    - 5 = Nailed the problem for good
    - 1 = Didn't really help

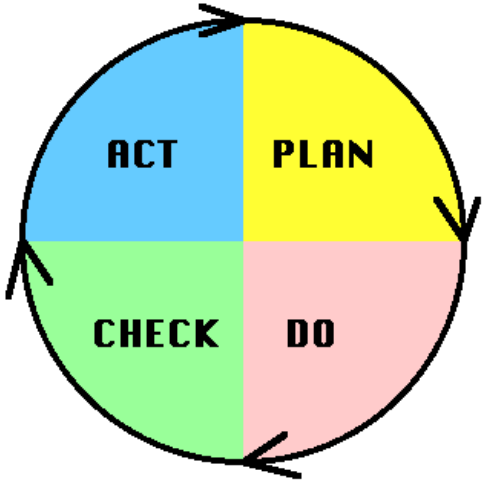


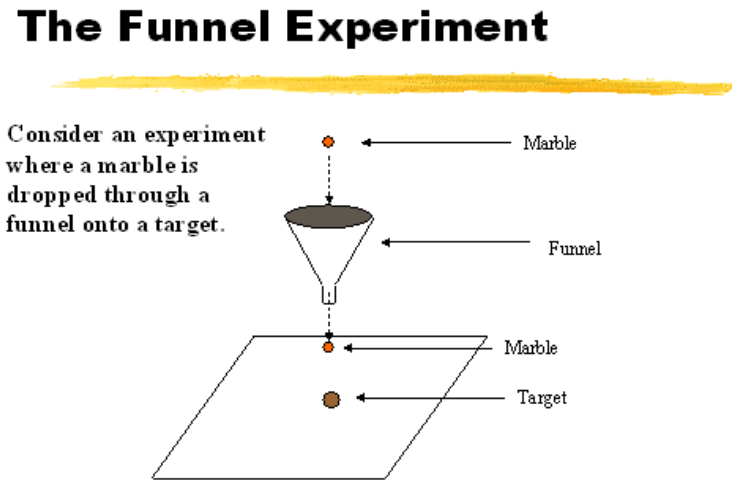
- Five whys (why 5?)
  - Vote – Using this tool
    - 5 = Nailed the problem for good
    - 1 = Didn't really help



Dr W Edwards Deming

- You can't solve a problem if you don't understand it.
  - Or putting it in "QA speak", process improvement is not possible if the causes of variation are not fully understood.
- Tampering (a curse!)
  - Red Bead experiment
    - process performance is a given
  - Funnel experiment
    - tampering only makes it worse

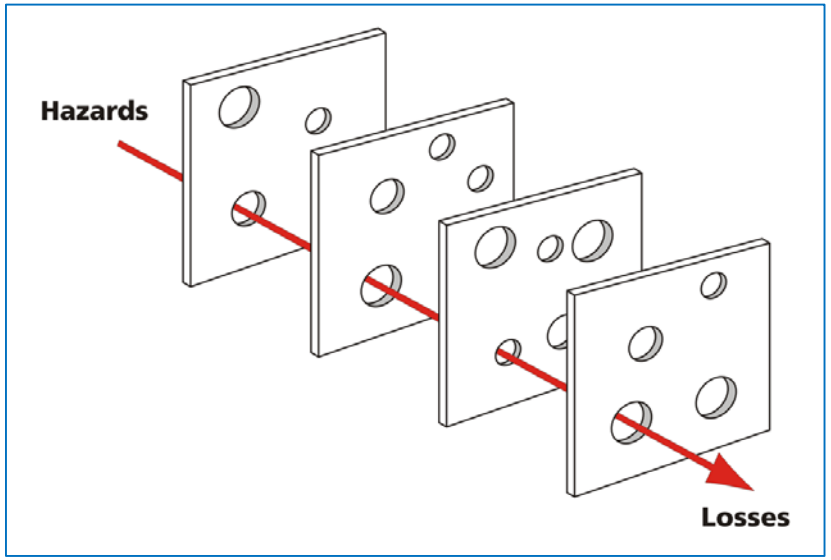


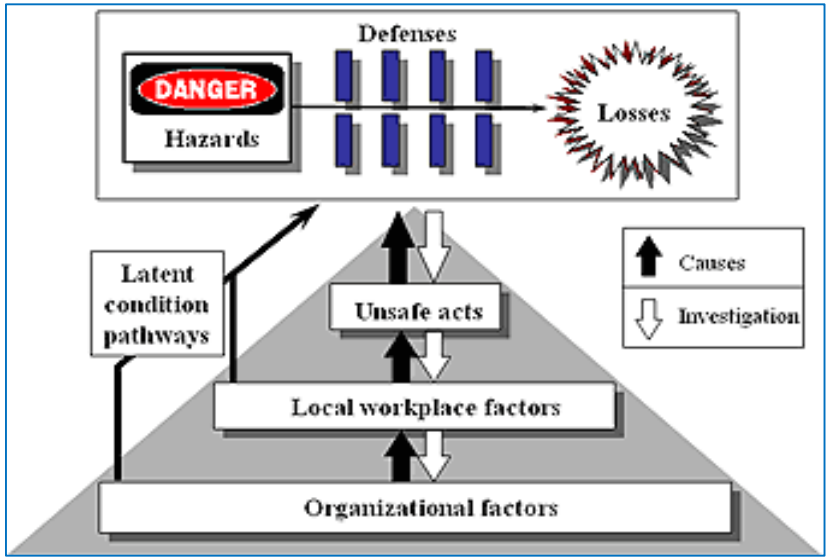


- "By what method? Only the method counts."
  - It's interesting that even though Ishikawa's cause and effect diagram is still touted as the tool to use among the "Seven Quality Control" tools, and 5 Ys pops up regularly, Deming does not appear to have promulgated them in his 4-day course.

Prof James T Reason

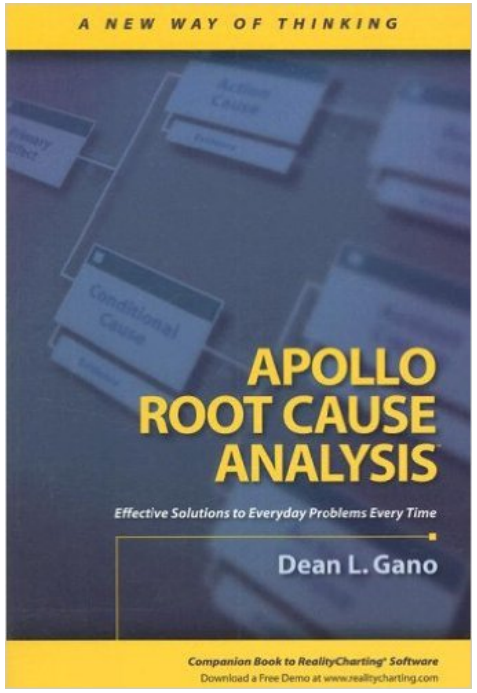
- Professor of Psychology, University of Manchester
  - Reason J. Human Error, (Cambridge Univ Press 1990, ISBN 0521314194)
  - Reason J. Managing the risks of organisational accidents, (Ashgate Publishing, 1997, ISBN 1840141042)
- Swiss Cheese Model of defences
  - Latent conditions
  - Unsafe acts
- Lost sight of the simplicity,
  - Users seem to have largely lost sight of the very simple model,
  - Focus is more on finding issues that fit the classification system (like the Fishbone Diagram)

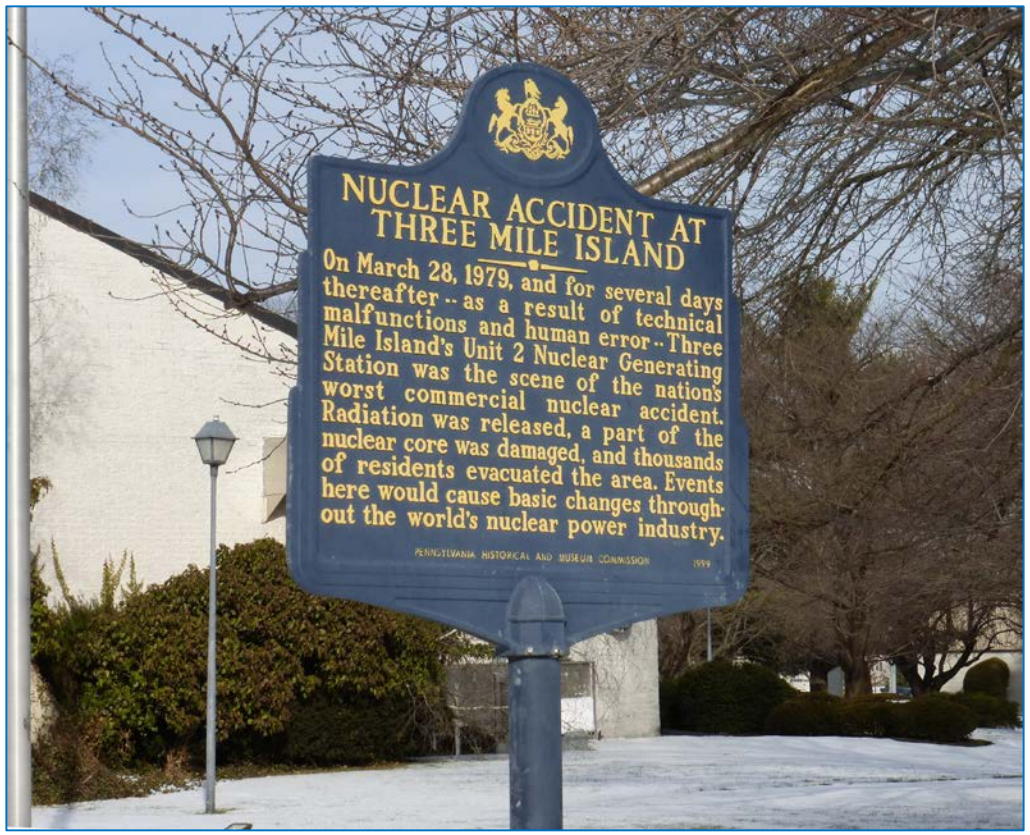




Dean Gano

- Dean Gano,
  - Gano D. Apollo Root Cause Analysis, Atlas Books 1999, ISBN 9781883677114
  - Causes of ineffective problem solving
    - Incomplete problem definition
    - Unknown causal relationships
    - A focus on solutions





[Apollo Root Cause Analysis]
ARCA website

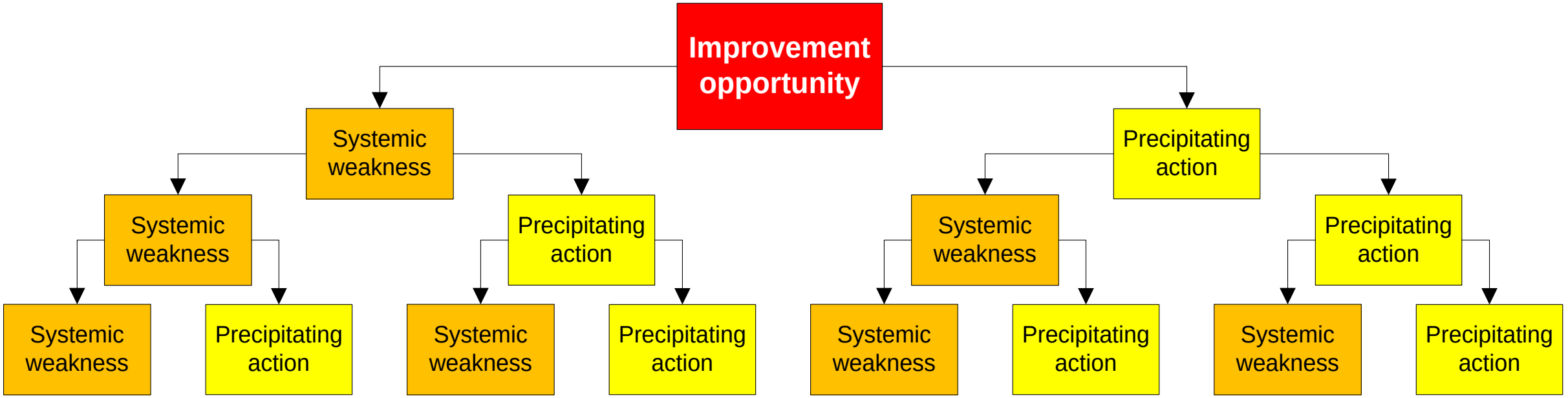
Gano's 3 key perspectives….

- No such thing as common sense
  - We're all different, why should there be?
- Cause and effect are the same
  - There's just a continuum of causes
  - So Fishbone & 5 whys can't work, can they?
- Minimum number of root causes is one?
  - Vote
    - Yes/no
- Answer = 2
  - One system gap, and
  - One action that exploited it

Effect	Cause
Person slips over on wet floor	Leak from water pipe
Leak from water pipe	Maintenance not done
Maintenance not done	Budget run out
Budget run out	Sales targets not met
Sales targets not met	World recession
World recession	Bad mortgagor decisions
Bad mortgagor decisions	Poor governance controls
etc	etc

Binary model of problem identification (tool 1)

- Combine Reason's Swiss Cheese Model, and Gano's "cause & effect are the same"



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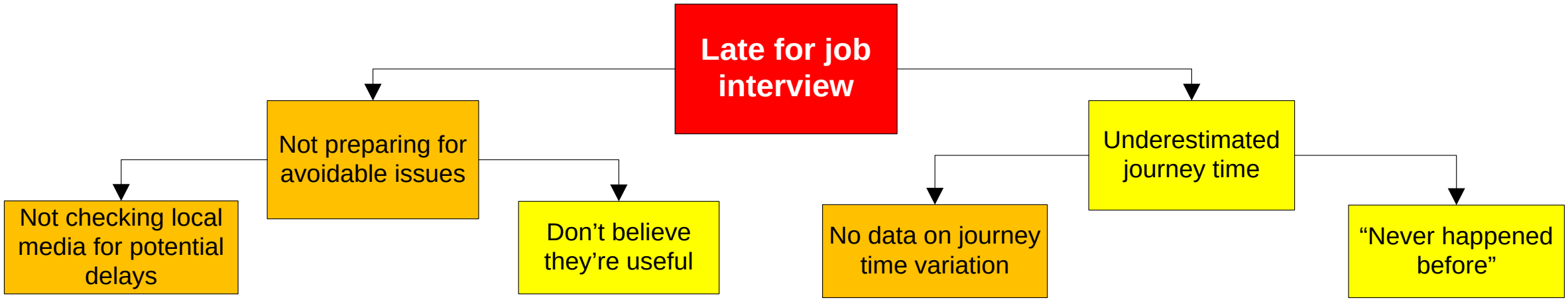
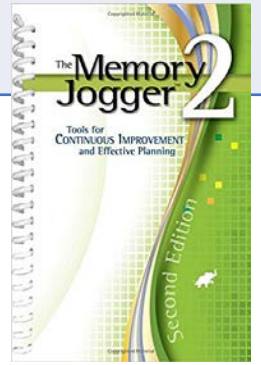


Making the binary model work

REM: Investigation is a Team Sport, it's not for individuals

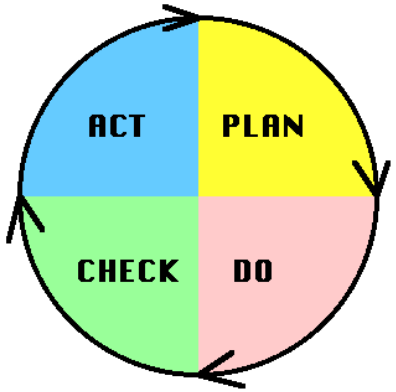
Type of opportunity	Available data	Methods include…	Examples
Product orientated, visible, can touch & feel it…	Reliable numerical data from measurements of process behaviour.	Run Charts, Control Charts, Histograms, Pareto diagrams…	Persistent failures in modem power supplies,
Service orientated, not tangible…	Anecdotal data	Affinity diagrams, Interrelationship digraphs, Tree Diagrams, Matrices…	Persistent late delivery of mail to rural areas,



ISO 9001 (etc) NC-CA-PA sequence (tool 2)

Cause (hazard) focused issues handling - Please click through the sequence

- *The risk approach in this diagram pre-dates "Risk Based Thinking" in ISO 9001:2015 by 20 years, RBT is not a new concept.*
- *ALSO in ISO 9001:2015/10.2 b) the words "occur elsewhere" indicate that "preventive action" is still there and raising 3x more types of actions than "CA" alone!*



Whoops! *or* Wow!
(unplanned issues)
(Errors, omissions, hazards, media reports, complaints, epithets..etc.)

Identify it (e.g. so it doesn't get sold)
(= 1st contingency)
- Document it,
- Segregate it,
- Mark it,
- Park it!

Use it or lose it!
("fix it" = 2nd contingency)
- Repair/rework?
- Concession?
- Alternative use?
- Discard?
- Make more of it!

Investigate
(binary model)

i.e. Answer these 4 questions

Do we have sufficient control of this issue?

No

Yes

Hazards not exposing risks

How did it happen?
(…has it happened before?)

How else could it happen?

Where else could it happen?

Contingencies worked OK?

RBT
Assess risks exposed by these causes (ie hazards)

(min 5 areas)
- Reputation
- *(Safety)*
- Viability
- People
- Legal

Risk = consequence x probability of occurrence

(then design & take action according to the severity of the risks exposed)

Corrective Action
(prevent recurrence)

Preventive Action (type 1)
(prevent occurrence of "how else")

Preventive Action (type 2)
(prevent occurrence of "where else")

Preventive Action (type 3)
(prevent occurrence of dodgy fixes)

Monitoring Action
(enhanced reviews, audits, inspections etc)

The 10 questions (tool 3)

#	Question	Answer type
1	What fixes have been done already or need to be done to restore conformity or capitalise on the good news event?	Contingency action
2	What needs to be promulgated about these fixes that others might learn from to enhance contingency plans? *(use binary model)*	Corrective action
3	What caused the event (inc failure of contingency plans)? *(use binary model)*	Problems
4	What hazards and risks do these causes expose to principal stakeholders (eg owners, customers, staff)?	
5	How and where else could a similar problem occur? *(use binary model)*	
6	What action needs to be taken to treat the problems so as to prevent RECURRENCE of the same event(s)	Corrective action
7	What action needs to be taken to treat the problems so as to prevent OCCURRENCE of a similar events (s)	Preventive action
8	What documentation changes need to be made?	Documentation action
9	What actions need to be included in business plans (etc)?	Preventive action
10	What action needs to be taken to monitor the effectiveness of actions taken?	Monitoring action

Some stories

- December 1984, Bhopal India,
  - Union Carbide plant producing Sevin pesticide,
    - 2000 killed, 200k + injured.... Link
- March 1987, Zeebrugge, Belgium
  - Herald of Free Enterprise
    - 188 deaths.... Link
- July 1988, Aberdeen Scotland,
  - Piper Alfa platform
  - 167 killed, US$3.4bn loss...Link
- February 2003
  - Space Shuttle Columbia,
    - 7 killed, ... Link
- November 2010, Greymouth New Zealand
  - Pike River Mine
    - 29 killed,... Link

Who said this?

“When anyone asks me how I can best describe my experience in nearly 40 years at sea, I merely say, uneventful.

Of course, there have been winter gales, and storms and fog and the like, but in all my experience, I have never been in any accident of any sort worth speaking about. I have seen but one vessel in distress in all my years at sea.

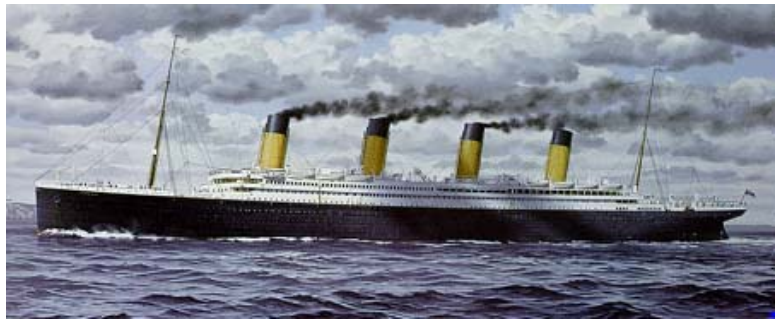
I never saw a wreck, and never have been wrecked,
nor was I ever in any predicament that threatened to end in disaster of any sort.”

And… “I cannot imagine any condition which would cause a ship to founder. I cannot conceive of any vital disaster happening to this vessel. Modern ship building has gone beyond that."

Captain Edward John Smith, in 1907

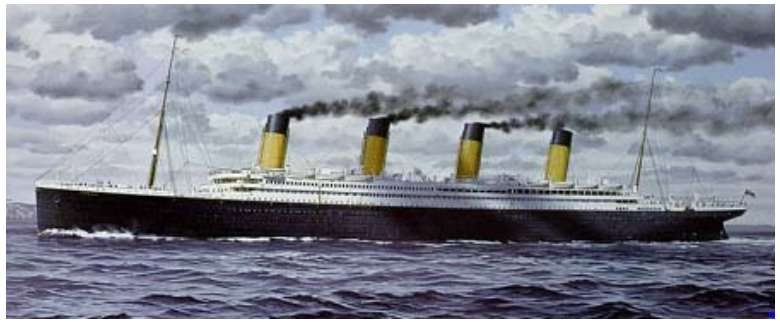
Did you know?

- Smith himself
  - Had 46 years experience,
  - Was a Master Mariner for most of that time
  - Was known as the “millionaire’s master” because of his knowledge of maritime safety



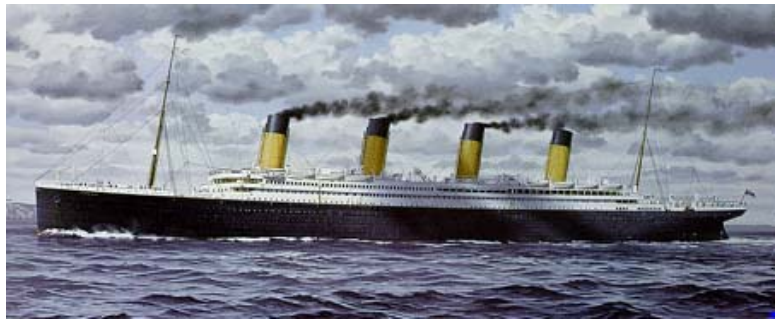
Did you know?

- Under Smith's command,
  - In 1899 ice formation capsized his vessel at its berth in New York
  - In June 1911, prop-wash from the Olympic damaged a tug
  - In Sept 1911, the Olympic collided with HMS Hawke



Did you know?

- On the night of April 14/15 1912
  - An iceberg warning had been issued
  - Smith was after the Blue Riband (he was due to retire at the end of the voyage)
  - There were no extra lookouts, AND…….
- The lookouts had lost their binoculars
  - Had they owned up, the cost of the replacements would have been deducted from their wages.



Did you know?

- Maritime Best Practice in 1912 was probably represented by:
  - Capt. Edward John Smith, and
  - White Star Line

Now you can go fix your problems….

Thank You…and good luck!

Questions?