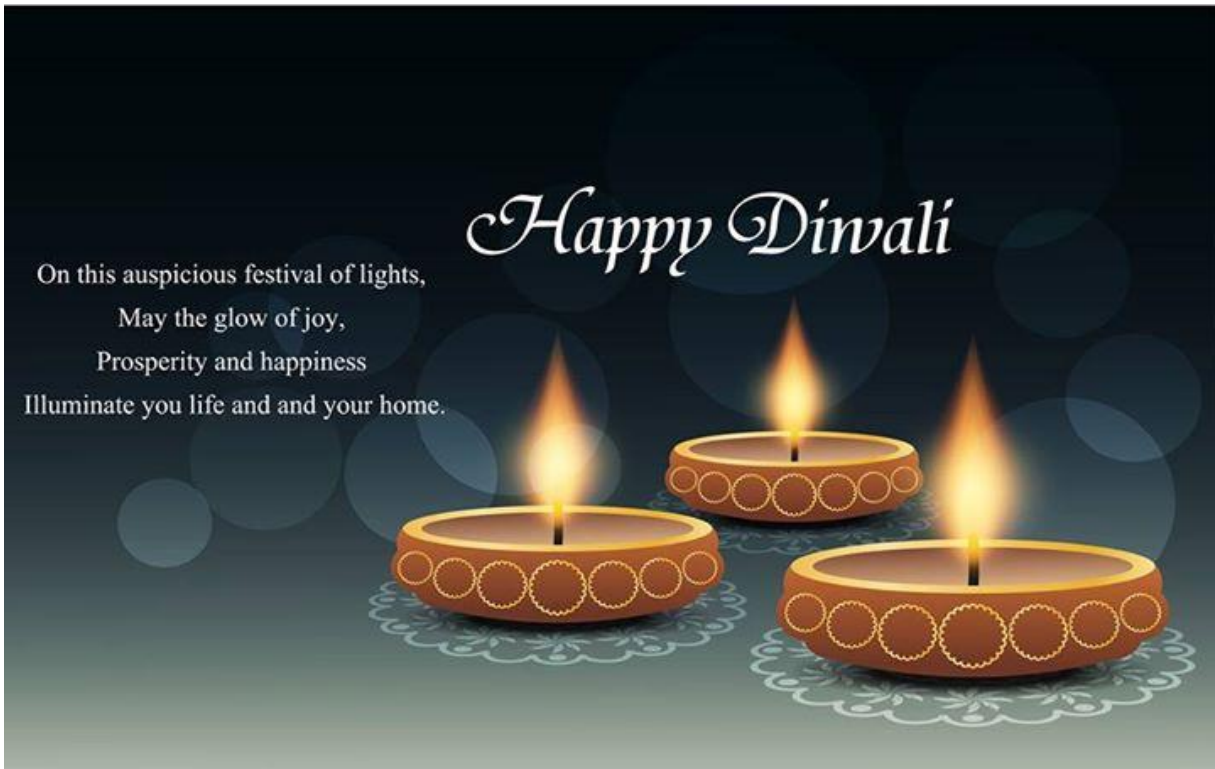


Quality info

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The 5 Whys: Getting to the Root Cause of the Matter Are you solving problems so they never happen again?

How are you getting to the root cause of any issue you or your customers are having? What types of root cause analyses are you conducting? Are you even thinking about root cause analysis?

Conducting some sort of root cause analysis (and there are many different types) any time you experience an issue is critical for the simple fact that you want to nip the issue in the bud and not have it occur again. Too many companies fix the symptoms and call it a day, only for the issue to occur again and again. When you fix the symptoms, you're applying bandages rather than curing the disease. Getting at the root cause and fixing it ensures the same issue won't recur.

One of my favorite root cause analysis methods is the 5 Whys. I like it for its simplicity. Whether that's a good thing or not, I don't know. But I do know that simplicity allows people to really understand what it means to get to the root of the matter. It also helps you understand the relationship between different (root) causes. Simple, quick, and powerful.

According to Wikipedia: “5 Whys is an iterative interrogative technique used to explore the cause-and-effect relationships underlying a particular problem. The primary goal of the technique is to determine the root cause of a defect or problem by repeating the question, “Why?” Each question forms the basis of the next question. The “5” in the name derives from an anecdotal observation on the number of iterations needed to resolve the problem.

This method was developed by Sakichi Toyoda; it was adopted throughout Toyota Motor Co. for a variety of uses, but it was specifically used when the automaker developed and evolved its manufacturing methodologies.

As noted, simply state the problem, and then ask (and answer) “Why?” five times to drill down to the ultimate cause. You can adapt this process to your needs; sometimes asking “Why?” five times is too many, and sometimes you need to ask more than five times.

“If you don’t ask the right questions, you don’t get the right answers. A question asked in the right way often points to its own answer. Asking questions is the ABC of diagnosis. Only the inquiring mind solves problems.” —Edward Hodnett

Be aware that one of the problems with the 5 Whys is that different people may come up with different root causes. I recently saw a post by Pete Abilla about his experience at Amazon, when Jeff Bezos conducted an impromptu 5 Whys session to understand why an employee hurt himself. Abilla wrote:

“Why did the associate damage his thumb?

“Because his thumb got caught in the conveyor.

“Why did his thumb get caught in the conveyor?

“Because he was chasing his bag, which was on a running conveyor belt.

“Why did he chase his bag?

“Because he placed his bag on the conveyor, but it then turned on by surprise.

“Why was his bag on the conveyor?

“Because he used the conveyor as a table.

“So, the likely root cause of the associate’s damaged thumb is that he simply needed a table; there wasn’t one around, so he used a conveyor as a table. To eliminate further safety incidences, we need to provide tables at the appropriate stations, or provide portable, light tables for the associates to use. And update and maintain greater focus on safety training. Also, look into preventive maintenance standard work.”

One can come up with a different root cause, as one follows along. One may insert the question, “Why did the conveyor turn on by surprise?” That may take you down a different path. So be aware of that. Having cross-functional representation in the 5 Whys session will be helpful, especially if your scope of knowledge limits your ability to go further into the analysis. I think it’s OK to come up with different root causes; it drives further discussion and investigation to get to the real root of the matter. It is possible that there are a couple things that need to be fixed, not just one. You need to understand the impact of each and prioritize improvements accordingly. As the Wikipedia post suggests, it might be a good idea to have some test of necessity and sufficiency at each level of analysis.

For more details—and to ensure that you move the organization from fixing symptoms to fixing the root cause—Eric Ries writes a great post on how to conduct a 5 Whys root cause analysis.

“A relentless barrage of ‘whys’ is the best way to prepare your mind to pierce the clouded veil of thinking caused by the status quo. Use it often.” —Shigeo Shingo

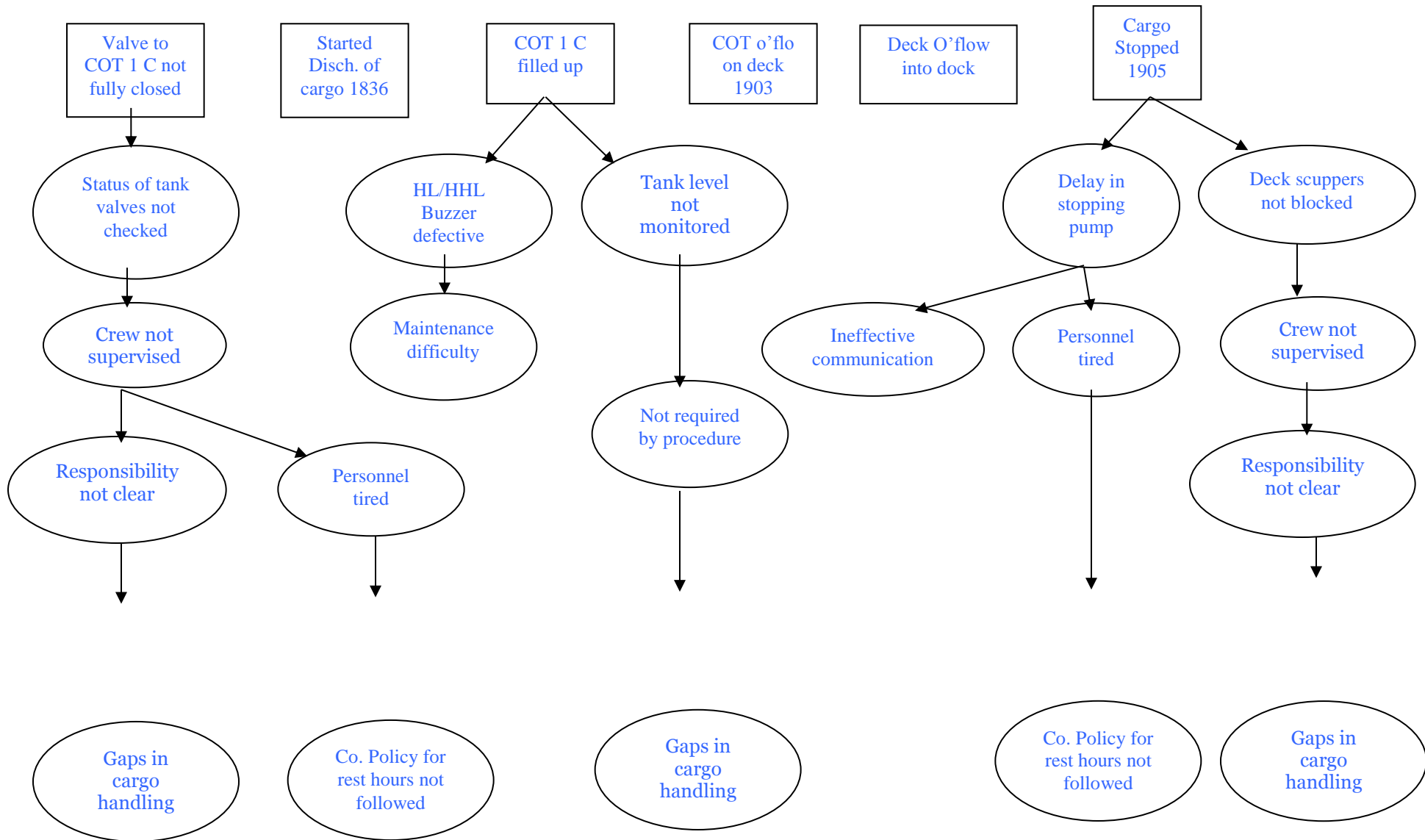
One more example of 5 Whys is given below for a chemical tanker when a spill takes place in Genoa harbour.

M.T. BROWN	IMO No. 18123676	Built 9 / 1988
Report No. BR 04 / 03	Category : Accident	GRT 3672
Type of ship : Chemical Tanker	Flag :	Classification :
Accident / Incident Description : Cargo spill overboard at Genoa		
Date of accident / incident : 12 Dec 03	Date investigation started: 12 Dec 03	
Date final report issued	:17 Dec 03	
Accident / Incident classification : Loss of cargo / Pollution		
Facility / Individual affected : Ship / Terminal / sea water (dock)		
Notification The incident was notified to DPA / P&I / Port Authority / Owner / Charterer.		
Incident summary On 12.12.03 during the discharging operation of “Ortoxylene”, an overflow occurred on deck and about 60 litres went into the harbour sea water.		
Initial conditions Friday 12.12.03 - Vessel Stbd side alongside at Genoa Muledo harbour - Weather conditions reported good. All relevant machineries, instruments and plants tested and found in good working order. At 18:36 the vessel started the discharge operation of “Ortoxylene” from COT 3 wings.		
Initiating event At 19:03 Overflow occurred from COT 1 centre		
Incident description At 19:05 cargo operation stopped due to an overflow from COT 1 centre on deck, by then some cargo had spilled over onto the jetty and into the dock. Person in charge on deck : the Chief Officer, Pumpman, Able-Bodied Seaman Person in charge in engine room : First Engineer.		
CAUSAL FACTOR 01		
Why was the Valve of cargo oil tank 1 centre not fully closed?		
Root cause a)Cargo handling procedure incomplete - checking of valves not included – responsibility for different tasks not clearly defined b)Company policy for rest hours not followed		
Corrective action A comprehensive procedure for loading / discharging cargo to be established including double checks of all cargo machinery and plant. This must include a check of all working / non-working cargo tank valves & other related valves. Responsibility for supervision to be allocated. Personnel to be suitably acquainted with this procedure. Personnel to be adequately rested & informed of the consequences of improper action or lack of action.		
Responsible department : Deck		
Responsible persons : Master, All shipboard personnel in charge of handling cargo		

CAUSAL FACTOR 02
Why did Cargo Oil Tank No. 1 fill up
<p>Root cause</p> <p>a) Failure of alarm buzzer in the bridge due lack of maintenance b) Lack of established procedure for physical check of tank levels during cargo transfer</p>
<p>Corrective action</p> <p>Proper procedure to be established including test of all tank HL/HHL alarms for satisfactory operation & same to be recorded prior to commencing cargo load / discharge operations. After commencing a loading / discharging operation the levels of cargo in all COTs (whether cargo being operated or otherwise) must be continuously checked in order to ascertain that the operation is proceeding according to plan..</p> <p>This in order to avoid recurrence of this event especially when a mechanical failure (in this case the buzzer) can occur.</p> <p>The Deck Officer on duty during cargo operation must maintain careful watch at all time on the bridge area where the system is in place and to remain strictly in contact with the AB on watch by portable intrinsically safe VHF.</p> <p>All communication and operation must be recorded accordingly. Personnel to be suitably acquainted with this procedure and informed of the consequences of improper action or lack of action.</p>
Responsible department : Deck
Responsible person: Master, All shipboard personnel in charge of handling cargo

CAUSAL FACTOR 03
Why did cargo overflow from deck onto jetty & in dock?
<p>Root cause</p> <p>All ship side scuppers not blocked . Cargo handling procedure does not clearly state responsibility for this. Delay in stopping pump due to faulty communication / tired crew</p>
<p>Corrective action</p> <p>Proper procedure to be established including effective blocking of ALL ship side scuppers & check. Same to be recorded prior to commencing cargo load / discharge operations.</p> <p>Personnel to be suitably acquainted with this procedure and informed of the consequences of improper action or lack of action. Importance of quick/effective communication to be impressed on all personnel – to be trained in use of intrinsically safe VHF.</p> <p>Procedure for rest hours to be closely followed.</p>
Responsible department : Deck
Responsible person: Master, All shipboard personnel in charge of handling cargo

LESSON TO BE LEARNT
<p>Considering that this type of accident can occur on board other vessels, the Company will issue a letter “Lesson to be Learnt” giving details of the accident , the root causes, and highlighting the corrective actions in order to avoid further similar accident.</p>



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