

INNOVATION AND RISK MANAGEMENT

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## Introduction

The oil and gas industry is mainly involved in the exploration of potential oil fields, its extraction, subsequent refining into the various products, and transportation to the silos and the eventual marketing to the end users. This is the biggest industry in terms of revenue.

The operations are usually divided into two;

1. Upstream
2. Downstream

Petroleum is the major source of energy for all of the world's economies. Oil and petroleum products consumption is estimated to be at around 30 million barrels. It is important for the oil and gas companies to always continue to innovate and develop new products so as to increase the customer satisfaction through increased machine efficiency. Over the past any technological improvement has brought subsequent change in the productivity and the overall energy sector of any country. Changes are very dynamic and competitive thus there is a great need for the players in this sector to undertake them with a lot of caution to ensure that all the risks associated with the innovations are taken care of. All these innovations come with their fair share of risks and it is the duty of the management to make good decisions as regards to the investment they make towards such innovations.

Definition of terms

a) Creativity

This is bringing into existence something new in most cases an idea that can be shown in many different ways.

b) Innovation

This is applying a new and better solution to solve a new or old requirement, satisfy needs that have not been articulated or some shortages in the current market.

c) Invention

Invention is a unique process, method or composition of doing things. It is mainly involved in making improvements in products or process so as to make them more effective and efficient in result production.

d) Business development

These are activities and processes done with the intention of creating, exploiting and implementing opportunities of growth between many business entities. It is mainly composed of commerce, business and organizational theory.

Reasons to be creative

Creativity brings about progress in any industry or business and progress is business growth. The oil and gas industry is not to be left behind in terms of creativity. The two main areas of creativity in this industry are;

## 1. Global energy

Most of the world's energy with the exemption of geothermal power is either directly or indirectly sourced from the sun. The oil and gas companies have in the recent past been putting more effort in making this global energy more effective and efficient. Total launched its low fuel emission named evolution in 2007. This fuel was meant to ensure that consumer used lesser fuel to take them further. It brought with it another advantage which is lower carbon emissions to the atmosphere. The fuel was meant for any engine that operates on unleaded fuel.

## 2. Environmental development

The environment in the past has been affected widely by the activities of the various oil companies. Events that oil spills in the oceans have been for a long time been a common phenomenon with the oil companies. This spills affect the both the flora and fauna of the oceans. For instance the total company in the year 1998, the total oil and Gas Company was fined a fine for the partial responsibility they carried in Brittany. The other common accident that is commonly associated with oil and gas companies is the explosion and fire break outs that are in the recent past very common with their storage and refinery facilities. Apart from causing a large number of deaths of both the workers and neighboring communities, it results to a wide spread air pollution that takes quite a long time to disperse or take care of. Still on total oil and Gas Company, one of their chemical storage plants exploded in 2001. It is quite obvious the amount of environmental pollution an explosion of a chemical plant would cause.

The oil company creativity towards environmental development is usually meant to correct the mistakes that they have done to the environment, which is polluting it.

Taking for instance, the oil spill in Brittany. After paying the hefty fine imposed on them and footing the bill incurred in clearing the spillage, the total oil and gas company established a turtle conservancy in a Masirah in the past. This was a move by the total oil and gas to give back to the environment what they had taken from it and restore its image which is a good gesture. This can also be taken as a creative act by the total oil and gas team because as much they participate in the development of the environment, the conservancy is also a source of revenue to them as tourists, both local and international visit the conservancy every day.

### Analysis

Total Oil and Gas Company has utilized innovation in decision making. Experts Systems (ES) and Decision Support Systems (DSS) have been developed for use by managers. These systems make decision making a less tedious process and faster. The team charged with the management of the company uses these innovative tools to analyze their problems and input them into the system to get uniform solutions regardless of the branch that uses the system. The managers are able to strategize on their moves based on the aids from the decision support systems and the expert systems. Long hours of board meetings by the managers have been reduced to videoconferences to enable the team to meet without physical presence thereby speeding up the decision making process.

## Challenges

The development of new products brings several challenges to the management team. They have the task of thinking about the new product and making it a reality. They have to ensure that the production process of the new product matches the one designed. The team has a task of coming up with marketing strategies of the new product that gives it a competitive edge. It also has to drum up support for the new product to ensure that it pleases the consumers and can boost the sales of the company.

## The company

Total oil and Gas Company based in Paris, France.

## New product development

New product development is carried out in 8 distinct steps;

- 1) Idea generation
- 2) Idea screening
- 3) Development of the concept and testing
- 4) Business analysis
- 5) Market testing
- 6) Implementing the technical aspects of the production
- 7) Commercializing the product
- 8) Pricing of the new product

### Advantages

A new product shifts a lot of attention from the competitors to the new product and the company at large. The moment that the new product is launched, more and more people learn about the company. These large numbers of people who now know about the company represent more potential customers therefore more sales volumes of that particular product and other products affiliated to the company.

The new product attracts a lot of new customer who in turn increases the volumes of sales made which eventually increases the revenue. New products in the market do sell well in large volumes. It will definitely enjoy high sale volumes and thus higher profit margin which implies higher revenue. This continues as long as the company remains the only producer of the product.

The fact that a company produces a product that nearly completely satisfies the needs of a customer builds the reputation of the company as customer friendly and oriented. This results to more loyal customers. This creates an opportunity for any of the products of the company to sell well in future.

The launch of new products by a company gets it into bigger and better business partnerships with other companies. These partnerships may be in terms of acquisition, investment, distribution and retailing.



### Disadvantages

New product development is usually very costly.

The product development is usually a big gamble on the company's side. There is a major risk involved as the company never knows how the new products or new features will be accepted by the consumers.

There is also a risk associated with failing because of the existence of a very dominant competitor.

### Impact of innovation

Innovations in the oil and gas industries improve the society's life style. This is through the development of products that cost less and perform more. Total Oil and Gas Company is now more focused on the betterment of the society and this can be considered as part of the social corporate responsibilities.

Improvement of the economy of the country is brought. These innovations in the oil and gas sector usually work towards lowering the cost of production. This is due to the fact the oil and gas is still the primary producer of energy in the world. The strategy of the company is now changed to involve a bigger picture. Their production is now not only focused in satisfying the individual customer demands, but the industrial and the national demands at large. The total and gas company has over the years changed from a company that only runs gas stations to fuel vehicles, but now is in the process of producing industrial gases, oils and chemicals. This has in turn enabled the company to grow tremendously.

Due to innovation, oil and Gas Company for instance total, has been able to change their strategies from exploring and developing the easy to obtain oils and gas natural resources which are now soon becoming depleted. The companies are now involved in reserves that were otherwise difficult to explore, appraise and produce oil and gas products. These areas include areas with extremely high temperatures and pressures, deep seas and the arctic. Total gas and Oil Company is currently in the process of securing a reserve in the arctic.

New reserves exploration is usually a very expensive and hectic venture. Innovation, through enhanced oil recovery has enabled the oil and gas companies to explore the already available oil and gas reserves to the fullest. This in turn extends that life of the so called mature basin. For instance the North Sea in England basin, which is currently explored by the total oil and Gas Company, has a lot of unexplored oil and gas resources. The use of the old technology would have rendered this reserve depleted. The companies have now changed their strategies from identifying and searching for new oil and gas reserves to exploration and development of the available ones to the fullest.

### Structure

Total Oil and Gas Company has split its organization into three. There is the upstream section that deals with all matters related to how the oil wells are dug up and processing into various forms. The Refining and Chemical section deals with the byproducts of oil and chemicals that require specialties. They also deal in the transportation and trading of petroleum products. The Marketing and Services department deals with drumming up support for the various products of the company and selling its brand to various consumers. They promote the

various services offered by the company. They carry the image of the company as they make it look good to potential clients to be partakers of their range of products.

### Training

The company has made it its duty to equip its employees with relevant knowledge about the industry as it arises. It conducts regular training programs to the staff of various departments in light of new developments. If new machinery is purchased, then the relevant people expected to run and maintain the machine are trained on how to operate it as well as the Dos and Don'ts

Managers are trained to use various support systems for decision making to speed up the process and make it less taxing. Every employee is taken through safety training especially in the factories where there is constant danger in case of mishandled oil products. They are also trained on first aid to minimize the risks of injuries before medical aid arrives in case of an accident.

### Recruitment

Total Oil and Gas Company recruits a wide range of people. It deals with professionals who are qualified for prospecting and mining of oil. It employs engineers who do the technical work on the machinery that they use in their daily activities. It recruits water specialists to ensure that they extract their oils from the ocean in a manner that does not harm the marine life. They have geologists to determine the stability of rocks and their patterns in case the wells are on dry land, and if exploration of oil is safe or might cause earth quakes or tectonic imbalances. They also engage the services of environmentalists to determine the impacts of their activities on the environment and provide mitigation measures for the same.

### Cultural value

The company is not biased on race or religion. Recruitment and promotions are done on merit because of their belief that everyone is equal. They have a culture of togetherness and unity, providing good working conditions for their employees. The company gives back to the community by sponsoring events and donating to charitable organizations. They also offer sponsorship opportunities to children who are bright but cannot meet the financial requirements to attend school. The company organizes for its staff to spend time with the less fortunate occasionally. They uphold the rights and freedoms of employees and accept them as they are

### Implementation

Management risks are risks that are brought about by an ineffective and an underperforming management that affects the shareholders of the company and the company at large negatively financially. The innovations and inventions in the oil and gas company are usually capital intensive activities. Implementing the innovations and invention is involved with a wide variety of risks.

### Risks

There are a lot of uncertainties as to whether the new product that is produced will be accepted in the market. Given the large amount of investments that is made towards research and development implies that a rejected product would have caused the company a fortune in terms of losses.

Bringing a product that is actually not needed by the consumer has a way of destroying the image of the company.

The innovation and the subsequent production of the product for commercial purposes may require raw materials that are unsustainable.

The innovation may have very adverse effects to the environment.

The launch of the innovated product possesses a risk of the competitor stealing the technology. This will in turn extend the recovery of the research and developments cost.

#### Risk minimization

Thorough idea screening process ensures that the ideas that are invested upon have a higher chance of survival in the market and are more realistic.

Conduct a thorough market research and analysis to determine the acceptance level among the expected customers, the acceptable price and the product's life cycle.

Patenting and protecting the intellectual property ensures that the innovation is not pirated.

#### Recommendations

Any company that is involved in innovation of new products should invest more in the early stages of the product development and the necessary risk minimization steps given above.

Research department should be added to the company to be working on product invention and testing to fully maximize the understanding of newer energy sources like nuclear energy.

Early detection and corrective measures should be put in place to reduce the damage caused by accidents like oil spills

### Conclusion

It is no doubt that oil and gas are important drivers of any economy. It has many uses in homes, factories and automobiles. They are leading causes of global warming which has become a major concern in the nations of the world. Alternative sources of energy, therefore, are the way to go and more research and experiments should be done to master how to harness and maximize their use since they are not dangerous to the environment.

The policy of incurring the cost of cleaning up after a disaster makes companies more cautious in their activities. That is because any business does not profit where money is spent on cleaning up than on expansion and other relevant areas that boost incomes.

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