BP Deepwater Horizon – Analysis and Redesign

Alon Shabshin

Department of Business, Borough of Manhattan Community College

BUS 200 052W [22849]

CUNY ID – 24484969

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Abstract

In April 2010, British Petroleum (BP) performed deepwater drilling and the Deepwater Horizon rig exploded, taking the lives of 11 people and injuring 17 others. The disaster occurred as a result of many managerial mistakes, failed processes, and a lack of emphasis on safety. This paper dissects and analyzes the key issues that inevitably led to the incident. The analysis is divided into three significant sections. The first is a breakdown of the sequence of events at the time of the explosion. This is followed by an analysis of how each of Bolman and Deal's Four Frames is reflected in the case. The paper closes with recommendations suggested to help minimize the risk of such incidents reoccurring in the future. The recommendations are divided into three categories: technology, people, and structure, offering a holistic approach intended to help minimize risk.

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Diagnosis - Case Study Description

In the case of BP Deepwater, the story consists of an unfortunate safety hazard that resulted in many casualties and injuries, and hundreds of thousands of gallons of spilled oils. The biggest oil spill on U.S. waters in history. In April 2010, employees from a few different companies, amongst them were Transocean, British Petroleum, Anadarko, Halliburton, and M-1 Swaco, participated in an oil drilling in the Gulf of Mexico. The gas overflow alarm was disabled that night as they didn't want false alarms to wake the employees up. What ended up happening, was that a true alarm was meant to go off during an actual emergency, but it was turned off. The oil rig combusted, and the crew had to jump off it. The disaster took the lives of 11 employees, leaving 17 injured. This disaster happened after a chain of issues leading to a big blow out that cost the company a lot of money in addition to the loss of life.

Here are some of the key issues that led to the BP Deepwater disaster. When investigating BP for years, it is clear to see that the overall culture was not one of safety. BP had 18 'group values', only one of them pertained to safety. In addition to that, every site worked separately which resulted in a few issues. The different sites did not properly communicate with each other, alienating each other from the safety protocols learned from experience. Moreover, the divide made it harder for the company to implement a safe environment to all employees, which proved right in the case of Texas City. BP had a policy for health and safety, "no accidents, no harm to people and no damage to the environment". This policy didn't effectively spread through the company as it was not widely known. This sounds like a broad value that is not actually meant to implement safety policies but just show that there is at least some attention to safety (Ingersoll, Locke, & Reavis, 2011).

Leading up to the 2010 disaster, there was another major incident in 2006 where 200,000 gallons of oil poured into Alaska's Prudhoe Bay. This happened after BP have been warned for years by Alaskan state regulators for not complying with local laws.

After discussing past scandals and issues that showcase a bad work environment that is led by a management that clearly does not put safety before profits, efficiency, and other values, we will discuss the Deepwater horizon rig specifically. In September 2009, a safety audit showed that there are 390 repairs that need to be made to the rig. Fixing those issues would have taken a lot of time, effort, and money. Management chose to not focus on fixing the issues and focus on profits. It was discovered that the rig was not docked for 9 years prior. After the audit, the rig has not stopped working, not until the disaster that occurred (Ingersoll, Locke, & Reavis, 2011).

Another issue arises from the change of management. During the disaster that occurred in 2010, a big number of the managerial team was very new. The longest serving manager was no more than 6 months in their position, and most only started their positions several days prior.

Prioritizing profits over safety was a known practice for BP and had a clear tie to the disaster. When looking at decision making, managers chose profits over safety. Efficiency over security. Time equals money, especially when referring to deep water or ultra deep-water drilling. This is why when given a choice between two options for well casting, a safety precaution to help the flow of gas not to enter the well. The two options were to use a Liner or a Casing String. The Liner was the safer option with four barriers of flow of gas, while the Casing String only had two barriers of flow of gas. If the priority was safety, there would not have even been a discussion. The discussion started once they realized the meaning behind each option. Installing the Casing String would have saved them 3 days of work. The company estimated that those 3

days of work would cost $7 - $10 million more (Ingersoll, Locke, & Reavis, 2011). This led them to choose using the liner instead.

Considering centralizers, an external contractor noticed that if BP will only use six centralizers as they planned, that will cause a real danger of gas flow. The interesting part is that the difference between the number of centralizers BP wanted to use and the actual number that was needed is fifteen centralizers! This again showcases how cutting corners was very obvious at BP. BP decided to order more centralizers but ordered a type that was also considered riskier because of the way that it was installed. BP did not end up using those centralizers.

When drilling, it is common to circulate mud to the well to see if it absorbs the gas leaking in. BP estimated that it would take anywhere between six to twelve hours. However, they concluded the practice in just half an hour and even skipped on a test called “cement bond log” that checks the stability of the cement blocking.

The issues come from a deep lack of safety awareness with management. There were many red flags that were raised from internal and external employees. These red flags were ignored time and again for the sake of profits. Cutting corners in order to save time and money became the biggest value of the company that ended up causing a huge loss of life, and profits. There is a lot to be learned from the management of BP leading to this disaster.

Processes – Process Problems

As we can see, there have been quite a few issues that led to the BP disaster. Considering Bolman’s Four Frames, let us dissect these issues.

Human Resources Frame

The Human Resources frame describes a managerial attitude where there is an emphasis on the employees, their well-being, and how not, safety. In this case, there clearly was an

emphasis on reducing costs and maximizing profits. For example, when choosing between two options of well casting, which one was clearly safer than the other, BP chose to go with the cheaper and less safe option. This is a clear indication of prioritizing profits over employee safety and well-being. Another example of a negligible decision that led to endangerment of the employees was the choice not to follow the advice of the external consultant regarding the number of centralizers to use. Another issue arises from communication issues. Concerns have been raised, yet management has not fixed the issues that needed fixing. BP management completely ignored the employees' request, which is the opposite of the Human Resources Frame. Mike Williams, Transocean's Chief Electronics Technician, who was responsible for maintaining the drilling chairs raised his concerns to no avail. Williams reported software issues and requested they be fixed with no action taken by the company (Ingersoll, Locke, & Reavis, 2011).

Structural Frame

The Structural Frame deals with how the organization is designed, its hierarchy, and how responsibilities are structured. In this case, there clearly is an issue with this frame. There is a complete lack of communication between the different hierarchical levels, different divisions, and different sites. The change in model to "asset federation" is a perfect example of a structural issue that led to the BP Deep Water Disaster. BP management decided to decentralize the decision-making process, which on paper doesn't sound that bad. The issue was that in order to create a more entrepreneurial environment, each site was managed by asset managers who were compensated based on their performance. This change diminished the share of best practices, safety issues, and evaporated the communication between the different levels and sites that was barely existent in the first place. With this model in place, asset managers were blinded by the

incentives to be as profitable as possible which led to them setting very high targets for their staff. This environment can lead to many issues, and time after time the choices that were made favored profits over safety.

Symbolic Frame

Symbolic Frame is a frame that focuses on the culture and overall environment. Routines and norms that were set in place were harmful and dangerous and left unchanged. Different internal audits that included interviews and other documentation, showed that BP employees did not believe that safety was a core value of the company. A survey asking people about the culture of BP showed that the culture was dangerous. The 4 core values which read "being performance driven, innovative, progressive, and green" do not promote safety under any clause. Another example is the case of the damaged drilling chairs mentioned before. Instead of a culture that fixes problems, there is a culture of cutting corners. The chairs were not operating smoothly due to their software issues yet when raised to management nothing has been done with it. To add on that, in 2009 the Deepwater Rig was audited, and 390 issues were identified, none of them were fixed, and the rig has not stopped working until the disaster struck. This shows that it was a cultural thing and not a one-time slip up (Ingersoll, Locke, & Reavis, 2011).

Political Frame

The Political Frame has to do with power dynamics, and influence. In this case, the disaster seems to also be a result of internal power issues and external regulatory issues. BP's decision-making was driven by opposite interests between corporate leadership, asset managers, and employees. Managers at the top cared more about profits over anything else. Employees and lower-level management tried to warn management of the different issues but did not have any influence no matter how much they advocated for safety measures to be taken, as decisions were

made by the aforementioned profit-driven executives. In addition, there were a few scenarios of ignoring of regulations, when BP ignored critical safety precautions which led to other incidents prior to the Deep-Water incident. This political environment made it hard for any change to be implemented, due to the fact that decision-making power stayed with greedy executives who only wanted profit. There was almost no incentive for BP to prioritize safety over financial gains, which contributed to the catastrophe.

There are many examples that explain how BP lend itself to this disaster with the array of critical issues that were ignored. From communication issues to the new management that join into an organization that prioritized profits and gains over safety. The company demonstrated how misusing all Four Frames led to one of the biggest safety disasters.

Redesign – Recommendations for Problem Resolution

As mentioned, there were many processes and fundamental issues that led to each and every one of the disasters that hit BP. The issues can be divided into a few categories that require work in order to ensure that BP will become a safer company. This affects employees, the environment, and the general population as one. The categories will be broken down into people, technology, and structural. Each category will be broken down to levels of individual, interpersonal, and/or organizational.

Technology

In most cases, systems evolve faster than their respective safety features. This can be seen in every field possible. Usually, something blows up, figuratively or literally in our case, and that blow up leads to companies adapting their technological advancements to safety standards. The car was invented before the seat belt was. After decades of car accidents, the seat belt was invented and was required by law. The same thing happened with cigarettes. They were invented

and sold, and only after millions of people started showing health problems that were related to smoking, laws pertaining safety among smokers came to existence. In this case, BP did create a safety solution, but only in the aftermath of this disaster. In the case of new technology, or similar to this case, old technology in new grounds, there needs to be a safety system set in place to ensure the safety of everyone involved (Rosenbaum, 2010).

Structural

It is easily inferred that the culture was not one that promoted safety. This is seen in each disaster that struck the company across the globe. In order to reduce the risk for accidents in a highly dangerous field, such as deepwater oil drilling, there needs to be an extra emphasis on safety. This should begin from the CEO and board of directors, and slowly trickle down into each and every employee of the company. Although BP claim they put a big emphasis on safety, re "No accidents, no harm to people and no damage to the environment" when considering the matter of fact, these words feel arbitrary and inconsistent through the different levels of the management in the company. In addition, the training, if existent, seems to have been lacking. There needed to be an established safety training program that provides the knowledge on how to deal with situations of this sort. The processes were flawed. The overflow alarm shows a cultural issue, as it was not one person who decided to shut the alarm. This was probably a routine occurrence that happened every night and was agreed upon the workers on the rig. I would recommend a very specific training process that each employee has to undergo. They will need to retake the training biannually. In addition, there should be a set group of people in each level of management that are set to be safety leaders. This group will be responsible to oversee processes and individual behavior (National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, 2011).

People

In my opinion, everything begins and ends with people. Technology is operated by people. Structures are designed and led by people. People are the most important resource. Looking at the freshly appointed management at the time of the disaster, there seems to have been an issue that led to a substantial number of managers to leave their positions. This was a weak spot for BP at the time of the disaster. Another recommendation is to tie incentives to safety processes. At BP, there was a lot of pressure to perform. There were either positive incentives for very good work, or bad incentives for work that did not meet the unattainable standard set by BP executives. If a company, especially one that operates in such a dangerous environment, incentivizes people for following safety procedures, this will inevitably increase safety. Fostering open communication between employees can also help reduce risk. It can help employees feel more comfortable to report issues without being afraid of negative repercussions. In addition, the company should create a whistleblower channel where employees can feel free to report incidents without being reprimanded by their managers. This openness will help identify issues that are usually ignored.

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