

PRACTICING 5 WHY FOR 8 DS

We are going to solve these case studies during the webinar



5 Why Case Study #1

- Jefferson Memorial



The Jefferson Memorial is built in neoclassical style and is situated in West Potomac Park on the shore of the Potomac River. It was designed by John Russell. A few years ago, National Parks managers noticed the Jefferson Memorial was crumbling at an alarming rate. When they asked why, they found out it was being washed far more often than other memorials. For most organizations, the analysis would stop here. The solution is clear, right? Adjust the cleaning schedule to match those of the other memorials.

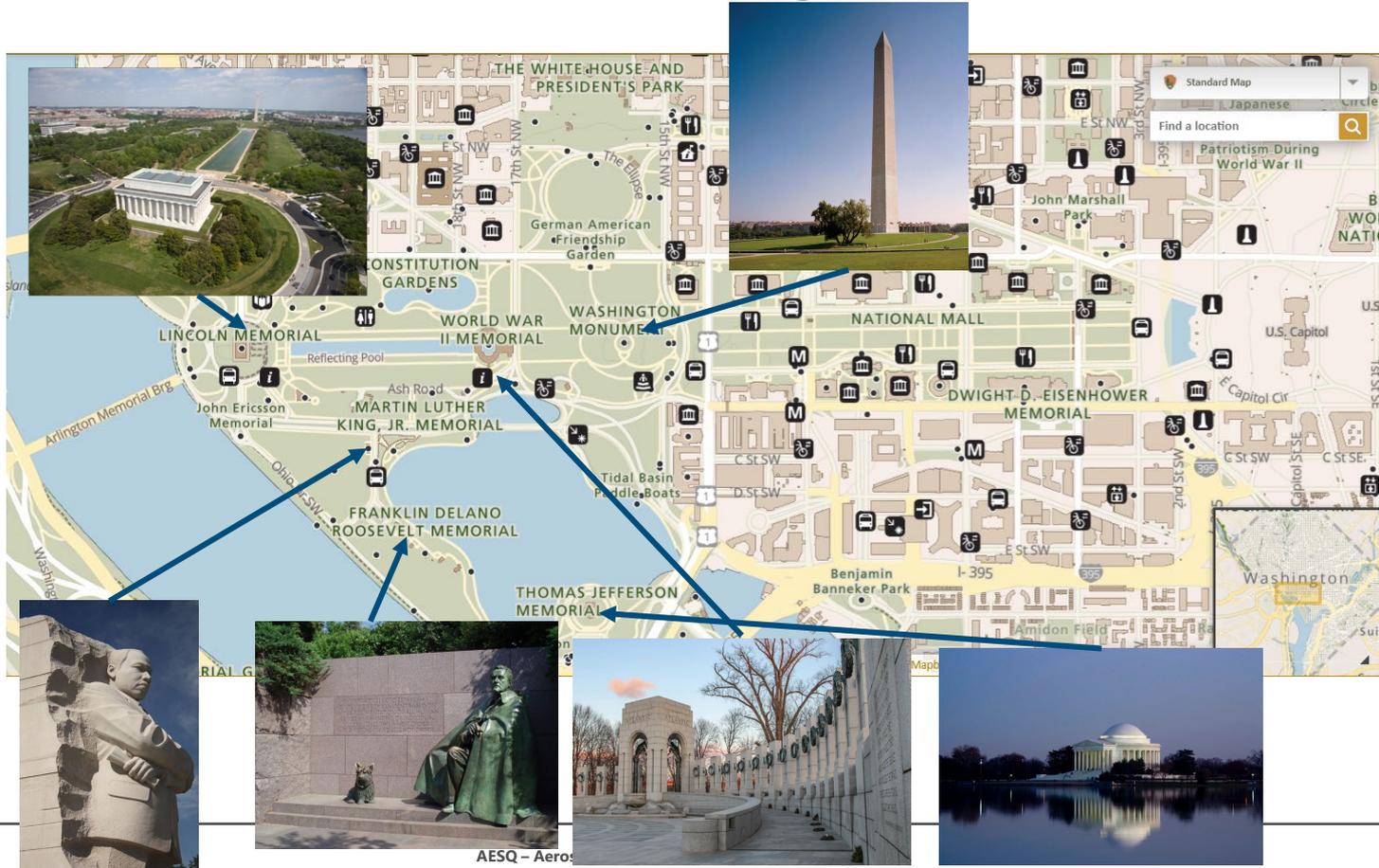
Unfortunately, that solution would have only led to a very dirty Jefferson Memorial. Because when Parks managers asked about the reason for the frequent washings, they found it had an exceptionally large amount of bird droppings deposited on it every day (no, this isn't a metaphor -- it really happened). What's the solution now? Erect scarecrows? Declare open season on pigeons?

Luckily, National Parks managers kept inquiring. And when they asked why the birds droppings occurred at rates higher on the Jefferson than they did so to Lincoln Memorial or others, they discovered the Virginian's memorial harbored an incredibly large population of spiders upon which the birds were feeding. And the population of spiders had exploded because of a large number of midges (tiny aquatic insects) in and around the Memorial.

By now, you have the routine down. When Parks managers asked why so many midges congregated on the Jefferson memorial, they learned what any fly-fisherman finds out his first day on the river: Midges are stimulated to emerge and mate by a unique quality of light (for the rivers of my home state of Utah, it usually falls between 11 a.m. and 1 p.m. on a cloudy day).

It just so happens park managers were inadvertently creating this unique quality of brightness by turning the lights on the memorial just before dusk. This one variable caused the whole chain of events -- lots of midges, lots of spiders, lots of bird droppings, lots of effort on the part of the cleaning crews, and finally, the crumbling of the statue.

National Park and Memorials - Washington, DC USA



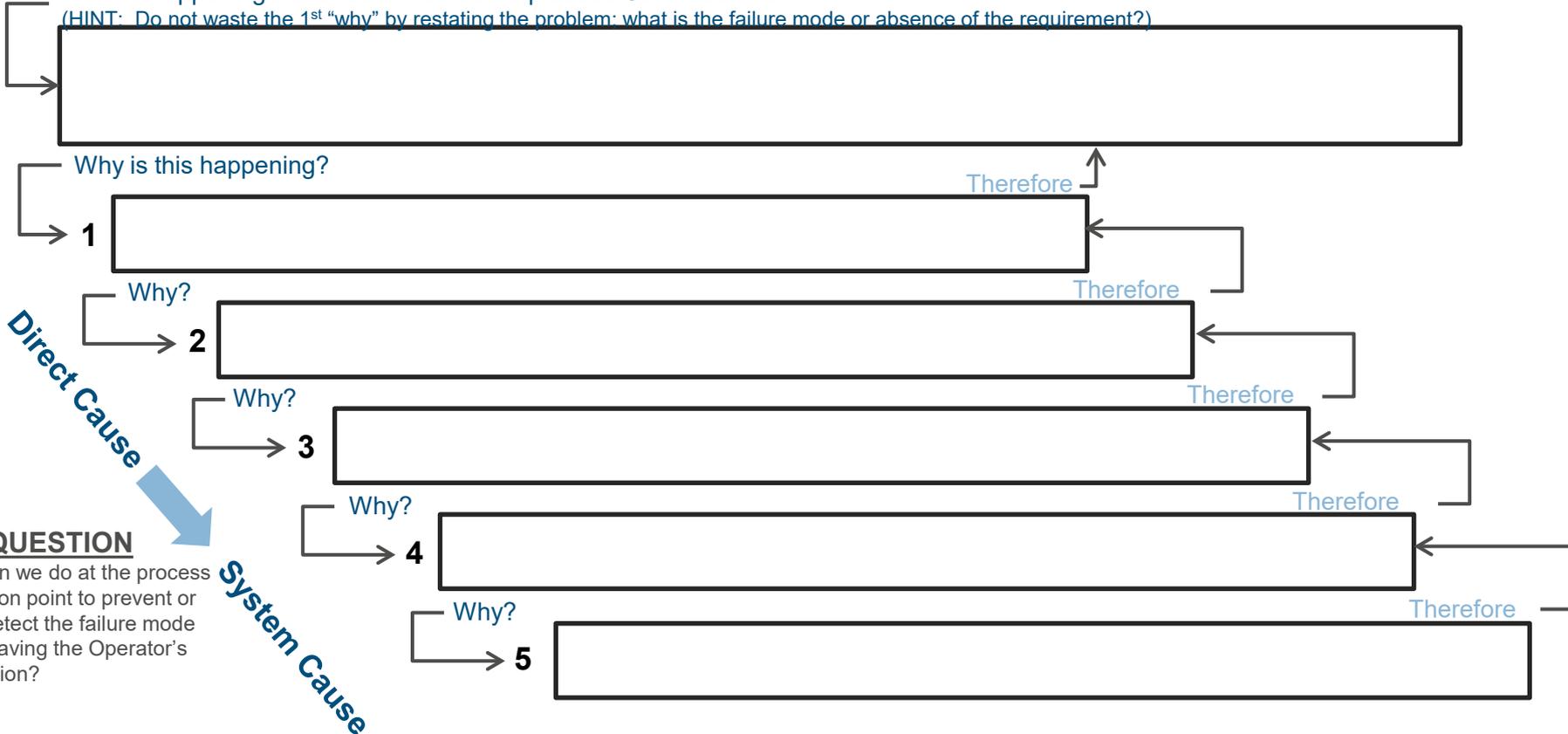
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5 Why Diagram (Generation Point) – Jefferson Memorial

What is happening that shouldn't be at the process Generation Point?

(HINT: Do not waste the 1st "why" by restating the problem: what is the failure mode or absence of the requirement?)



KEY QUESTION

What can we do at the process generation point to prevent or better detect the failure mode prior to leaving the Operator's workstation?

Caution: Your last answer should be a cause you can correct and control

5 Why Case Study # 2 : Oil on the floor (Scenario #1)

The Plant Manager walked into the plant and found oil on the floor. He called the Foreman over and told him to have maintenance clean up the oil.

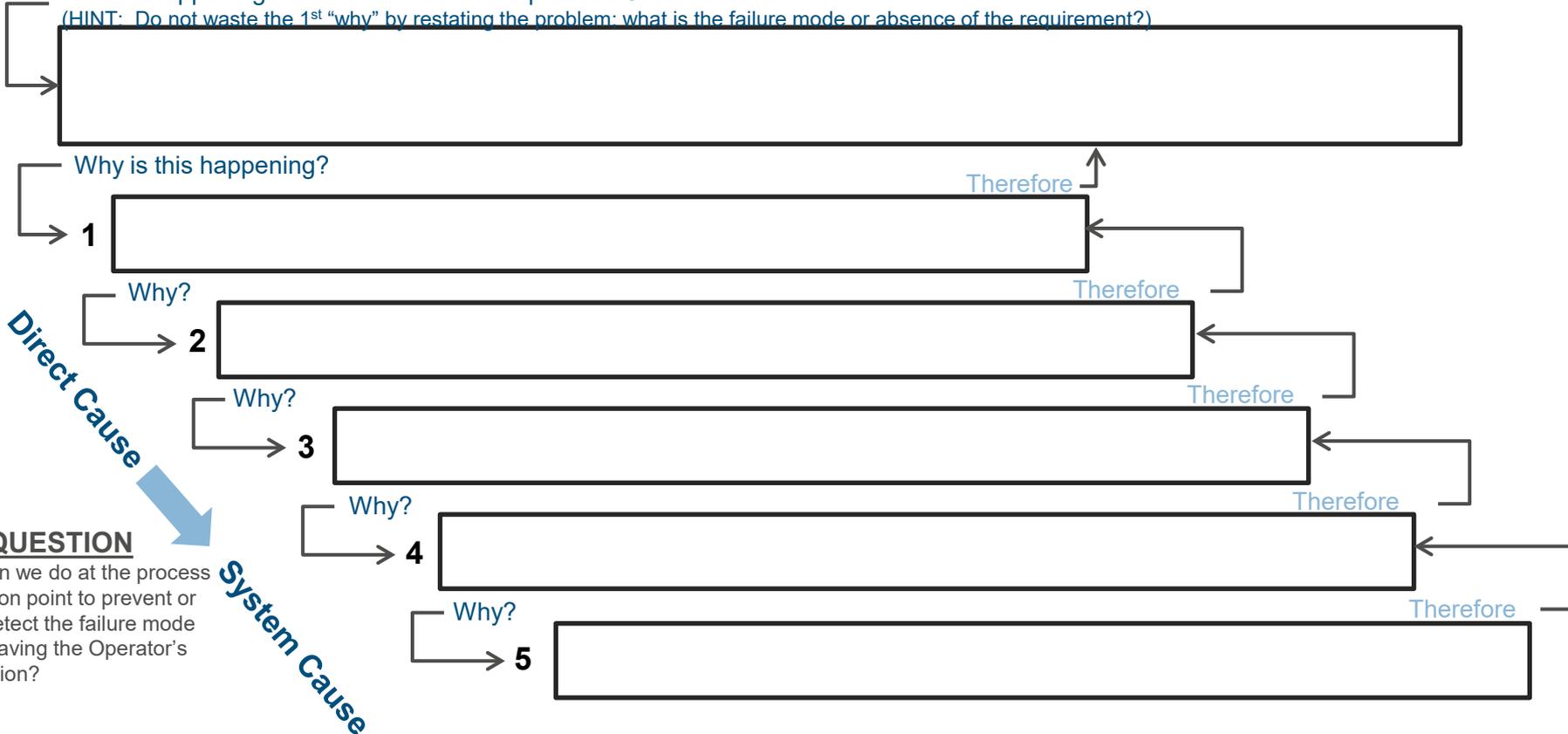
The next day while the Plant Manager was in the same area of the plant he found oil on the floor again and he subsequently raked the Foreman over the coals for not following his directions from the day before. His parting words were to either get the oil cleaned up or he'd find someone who would.



5 Why Diagram (Generation Point) – Oil Spill

What is happening that shouldn't be at the process Generation Point?

(HINT: Do not waste the 1st "why" by restating the problem: what is the failure mode or absence of the requirement?)



KEY QUESTION

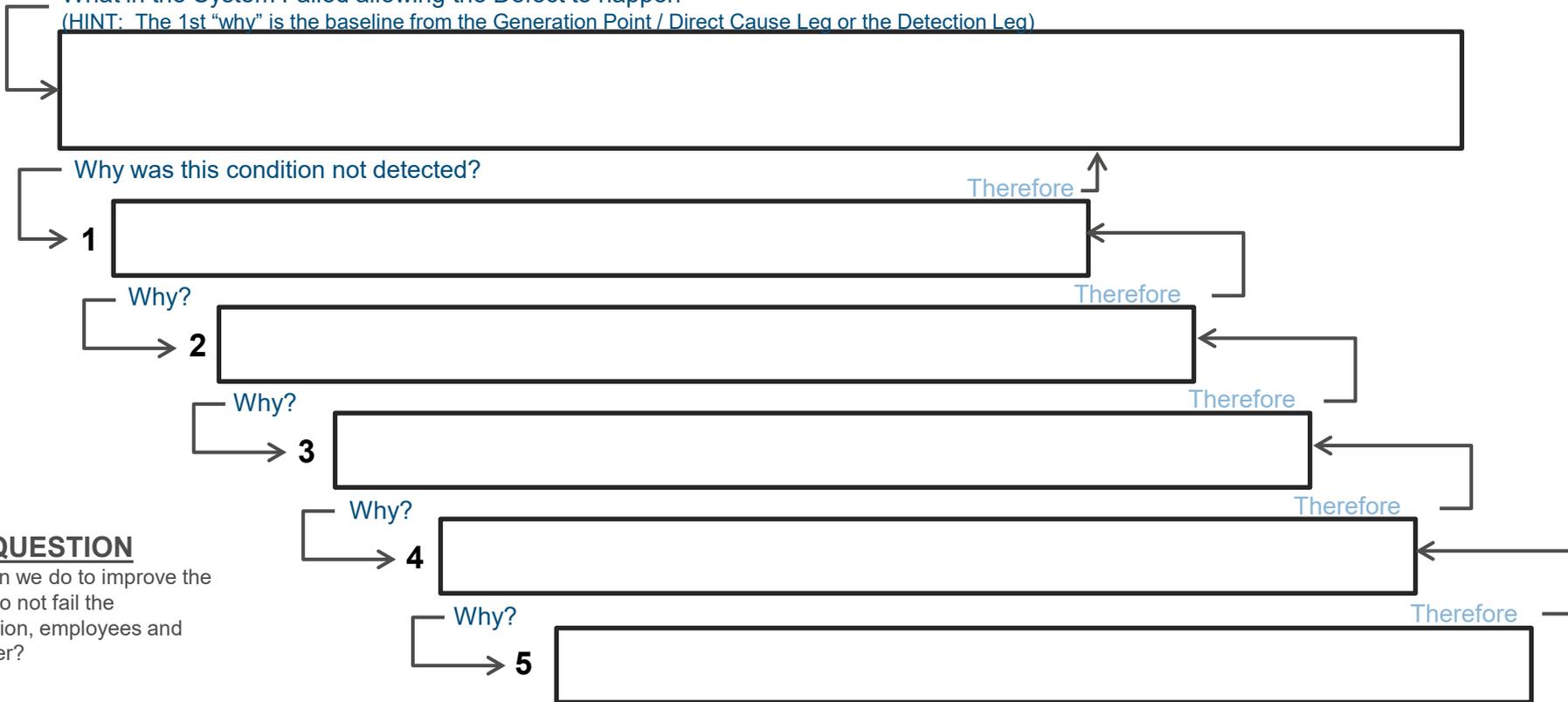
What can we do at the process generation point to prevent or better detect the failure mode prior to leaving the Operator's workstation?

Caution: Your last answer should be a cause you can correct and control

5 Why Diagram (Systemic) – Oil Spill

What in the System Failed allowing the Defect to happen

(HINT: The 1st “why” is the baseline from the Generation Point / Direct Cause Leg or the Detection Leg)



KEY QUESTION

What can we do to improve the system to not fail the workstation, employees and Customer?

Caution: Your last answer should be a cause you can correct and control

5 Why Case Study # 2 : Oil on the floor (Scenario #1)

Refer Back to Scenario #1

How would you suggest the Plant Manager address the oil on to the floor?

-
-
-
-

Do you see an opportunity to use any of the tools we discussed?

-
-
-
-

5 Why Case Study # 3 - Oil on the floor (Scenario #2)

The Plant Manager walked into the plant and found oil on the floor. He called the Foreman over and asked him why there was oil on the floor.

The Foreman indicated that it was due to a leaky gasket in the pipe joint above. The Plant Manager then asked when the gasket had been replaced and the Foreman responded that Maintenance had installed 4 gaskets over the past few weeks and that each one seemed to leak. The Foreman also indicated that Maintenance had been talking to Purchasing about the gaskets because it seemed they were all bad.

The Plant Manager then went to talk with Purchasing about the situation with the gaskets. The Purchasing Manager indicated that they had in fact received a bad batch of gaskets from the supplier. The Purchasing Manager also indicated that they had been trying for the past 2 months to try to get the supplier to make good on the last order of 5,000 gaskets that all seemed to be bad. The Plant Manager then asked the Purchasing Manager why they had purchased from this supplier if they were so disreputable, and the Purchasing Manager said because they were the lowest bidder when quotes were received from various suppliers. The Plant Manager then asked the Purchasing Manager why they went with the lowest bidder, and he indicated that was the direction he had received from the VP of Finance.

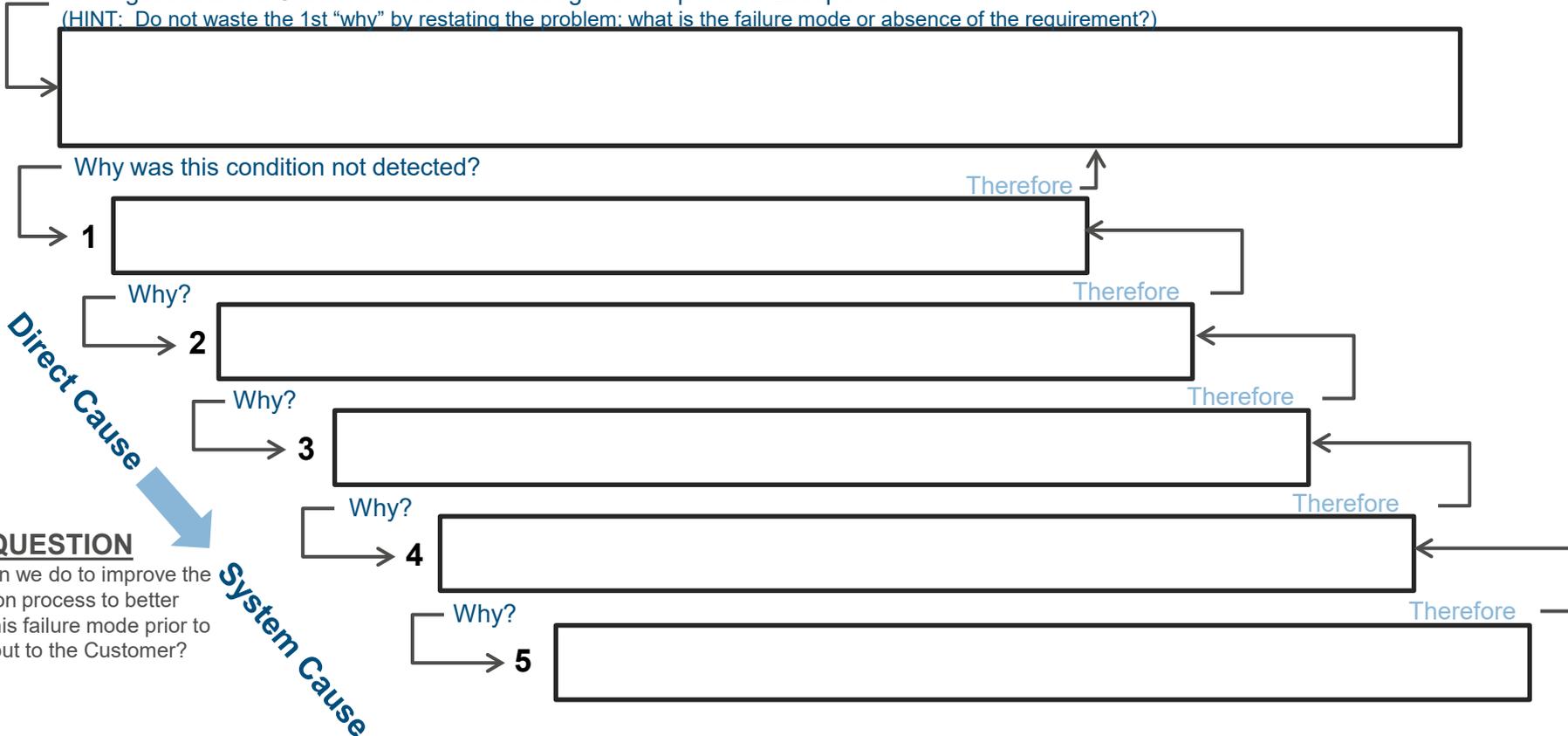
The Plant Manager then went to talk to the VP of Finance about the situation. When the Plant Manager asked the VP of Finance why Purchasing had been directed to always take the lowest bidder the VP of Finance said, "Because you indicated that we had to be as cost conscious as possible!" and purchasing from the lowest bidder saves us lots of money.

The Plant Manger was horrified when he realized that he was the reason there was oil on the plant floor. Bingo!

5 Why Diagram (Detection) – Oil Spill #2

What got out to the Customer that was not caught at the process Escape Point?

(HINT: Do not waste the 1st “why” by restating the problem; what is the failure mode or absence of the requirement?)



KEY QUESTION

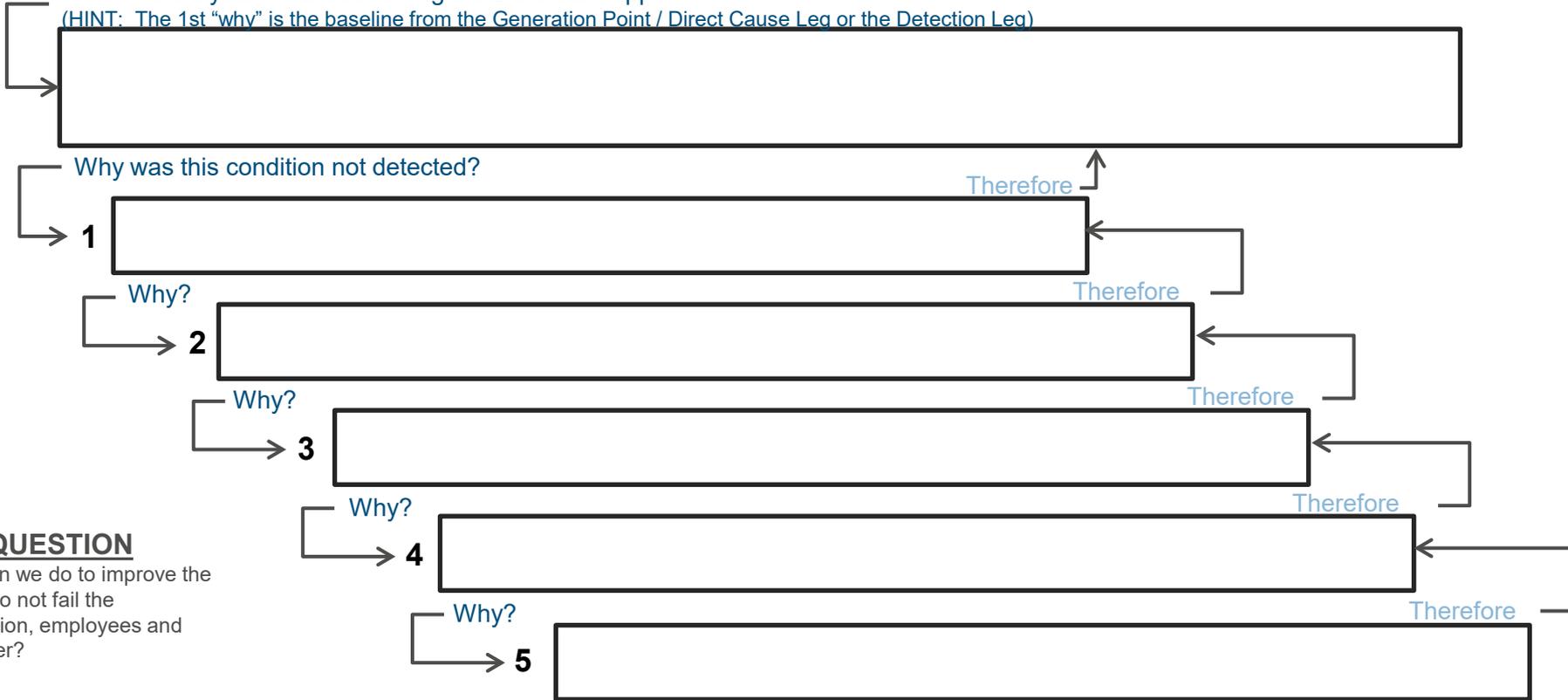
What can we do to improve the inspection process to better detect this failure mode prior to getting out to the Customer?

Caution: Your last answer should be a cause you can correct and control

5 Why Diagram (Systemic) – Oil Spill #2

What in the System Failed allowing the Defect to happen

(HINT: The 1st “why” is the baseline from the Generation Point / Direct Cause Leg or the Detection Leg)



KEY QUESTION

What can we do to improve the system to not fail the workstation, employees and Customer?

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5 Why Case Study # 4 - Bob and the Flat Tire

One morning as Bob opened the garage to get into his car to leave for work, he noticed the driver's side front tire was flat. So, he jacked up the car and pulled the flat tire off and installed the spare tire and went to work, arriving an hour late. Coming home that evening he again parked his car in the garage.

The next morning as Bob again prepared to go to work, he was greeted by another flat tire, again on the driver's side front tire. Luckily, he was able to get a ride in by a friend who also helped Bob pick up the original flat tire at the car repair shop where he dropped it off the day before. When Bob picked up the tire the mechanic showed him the nail, he ran over that caused the flat.

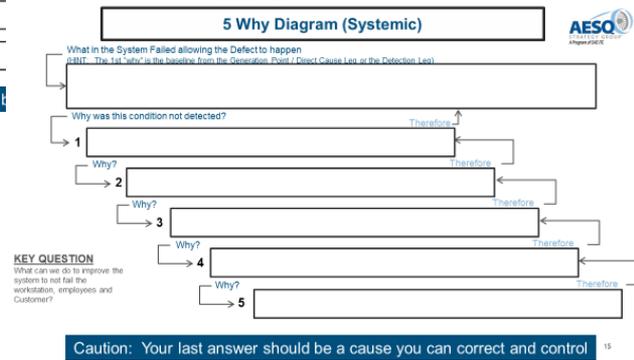
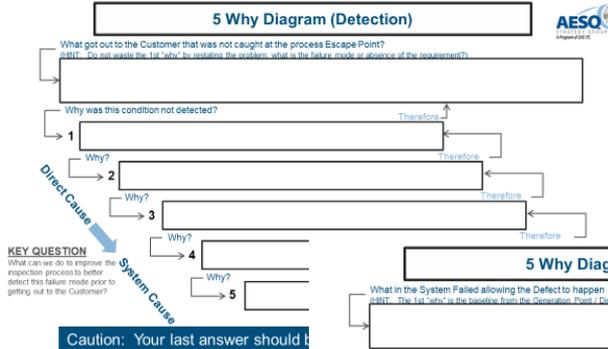
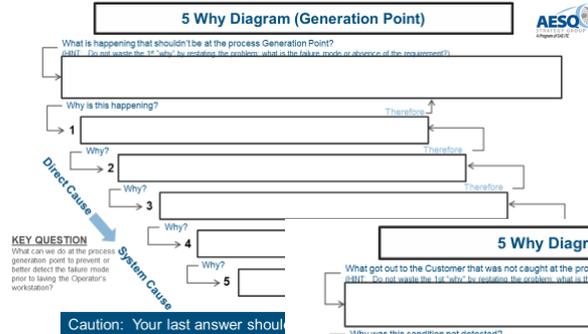
After Bob's friend dropped him off at home, he started the process all over again to swap the spare flat tire out for the original tire that has now been repaired. As Bob jacked up the car to pull the tire off, he noticed a nail was the cause of the flat again. So, Bob looked on the garage floor and noticed a sprinkling of nails exactly like the one the car mechanic showed him.

Bob starts to wonder how all these nails got on the floor to begin with. Then he notices that a box containing the nails sits on a shelf above the workbench that is positioned in the back of the garage on the side he parks his car (it's a two-car garage).

Bob continues his investigation and notices that the box containing the nails that fell onto the garage floor had a tear and a water stain. No source of water was anywhere near the box, so he is puzzled how the box got wet. As he looked around and up toward the roof of the garage, he also sees a water stain. Bob pulls out the ladder and climbs up on top of the roof of the garage and notices some of the shingles are missing. Bob suddenly remembers that the neighbor's tree was struck by lightning during a summer storm and a major branch came down and struck the top of the garage in the spot with the missing shingles. Bob starts to realize that when it rains the rainwater must be leaking through the roof and dripping onto the box containing the nails causing a tear in the box allowing the nails to drop onto the floor.

5 Why Case Study #1 – Bob and the Flat Tire

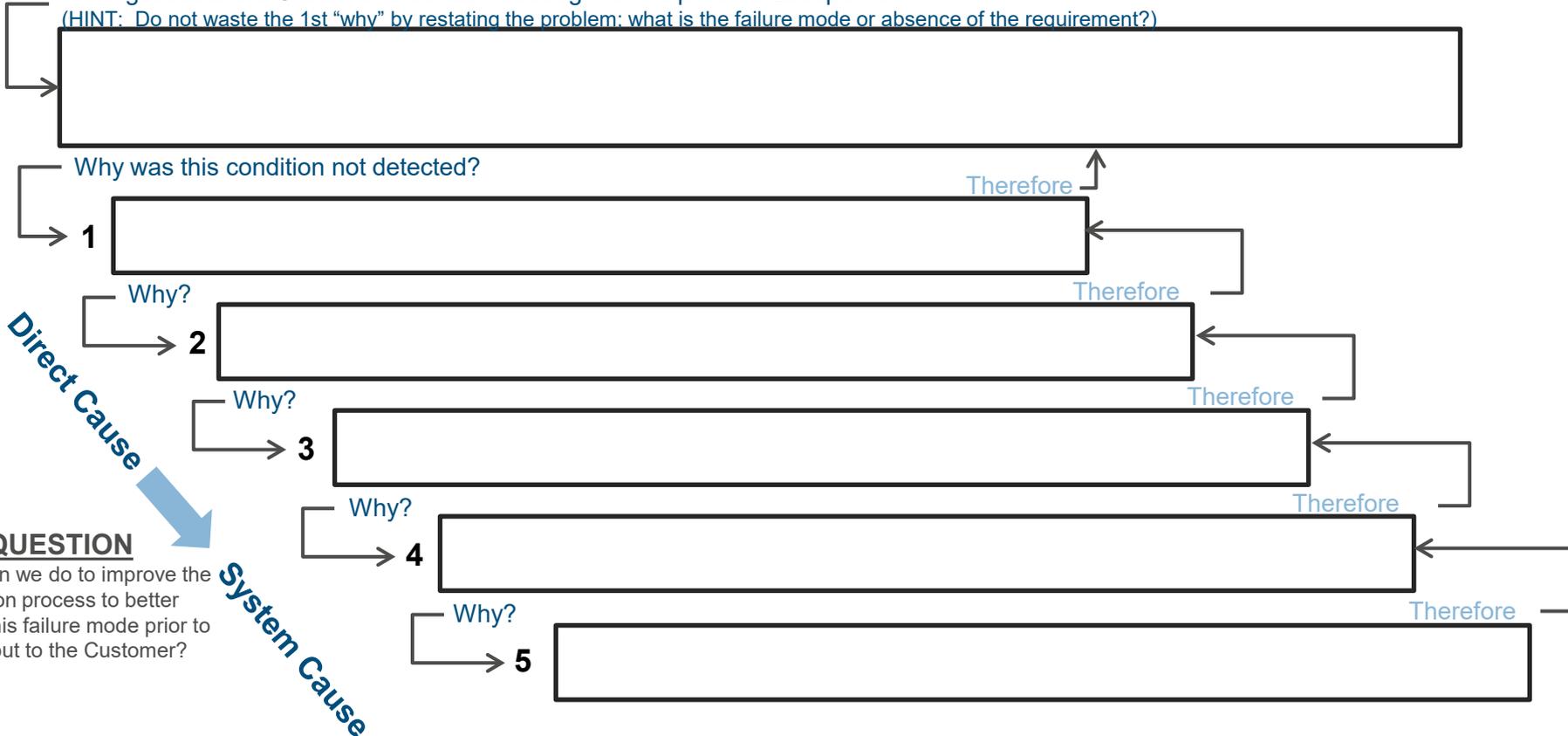
1. Complete a 5-Why Diagram for Bob's flat tire problem. Use the template shown to the right.
2. What is the Direct & Detection Causes of the flat tire?
3. What is the Systemic Cause for each?
4. What was the classic mistake made by Bob initially?
5. What would be the systemic fix to prevent this from happening again?



5 Why Diagram (Detection) – Bob Flat Tire

What got out to the Customer that was not caught at the process Escape Point?

(HINT: Do not waste the 1st “why” by restating the problem; what is the failure mode or absence of the requirement?)



KEY QUESTION

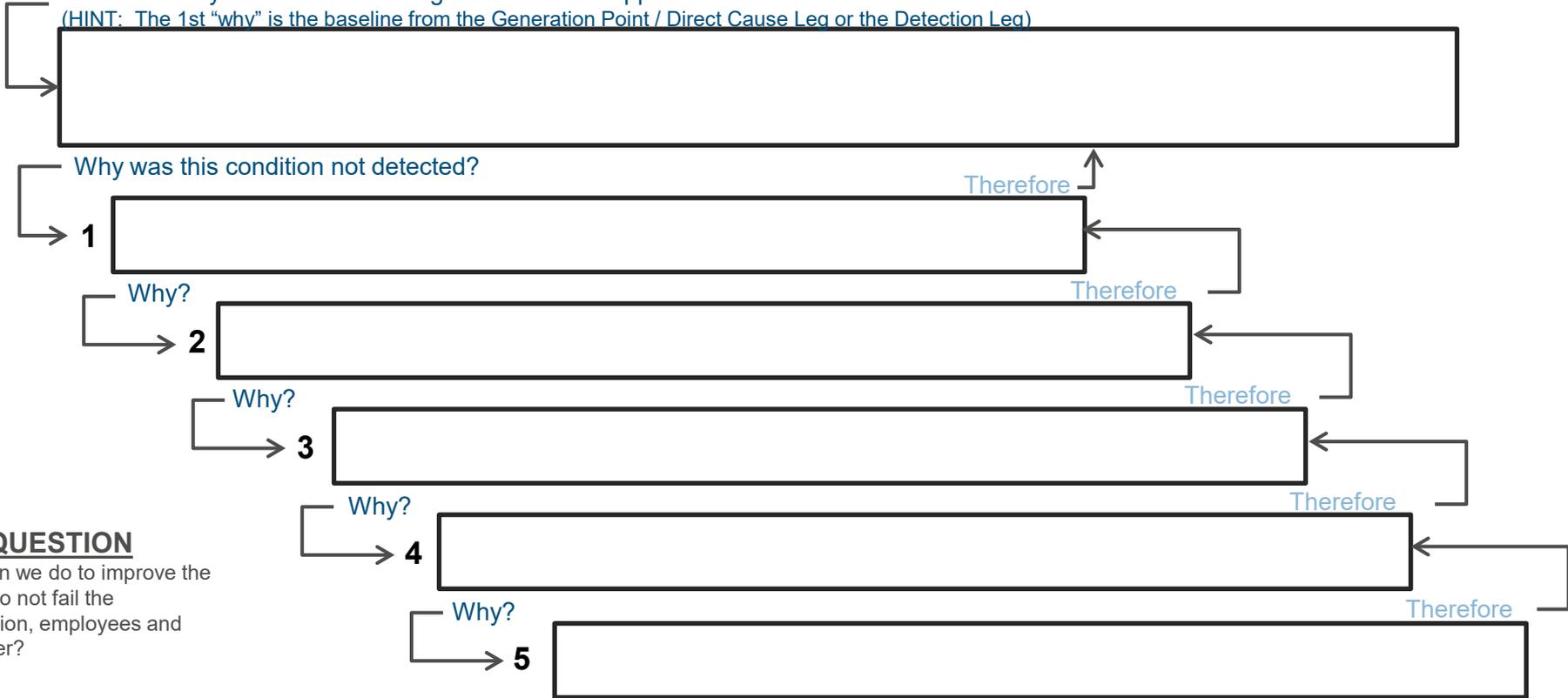
What can we do to improve the inspection process to better detect this failure mode prior to getting out to the Customer?

Caution: Your last answer should be a cause you can correct and control

5 Why Diagram (Systemic) – Bob Flat Tire

What in the System Failed allowing the Defect to happen

(HINT: The 1st “why” is the baseline from the Generation Point / Direct Cause Leg or the Detection Leg)



KEY QUESTION

What can we do to improve the system to not fail the workstation, employees and Customer?

Caution: Your last answer should be a cause you can correct and control