Warning Signs – How They May Be Ignored Module

Confirmation Bias

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Safety Talks

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Script

Located 77 kilometres off the coast of Louisiana the huge floating drilling rig called the Deepwater Horizon had just completed drilling an ultra-deep well.

The bottom of the well was five and a half kilometres below sea level.

On the 20th of April 2010, the Macondo blowout in the Gulf of Mexico became the biggest oil spill in US history. Five million barrels of oil is the rough estimate, about twenty times the size of the Exxon Valdez oil spill in Alaska in 1989. Apart from being an environmental catastrophe, the Macondo was also a human disaster with 11 people killed.

The real causes of the accident are the human and organisational factors which we find at work in many other big accidents.

The best way to look at these causes is to start with the Swiss cheese model that we've all seen before. BP itself used this kind of analysis to explain the accident. It's a very useful way of looking at accidents. In this program we will identify a few of the barriers that failed, but more importantly we will look at the human and organisational causes of these barrier failures.

The first failure was the cement job. The bottom of the well was supposed to be cemented in, to prevent oil and gas getting into the well, but the cement job was not effective. The crew carried out a procedure designed to test the integrity of the cement. The results of the test showed very clearly that the well was not properly sealed, that the cement job had failed, but the results were misinterpreted and the test was declared a success. Finally, the drillers were supposed to be monitoring the well to the very end of the process, but they failed to do so.

Let's look at another barrier that failed. This was the failure of pressure testing. They had finished the job and they needed to test whether the cement was in place and holding. The way you do this is by temporarily reducing the pressure in the well to see what happens. If the cement has sealed the well properly, nothing will happen. But if the cement job has not worked and you reduce the pressure at the top, the oil and gas will come in at the bottom of the well and the pressure reading you see at the top will start to rise.

What happened when they carried out the test was that the pressure began to rise which was a clear indication, unmistakable, unambiguous, that the well was not sealed.

But the people conducting the test could not accept that this was the case.

A further factor - and this is really the most important factor - was the belief that the well was already safe. The engineers had already previously declared that the well was safe so what was this test about? It was not a genuine test in the minds of the people conducting it. They weren't seriously answering the question: is the well sealed or is it not? That was not the task. The task was to confirm that it is sealed. That is what they were doing. They were seeking to confirm what they already knew. If you approach the job in that way, and get some results that tell you the well is not sealed, of course you think you've made a mistake and you to keep trying until you succeed in confirming what you know, namely, that the well is sealed. In other words, a very powerful confirmation bias was at work. Confirmation bias is well recognised by social psychologists. We look for evidence that supports our view and we discard evidence that is inconsistent with our view. We are all guilty of selective use of evidence in this way. It's not an intentional process. It's unconscious. That is why the scientific method trains to look for evidence that disconfirms our hypothesis. This is precisely to overcome the confirmation bias we all suffer from.

Suggested Discussion Questions and Answers

1. What are 4 common activities that exhibit confirmation bias?
    - Second guessing – when we second guess someone we tend to focus only on the things that actually fit their personality. We ignore any comments that do not apply. In this way we are able to maintain our belief in the person
    - Risk taking – 'Gamblers' often justify their habit by over estimating the probability of winning. They recall the times they won and how much, but seem to forget the times they lost and the amount lost
    - Stereotyping - beliefs that we have about groups of people
    - Decision making – singularly or in groups, also impacted by group think
2. The Twelve questions below can be asked before making a major decision in order to accurately assess a risk or opportunity and make the right decision regarding how to manage it.
   Note this line of questioning isn't recommended for the ordinary decisions of the business because of the time investment required to ask these questions and get the answers for them.
   Review the questions and identify three that could be used in an operations environment.
   a. Is there any reason to suspect motivated errors, or errors driven by the

self-interest of the recommender? This question should not be asked to the recommending team, but should be thought through anyway. Would the results of the decision overly benefit the people making the recommendation? Decision makers should be especially aware of this when only one "realistic" decision is given.

b. Have the people making the recommendation fallen in love with it? When one likes something, one exaggerates its benefits. When one hates something, one exaggerates its costs. One should be aware of strong emotional ties to a decision. This may be especially relevant when analysing strategic options. The recommender may be biased towards under-describing the associated risks.
c. Were there any dissenting opinions within the recommending team? Knowing this will allow decision makers to know if there was a case of group think going on. When taking on complex problems, there are many paths a company can take. There is no way that when one has a number of people in the room that they all come to the same conclusion of a complex problem, especially if they come from different "silos" of risk thinking. Analysing any strong dissenting views, especially about the likelihood and impact of a potential risk, should be considered.
d. Could the diagnosis of the situation be overly influenced by salient analogies? Are past successes of "similar" problems clouding the judgment of the recommending team? Is this problem really similar to ones handled in the past? This is especially important as organisations think through the viability of prior risk responses used to manage risks. Caution is warranted to ensure one is not overconfident in historical risk treatment options.
e. Have credible alternatives been considered? When making a strong decision, all possible alternatives should be evaluated if time allows for that. A good way to make sure this happens is to have members submit their second and third choices for a way to handle the situation.
f. If you had to make this decision again in a year, what information would you want and can you predict what will happen with this decision? Looking at the long-term results of a decision, instead of simply the short-term, gives a fuller picture of the magnitude of the decision and its far-reaching implications.
g. Do you know where the numbers came from? Going back to intuitive thinking and confirmation bias, usually the first numbers a team sees will be the ones they believe. Did the team as a whole go back and verify the validity of those numbers? Do they know the source of the numbers they are basing the decision on?
h. Can you see a halo effect? It is hard to shake appearances. If a team sees the first option of attack is strong, they will probably stick with that.
i. Are the people making the recommendation overly attached to past decisions? Are people basing this decision too heavily on what has happened in the past? Often if a risky decision has burned someone before, that person is not willing to take a step out in faith and risk getting burned again. The same can be true for those with a better

history in decision making.

j. Is the base case overly optimistic? Forecasts are very prone to being excessively optimistic. Often times decision making team's focus only on inside the walls of the company ignoring things like similar decisions made by other companies and the results of those decisions, along with considering the overall economy.

k. Is the worst case bad enough? Often times, the worst case scenarios drawn up by strategy teams are not bad enough. A way to avoid this is to do a "pre-mortem" analysis where a team imagines up the worst case scenario they have drawn up and think of something that could make the situation even worse.

l. Is the recommending team overly cautious? This is just the opposite of number eleven. Is the team imagining the worst will definitely happen but not giving any considerations to success? The team may be trying to avoid losing anything and having a bad image with management. Remind them of the economic theory of "opportunity cost" if this becomes a problem.

The decision maker should answer the first three questions, a to c.

The team making recommendations should answer questions d to i.

The final questions, j to l, should be asked when analysing the final proposal of a major decision.

Reference:

Enterprise Risk Management Initiative Staff, 2011, *Avoiding Confirmation Bias in Decision Making, NC* State University, Poole College of Management, Raleigh, United States, viewed 5 February 2014, <http://erm.ncsu.edu/library/article/avoiding-confirmation-bias-in-decision-making#.UvGf2P0waFI>