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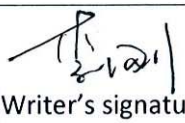
Writer: Gang Li	 (Writer's signature)
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Abstract

The study focused on the major challenges and problems that were making it impossible for COSL to achieve most of its goals and streamline its operations. The study focuses mainly on innovation in services with a focus on COSL. Such innovation practices can play a major role towards supporting the performance of oil companies.

The obtained findings were critical towards ensuring the company refocused and realigned its commitment to clients through clearly defined and practiced service innovation practices. Such approaches will present quality findings that can be embraced to improve the major oil and gas operations.

The study focused on the oil services and innovation in services as well as the major practices and best approaches embraced within the oil industries. By so doing, the study was able to present valuable approaches and concepts that can be embraced by COSL in an attempt to achieve its business potentials. The ultimate goal should be to consider the criticality of the service innovation industry and its role towards supporting the oil and gas business.

The findings targeted by the study were aimed at bringing new benefits and gains to the company and other players in the industry. With these concepts and ideas, COSL can focus on the best approaches in an attempt to achieve the most desirable goals.

Table of Contents

Chapter 1 Introduction to the Study

1.1 Introduction

This section provides a background of service innovation in the oil and gas industry. It covers the background to the study, problem statement, research objectives, research questions and limitation.

1.2 Background

Yin (2008) defines service innovation as '*the process through which business firms undertake stringent changes in their business philosophies, procedures, cultures, and operations in an attempt to add value to consumer though continued product development*' (p. 39). For very many years, the focus on the customer has been the real deal towards achieving the most desirable results. The concept of service innovation has continued to define the performance of many business organizations. The '*major functions that should be taken seriously in an attempt to achieve the best outcomes include product, process, organization, market, and ad-hoc*' (Zadnor & Johnston 2012, p. 911). Service innovation, therefore, becomes a powerful process or approach that has the potential to creating superior services or the process of continuous improvements in every existing service.

In the oil and gas sector, innovation is something that has continued to focus on the best processes towards improving the process of service deliver. Companies within the oil and gas sector have been focusing on the continued use of new skills and technologies in order to add value to the customer (Syson & Perks 2004). A wide range of models has been proposed in different sectors in an attempt to achieve tangible results. Many companies have continued to embrace the use of information and communication technology (ICT) in order to improve interfaces between different parties in the industry. Companies that have embraced the most appropriate models have been able to achieve the most desirable outcomes. According to Syson and Perks (2004), innovation is one of the best forces towards creating competitive advantage for every company.

Past studies have showed conclusively that service companies that fail to focus on the process of creating and innovating new services or promoting the improvement of the existing services is something that will make it easier for them to lag behind in terms of competitiveness in the market (Zadnor & Johnston 2012). Service innovation is a powerful process that presents new differences especially in service content and delivery of value to the targeted customer. However, a number of experts have argued that, even though '*services innovations are considered important for business success, the service innovation process in many companies is ad hoc and reactive rather than planned, managed, and coordinated to customer/market demands*' (Kandampully 2002, p. 20).

Past analyses have indicated conclusively that there is not a single methodology for engaging in or designing a services innovation process. In the oil & gas industry, priorities tend to be different as more companies focus on the best ideas in an attempt to achieve the greatest outcomes. Past case studies have observed that operators and companies in the

service industry especially in '*the upstream oil and gas sector face many technology and innovation challenges in promoting existing and future oil reserves to their full potential*' (Kandampully 2002, p. 21).

Companies in the industry have embraced the need to make the most appropriate investment decisions. Investments have been focusing on technological changes in order to ensure the firm work effectively to achieve the best outcomes (Lusch, Vargo & Malter 2006). The use of technologies has become common as many firms focus on remote and dangerous regions that can support their business potentials. It is also notable that oil and gas operators tend to have diverse needs and expectations (Partington 2003). Such needs have always been dependent on the firm's assets, possibilities, geographical locations, and their business objectives. Different service innovation firms have emerged in order to support the changing needs of many firms in the oil and gas industry. Companies in oil and gas industry tend to focus on tailored and strategic responses to the challenges experienced in the industry (Syson & Perks 2004). Such firms also operate diversely in terms of their supply chains, business processes, and delivery strategies. The firms have therefore been trying to identify approach measures through which new services can be innovated thus being able to achieve their potentials (Lusch et al. 2006).

A study by Yin (2008) outlined some of the major advantages of engaging in continued service innovation especially for firms in the oil and gas industry. The concept of innovation in the industry has been observed to make it possible for many companies to exploit technology. The process results in market-focused intelligence that has the potential to explore the trends experienced in the market (Partington 2003). Companies embracing the power of innovation find it possible to benchmark and scan the market with the aim of delivering the most desirable outcomes. The use of decision science support (DSS) has also emerged as a powerful model for promoting technology strategy and developing innovation (Syson & Perks 2004). The process has also been found to optimize research and development (R&D) for very many companies. The critical position and impacts of service innovation is something undeniable because it has become a major contributor to large oil and gas industrial players in the global sector.

The continued use of services innovation competencies of major player like Aker Solutions can deliver value and make it possible for many companies to achieve their potentials. This is the case because Aker Solutions is a leading player that has earned the enviable reputation of being leading oil Service Company that provides core Engineering services, technology usage, and product solutions for both small and large client firms. The role played by such companies and services providers is something that continued to support the performance and future of many firms. Kandampully (2002) therefore indicates that services innovation is simply innovating service in competitive business of oil and gas to gain economies of scale, address competitive issues, make the best of optimal competencies, both human capital and non human assets, and most of all gear up to face market and non market adversities in current crises-ridden global scenario (Yin 2008).

Economists and business experts have observed that '*production facility owners especially in capital-intensive sectors and industries have become increasingly dependent on industrial services*' (Partington 2003, p. 19). This means that the implementation of modernized processes and strategies can add value and deliver the best results. That being the case, industrial service innovations has become opportunities for many firms to improve their effectiveness and efficiencies within the production and support process. These changes in consumption and production facilities are something that can present new business opportunities for service providers. Large and capital intensive firms can embrace the power of services innovation to create new services or even improve the existing ones (Syson & Perks 2004). Partington (2003) believes that the strategy '*may result in value addition and sustained growth for both the service provider and service receiver and the industry as such*' (Zadnor & Johnston 2012, p. 909). Experts have always supported the need to manage industrial service innovations processes in an effective and well-organized manner in an attempt to create a new environment that has the potential to support every industrial service innovation (Syson & Perks 2004).

Similarly, past studies have outlined some of the major forces and competitiveness associated with successful firms in the oil and gas industry. The most outstanding observation has been that such organizations have been embracing the power of services innovation in an attempt to achieve their potentials (Partington 2003). Economists and specialists in the industry have also been able to outline some of the issues that affect the performance and profitability of many firms in the oil and gas industry. However, experienced players in the industry have been observed to have the capacity to exploit technology-led market intelligence (Partington 2003). The observations and gains of many successful firms in the industry continue to provide a clear understanding of market forces. This is something that continued to be achieved through continuous use of research and development (Lusch et al. 2006).

Lessons learned from some of the successful companies in the oil and gas industry include the ability to identify every future challenge that might affect profitability and performance. Such companies have also been able to outline new solutions thus improving the flow throughout the manufacturing or exploration process. Experienced firms in the industry have '*benefited significantly from smarter use and wider availability of real time drilling data to improve drilling operations*' (Yin 2008, p. 78). This fact has proved beyond a shadow of doubt that the concept of service innovation is something that has the potential to realize the most desirable goals. The engagement of technologists in an organization's change agenda is also something that has been observed to promote coordination and focus on the most desirable goals (Partington 2003). The value of technology and innovation has been professed for its ability to deliver tangible results and support performance in the oil and gas sector.

1.3 Problem Statement

Majority of the successful companies in the oil and gas industry are the ones that have managed to embrace the most desirable business processes. On the other hand, a large

number of firms in the industry have not managed to leverage the best practices and as a result they have been unable to realize their business potentials. A study conducted by Partington (2003) indicated conclusively that the gas and oil industry was slow regarding the use and adoption of new ideas. The concept of service innovation was ignored since the companies viewed their assets and asset-acquisition as the most appropriate model for maximizing production and performance (Kandampully 2002).

The inability of many companies in the industry to embrace the power of innovation is something that continues to affect the targeted business potentials. On the same line of business operation is the COSL (*China Oilfield Services Limited* 2016). A critical examination of the company has showed clearly that the firm is focusing on the best business practices that have the potential to produce positive results. Currently, the firm is focusing on the most desirable approaches that will make it easier for it to acquire numerous companies and firms in an attempt to improve its competitiveness (Olsson & Espling 2004). The move is also expected to add value and prepare the corporation for future performance in the industry. The firm is also focusing on the most appropriate strategies towards exploring oil and gas especially in the wider Asian hemisphere.

Just like the other firms in the industry, COSL has been quite slow when it comes to the issue of services innovation and adoption of new technologies (*China Oilfield Services Limited* 2016). Most of the companies in the sector have failed to embrace the power of innovation. Similar innovative ideas have not been adopted thus making it imposable for the companies to achieve their business potentials (Lusch et al. 2006). However, the most outstanding fact is that there are an increasing number of entrepreneurs and innovators who are always on the frontline to produce new ideas that have the potential to transform the world of business. Zadnor and Johnston (2012) believe strongly that every company has the potential to tap the skills and competencies of its employees in an attempt to achieve the most desirable results. Unfortunately, companies in this industry have been slow to embrace such measures thus affecting their performance and success. Olsson & Espling (2004) encourages companies to consider some of the best practices that have the potential to empower employees and make it possible for them to focus on the most desirable practices.

The oil field is therefore characterized by both large and small scale companies. Such firms focus on the most desirable practices in an attempt to realize their potentials. Most of the successful firms have been able to experiment with new technologies and focus on the best practices in an attempt to add value. The first approach is usually founded on the ability to understand the nature of the existing problem and identify the most appropriate strategies towards promoting performance (Syson & Perks 2004). Many firms have began by focusing on existing problems then presenting better practices that have the potential to deliver desirable results. Experts have argued strongly that the ability to invest resources and money is something that has the potential to transform of the targeted firms and eventually deliver the best results (Syson & Perks 2004). Some theorists and consultants have also come up in an attempt to support the changing needs of these companies.

New technology has become a powerful force that has the potential to prove value and encourage adoption. Companies capable of considering these aspects will find it possible to promote the level of performance and eventually realize their potentials. Experts have for centuries supported the importance of continued technological advancement. This kind of technological adoption adds value and present must-do actions that can revolutionize the performance many companies especially those operating in the oil and gas industry.

A case study of COSL shows clearly that it has been unable to realize its service potential capabilities (*China Oilfield Services Limited* 2016). As well, its inability to focus on new innovative ideas is something that has made it impossible for the firm to gain economics of scale (Olsson & Espling 2004). Consequently, it has been unable to focus on the best practices that have the potential to add value and achieve the best goals. The firm has also continued to be rivaled with other companies because of its inability to address the major competitive issues experienced in the oil and gas industry (Zadnor & Johnston 2012).

Experts have also observed that the firm might not be able to make the best optimal competencies due to continued inefficiency and failure to consider some of the best business practices that can improve the level of competiveness. At the same time, major players have been focusing on different approaches that can increase both human capital and non-human assets (Syson & Perks 2004). With the best considerations and practices, companies embracing the best innovative approaches will be able to streamline their operations, address the issues raised by different stakeholders and eventually be on the frontline towards realizing the most desirable outcomes.

This approach can deliver tangible results especially with the notion that many firms offering oilfield services and in the industry have continued to consider specific measures that have the potential to add value. Statistics also indicate that oilfield service markets are currently becoming globalized and competitive (Olsson & Espling 2004). That being the case, service innovation has been treatment as a critical aspect and strategy for continued business success and growth (Plackett & Hussey 2004). Companies that fail to embrace the power of business innovation might become less competitive and eventually fail to achieve their business potentials (Lusch et al. 2006). This argument therefore shows conclusively that firms that want to '*survive both in the long term and short term fierce competition scenario and to keep sustainable growth and continue to create profits, the companies 'need to research on how to improve the existing services and how to become innovative and creative for creating new services that provide more value and satisfy the ever-changing needs and expectations of their consumers*' (Syson & Perks 2004, p. 261).

Stevens and Dimitriadis (2005) therefore treat service innovation as a very complex yet powerful process that can make huge differences for many business organizations. The ultimate issue is being able to consider specific factors and approaches that come into play in an attempt to achieve the best results. These unique aspects and factors are known to have significantly influenced on the targeted final results (Syson & Perks 2004). Reliance on the need to improve internal processes has been attacked by modern theorists as they focus on new approaches that have the potential to consider the ever-changing needs of the consumers

and stakeholders while at the same time improving internal operations. It is pertinent to be aware of the major practices and approaches that can make it possible for many companies and organizations to achieve their business potentials (Loewe & Dominiquini 2006).

The companies focusing on consumer services have managed to develop advanced mature innovation model while at the same time obtaining a great success in practices. However, more firms have not embraced the idea of focusing on the contribution of service innovation (Syson & Perks 2004). Experts support new concepts such as service innovation process and practices, innovative organization, mechanisms of services in the oilfield service industries for COSL in an attempt to deliver value and achieve the most desirable outcomes (*China Oilfield Services Limited* 2016).

A detailed analysis of the positive implications of services innovation and consideration of case studies from different positively-performing companies will present powerful incentives that can dictate the future of China's COSL Company.

1.4 Research Objectives and Questions

The purpose of the study was to determine the impact of service innovation in COSL's Oil and Gas Business in order to realize its service potential capabilities and to be able to focus on new innovative ideas. Through this, COSL should be able to focus on the best practices that have the potential to add value and achieve the best goals. The research was guided by the following research inquires:

1. How can service innovations contribute to COSL growth and development in the ever more competitive environment?
2. What approaches are COSL utilizing to stimulate innovation?
3. What processes do they have to develop as new or improved services?

1.5 Limitation of the project

The thesis did not cover other competition-intensive industries such as manufacturing, chemical, and mining, etc. It only focus on Oil and Gas industry, especially in Oilfield services domain. The author had to use deductive approach and rely on secondary information, because the amount of primary data collection can be regarded as a limitation and it is forbidden to gather the sensitive data and information from COSL. What is more, the author was located at Missan Oilfield in Iraq during the thesis writing, it is difficult to free use internet to get the materials, which can be deemed as a limitation as well.

Chapter 2 Research Methodology

This research paper embraced the use of a powerful study model in order to produce quality results. The study adopted the use of a 2-Pronged method. This approach was embraced in an attempt to deliver the most desirable outcomes, results, and findings. The first approach used to complete the study was a deductive approach.

The study was undertaken using Aker Solution Case Scenario as pivotal block to consider and extrapolate service innovativeness into COSL Model (Olsson & Espling 2004). During the study, the focus was on the best innovative practices that could be emulated by COSL in an attempt to improve competitiveness and ability to deliver quality services and profitability (*China Oilfield Services Limited* 2016). The approach outlined the major professed benefits that have the potential to transform the performance of COSL.

Throughout the study approach, case studies were undertaken focusing on similar competition in the global oil and gas arena. These case studies mainly focused on the major companies operating in the American industry and the Norwegian oil and gas sector (Stevens & Dimitriadis 2005). The approach was essential towards outlining the most desirable approaches and evidence-based practices that continued to support the business performance of many companies in the industry. The findings were expected to deliver the most desirable insights that could be replicated to deliver value.

The second approach embraced the use of primary interviews mainly focused on technical employees, stakeholders and other consultants in COSL (*China Oilfield Services Limited 2016*). Such employees were expected to provide meaningful ideas and concepts that could make it possible for the company to achieve its business potentials.

Chapter 3 Literature Review

3.1 Introduction

Service innovativeness and service innovation competencies are major defining characteristics that need to be pressed into play in this paper, and using a cache of well selected, argued research treatise and published papers it is necessary to consider how major, successful oil firms use service innovation to provide competitive advantages in the marketplace, innovative and progressive service innovation techniques and stratagems that not only resolve client issues but also create sustainable competitive advantages that increase product life cycles and firm growth and most of all, add value to stakeholders' interests.

There are five major concepts and the relationship among these items will be introduced in the literature review section. This section looks at the service innovation and industrial asset management based on numerous authors within the oil and gas industry. Later studies on service innovation in the oil and gas industry will be discussed at great lengths based on the findings of other researchers.

3.2 Industrial Asset Management

Asset management has become a common and critical practice for asset intensive firms that want to realize their business potentials. Loewe and Dominiquini (2006) define '*industrial asset management is the process of organizing, planning and controlling the procurement, operation and maintenance (O&M), and disposal of industrial assets in a safe, environmental friendly and economically efficient way*' (p.26). Companies in the oil drilling and gas industry tend to require extensive resources and assets. The success of these firms depends on the ability to engage in adequate asset management processes. The acquired equipment should be able to support the targeted business goals while are the same time promoting environmentally sustainable practices. Proper disposal is also essential towards adding value and ensuring the targeted firm achieves its potentials. Another concept within the realm of asset management is equipment condition monitoring (Loewe & Dominiquini 2006). This practice is an in house approach whereby companies focus on the integrity of their equipment.

Data management has become common within the field of asset management for companies in the oil and gas industry. In this industry, industrial asset management (IAM) is something that calls for the best model to manage data and ensure all equipment and assets are serviced in a timely manner (Stevens & Dimitriadis 2005). The use of the effective IAM model makes it possible to extend the longevity and performance of the machinery. Companies that have embraced innovative ideas and services innovation within the realm of asset management have been able to achieve the best outcomes through improved asset management. According to Stevens and Dimitriadis (2005), the approach has been observed to cut down costs while at the same time promoting the level of optimal performance. The process also develops optimal approach that maximizes the efficiency of costs.

Experts have therefore been focusing on specific approaches that can deliver appropriate IAM models. Such models have been supported because of the ability to integrate technology and innovation. The approach has been observed to address various challenges affecting the model. According to Ho (2010), continued use of smart IAM models is something that has the potential to improve asset uptime. As well, the approach has been observed to extend asset longevity thus sustaining the performance of the targeted company. The move also makes it easier for firms to install the right base for operating and ensuring costs and expenses are maintained optimally. The IAM concept, therefore, has been observed by economists and industrialists to help improve equipment design and reliability (Ho 2010). Innovators have therefore been examining the aspects of IAM thus delivering new approaches and assets that have the potential to improve the level of performance. Continued use of the IAM model is something that continues to ensure that a wide range of services are managed in a cost effectively manner (Lyons et al. 2013). As a result, the approach keeps field operations running smoothly and eventually delivering the most desirable outcomes.

A study by Lyons et al. (2013) showed conclusively that the IAM model and approach has the potential to save lives. Companies that fail to consider and maintain the integrity of their assets find it impossible to achieve their potentials. Deaths and casualties continue to remain high especially in firms that use defective and underserviced asset. The concept of IAM has emerged in the recent past to coordinate processes, address challenges, safeguard lives, embrace innovation, and prevent most of the potentially dangerous issues associated with the breakdown of equipment (Lyons et al. 2013). The breakdown eventually affects performance and makes it impossible for companies to achieve their business objectives.

Innovation has also been coupled with IAM models. Producers and manufacturers of asset equipment for industrial players focus on the business models embraced by their clients. The ultimate goal, therefore, remains the need to engineer superior products that focus on the expectations and business goals of the targeted companies (Stevens & Dimitriadis 2005). A positive approach to asset management is a competitive force that has supported the needs of many firms in a wide range of industries (Lyons et al. 2013). Continued use of the model makes it possible for more companies to embrace the most desirable practices and focus on continued asset improvement. That being the case, the '*productivity and profitability of an industry is something that depends on the ability and desire to keep heavy duty and critical assets working efficiently*' (Olsson & Espling 2004, p. 240). Constant servicing is also critical towards ensuring the targeted assets continue to function effectively. The full range of 'extraction, transport and storage machinery must be designed, maintained, and replaced for maximum operational productivity' (Lyons et al. 2013, p. 489).

The complexity and risks involved in the Oil and Gas industry is something that continues to call for innovative approaches and service processes that can support the performance and effectiveness of many assets. Planning, management, and servicing of critical infrastructure and asset are therefore a powerful approach that is currently being taken seriously by many companies in the Oil and Gas industry. Safety precautions and measures are also taken seriously throughout the asset development stages and implementations (Lyons

et al. 2013). Innovative ideas are also structured and construed in order to ensure the assets maintained by the targeted industrial player play a major role towards delivering tangible results.

Basically, experts indicate that IAM should be integrated with the major functions of businesses. Monitoring and real-time analysis of the assets is a powerful practice that promotes the most desirable outcomes. Data management should also be considered throughout the process in order to reduce wastes, monitor loopholes, troubleshoot specific malfunctions within the entire systems, and propose specific changes that can increase the effectiveness and performance of the intensive assets. Montalvo (2006) also proposes the idea of changing regulations constantly in order to ensure there is continued monitoring and assessment of the assets.

3.3 Services Innovations

Stevens and Dimitriadis (2005) argue that '*services innovation has continued to contribute to world-class oilfield services companies' growth and development*' (p. 189). Services innovation is a subset of innovation that streamlines operations and promotes adequate productions and processes that have the potential to support the targeted business outcomes. The effectiveness and benefits of services innovation pelicans why it has become a favorable model for many companies that want to realize their business potentials (Lyons et al. 2013).

Before examining the strengths and benefits of services innovation, it is appropriate to be aware of the wider concept of business innovation. Innovative ideas and systems have found numerous within the external and internal realms of business practices. Such innovative solutions tend to address various problems affecting different customers or come up with better models that will ensure business processes are executed in a professional manner (Lyons et al. 2013). The approach also ensures that companies focus on the best issues that matter the most to their functions. According to Fullerton, Kennedy and Widener (2014), the approach also delivers incentives and eventually produces better strategies that can eventually produce the best goals. The concept of innovation is expected to continue supporting goals and needs of many customers and companies respectively. New models have coupled with the concept in an attempt to promote the best practices and ensure every company achieves its potentials (Jacob 2006).

Many scholars and researchers have managed to outline the importance of innovation in every entrepreneurial activity. For instance, innovation has been supported by many scholars for its ability to produce new solutions, products, and improved services that seek to deliver the best assistance to more stakeholders and customers (Fullerton et al. 2014). For example, a service industry can decide to expand its business offering by producing new and improved types of services (Jackson & Cooper 2011). Such services will eventually play a positive role towards addressing the ever-changing needs and expectations of the targeted clients. Such practices have continued to make it possible for both entrepreneurs and manufacturers to come up with new products that have the potential to revolutionize industries. Innovation has also been embraced to produce quality materials from both

recycled and raw materials (Lyons et al. 2013). Innovation has been found to take numerous shapes and industrial practices with the aim of improving the outcomes and experiences of many customers.

The idea of innovation has led to a new concept known as services innovation. The concept of Service Innovation became evident in different parts of the world in 1993. Within the past two decades, this concept has been embraced in an attempt to deliver the most desirable results. The concept has found numerous roles in different industries in an attempt to deliver tangible results (Lyons et al. 2013). For instance, innovation in services especially in service products leads to new or improved service products. This concept also ensures more and efficient commodities are delivered to consumers and quality services within the wider areas of public services.

Technological innovation has also become a sub-aspect of services innovations where companies and firms have been focusing on various technological aspects while promoting the quality of services availed to different customers. This has been the case because service products are something that has been associated with unique technological elements thus delivering the most desirable outcomes. The '*sense or aspect of service innovation is something that is widely related to service design and new service development*' (Lyons et al. 2013, p. 487).

Innovation within the realm of service processes has been observed to present new or improved ways of producing services for the targeted clients while at the same time delivering the most desirable outcomes. Innovation within a wide range of service firms and industries is something that has led to improved outcomes. Organizational innovations focus on the most desirable approaches and practise that can deliver positive outcomes. Continued management of innovation processes is something that has made it possible for many service organizations to achieve their potentials (Fullerton et al. 2014).

3.4 Services Innovation and Lean Thinking

Montalvo (2006) believes that services innovation can be clearly described within the field of lean management. Lean, according to specialists, embraces wide ranges of innovative ideas and managerial approaches that have the potential to transform the performance of many companies. Lean management or thinking is a concept that '*identifies and produces the best value for stakeholders without using numerous resources*' (Jackson & Cooper 2011, p. 112).

A company that embraces the use of this concept will find it easier to understand the real meaning of customer value. The services company will also improve its processes in order to increase customer value. This approach makes it possible for companies to focus on the most appropriate strategies that can promote the best practices while at the same time reducing the amount of wastes. Although the principle emerged in the manufacturing industry, it has become applicable in other businesses practices and processes (Lyons et al.

2013). Lean management has become a powerful approach towards planning, implementing, and executing new processes especially in the oil and gas sector.

Lean has been embraced by many companies that focus on the concept of perfection. Every activity in a service company must be sustainable and capable of promoting performance for very many years (Lyons et al. 2013). This approach is something that has been seen to promote the concept of industrial asset management (IAM). Companies that achieve the best outcomes begin by embracing appropriate practices that have the potential to create 'flow' (Montalvo 2006). Many companies have been able to reorganize every process in order to achieve the best outcomes. A study conducted by Stevens and Dimitriadis (2005) observed '*the need for companies to link their operations together*' (p. 191). Studies have indicated conclusively that the strategy has the potential to make it easier for companies to identify every existing waste and focus on the best approaches to achieve plan. The next plan should focus on the process of eliminating wastes. This process supports the demands of different stakeholders and eventually results in competitiveness. The '*process will produce a theoretical end-point of completeness and perfection*' (Gummesson 2002, p. 340).

Lean Management principles have been observed to ensure every practice adds value to a business operations and promotes desirable actions that making a company more competitive. The principle will also be critical '*towards adding value for every targeted consumer*' (Markeset & Kumar 2005, p. 61). The major principles of Lean Management make it easier for corporations to implement new philosophies. Such philosophies can '*ensure every company focuses on the best actions and practices*' (Loewe & Dominiquini 2006, p. 28). The philosophy focuses on the best practices in order to maximize customer value. The process also makes it easier for companies to focus on their organizational strategies. Loewe and Dominiquini (2006) encourage '*managers to review their strategies and processes in order to continue supporting the changing needs of their stakeholders*' (p. 28).

Scholars and analysts have come to a common agreement that service innovativeness and service innovation competencies are some of the major defining characteristics that need to be embraced by companies that want to achieve their potentials. Companies embracing these models and concepts have been able to deal with the problem of competition will at the same time supporting their performance (Fullerton et al. 2014). Experts have therefore been considering how various key players and successful oil firms have continued to use the power of service innovation to provide competitive advantages in the marketplace.

Gummesson (2002) observed that appropriate implementation and focus on innovative and progressive service innovation techniques and stratagems was something that not only resolved client issues but also created sustainable competitive advantages that increase product life cycles and firm growth and most of all, add value to stakeholders' interests (Stevens & Dimitriadis 2005). That being the case, companies and organizations in different sectors has been focusing on the most appropriate strategies that can improve the level of performance and support the needs of more clients and stakeholders. The move has been observed to deliver a new competitive advantage while at the same time making it possible for more firms to achieve their business goals (Gray & Matheson 2002).

According to Pettersen (2009), Lean Six Sigma has remained a powerful approach that puts quality improvement concepts and tools first in asset-intensive organizations. Frontline service providers especially in giant companies use the approach to remain informed and aware of the best practices that can support the needs of many stakeholders. The use of the *lean* model makes it possible for companies to have profitable businesses. This is the case because different teams and companies will identify the best practices and offer appropriate services that can improve the success of different projects (Markeset & Kumar 2005). Lean Six Sigma has also been '*associated with the concept of sustainability*' (Pettersen 2009, p. 31). Many workers and individuals in the targeted organization can '*focus on the best ideas towards long lasting improvement and performance*' (Pettersen 2009, p. 32).

The use of Lean Thinking has remained a unique tool whereby all forms of wastes are eliminated in order to make the targeted business organization process successful (Fullerton et al. 2014). The Lean Six Sigma approach or concept applies for different manufacturing and processing companies because it becomes easier to have the best practices and ensure the focus is on the targeted goals. The use of the Lean Model is something that has helped to classify all wastes into transportation, waiting, inventory, over processing, defects, and motion (Pettersen 2009).

Companies in the oil and gas industry have been observed to embrace the innovative aspect of innovation within the realm of *lean* in an attempt to deliver the most desirable results (Pettersen 2009). This ensures that the entire managerial process focuses on the strategic approaches to ensure the level of wastes is as low as possible and eventually make it easier to realize the goals and objectives of the business. This concept promotes the use of the DMAIC toolkit as one of the tools through which it can be possible to have the needed practices (Loewe & Dominiquini 2006). This also ensures the realization of the targeted goals. This sigma has been essential towards promoting the best practices to ensure the greatest goals have been realized. This has helped many companies realize their goals and businesses (Pettersen 2009).

The DMAIC is an improvement cycle or model that has been adopted by different businesses as a way of improving, stabilizing and optimizing their business designs and processes (Markeset & Kumar 2005). It is therefore notable that the DMAIC Model is one of the best approaches to ascertain the best ways to use a specific tool and realize the intended goals. This helps to analyze the best approach towards positioning the business strategy and ensuring the targeted gains have been realized (Prasad & Sutharasan 2012). The DMAIC Model has been widely applied in different businesses to present some of the best strategies and ensure the targeted business objectives and strategies are in place.

The use of the Lean Six Sigma has transformed the quality of services availed to many people across the globe. This has also been beneficial for many companies operating in a wide range of economic sectors. For instance, many business players in both the developing and developed world have successfully implemented the performance improvement

methodology in order to get the best business results. According to Prasad and Sutharasan (2012), it is usually necessary for companies in the O&G industry to manage quality and focus on the best processes that have the potential to deliver the best results. In many global oil and gas organizations, there are various training programs deliberated to ensure such companies realize their goals and objectives despite the major challenges that have continued to affect the sector. Innovators and other professionals should therefore be informed about the importance of evidence-based practices and services innovations in an attempt to improve every business performance and support. The use of innovative aspects and implications of technology are encouraged to ensure the clients get the best support and attention (Prasad & Sutharasan 2012). These aspects can therefore be achieved through the appreciation of the concept of lean thinking.

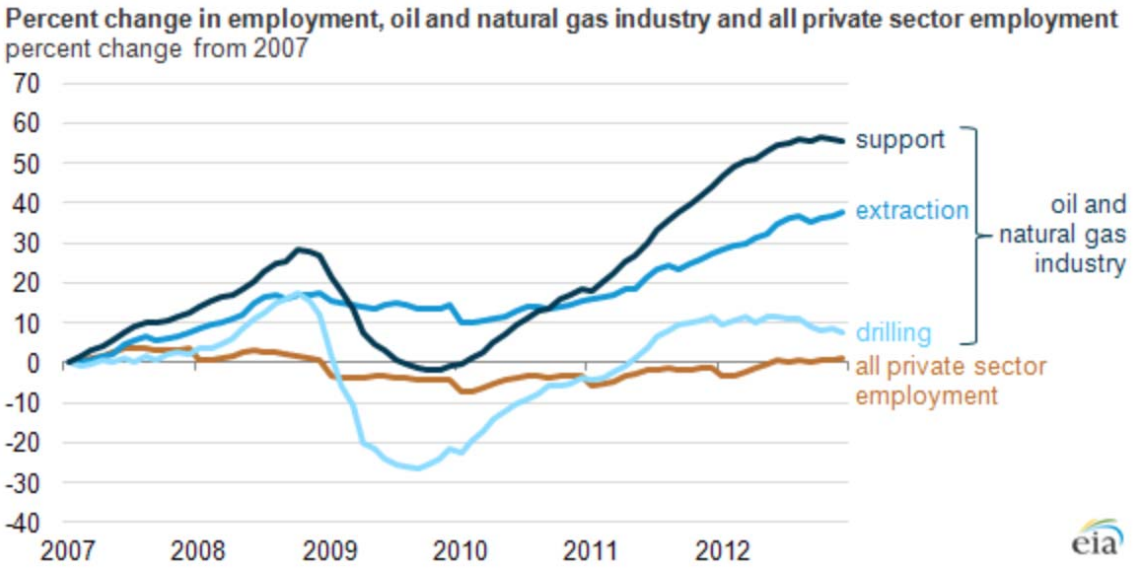

Figure.1 Percentage change in employment (oil and gas)
Source: U.S. Bureau of labor Statistics (2013)

Every employee in an organization should ever be focusing on the best practices to achieve the targeted goals, which is to provide evidence-based innovative ideas that can make a difference and ensure the targeted company is able to achieve its business potentials. Such workplace goals and innovative standards have always been essential towards managing quality and ensure the targeted customers and stakeholders get the best support (Prasad & Sutharasan 2012). This explains why the best business results have been realized in the developed world whereby aspects of lean and innovative thinking are used to deliver the most desirable goals. Proper business practices have the potential to improve the outcomes of different companies and achieve profitability (Gray & Matheson 2002). With the continued use of these best practices, it has been possible for different companies to embrace the quality improvement methodology in order to continue supporting the changing needs of many stakeholders and customers.

3.5 Innovation and Business Performance

Past studies have indicated clearly that innovation is one of vital tools for the durability and success of both small and huge business organizations (Radnor & Walley 2008). Properly coordinated initiative processes will focus on the challenges affecting performance and focus on the most desirable processes. This is the case because innovation is something begins whenever a specific consumer need is identified. Companies within the O&G industry should be able to consider some of the major challenges that might affect performance while at the same time focusing on the targeted business goals (Radnor & Walley 2008). The future performance of a firm should also be considered in order to promote the most appropriate practices that will deliver tangible results.

According to a study completed by Gill and Johnson (2002), the innovated services and products will therefore go a long way towards addressing that specific need. Business organizations have therefore been capitalizing in such needs with the aim of producing the best outcomes (Radnor & Walley 2008). Companies in different industries have the potential to focus on the concept of innovation and be able to achieve the most desirable outcomes. Small entrepreneurs and businesses will mostly be involved in the major issues facing every stakeholder. Successful firms have been promoting this kind of interaction to identify the major needs and issues affecting their respective communities.

The innovated products and services therefore become the best solutions towards fulfilling such needs (Gadrey & Weinstein 1995). The most important thing is to seize the opportunity and innovate. The process will definitely ease certain communal problems and eventually transform the lives of more people comfortable. Subsequently, the solutions will eventually keep getting better and the company will continue to focus on the best improvements that can eventually be translated in to better outcomes (Prasad & Sutharasan 2012).

Radnor and Walley (2008) support innovation as one of the best tool for entrepreneurs to come up with proper products that can eventually be translated into business performance and growth. It has also been appropriate to focus on the existing trends and changes in the market. The move will ensure every innovated product is revolutionary and capable and addressing the changing needs of different consumers (Piercy & Rich 2014). Small businesses can come up with improved solutions and formulas depending on the existing or identified needs of many customers. According to Radnor and Walley (2008), the decision to '*keep abreast with current trends and demands is an important factor for entrepreneurs to fuel their creativity and innovation*' (p. 17).

Business players have over the centuries been focusing on the best approaches towards innovation as a powerful tool for producing some of the best and quality products. Small businesses have also been encouraged to make innovation one of the best parts of their development (Prasad & Sutharasan 2012). The approach has relevant because it has made it possible for many companies in different parts of the globe to achieve business success

(Prasad & Sutharasan 2012). As well, innovation has been observed to deliver new changes and opportunities thus making it possible for many companies to achieve their potentials.

Most of the studies and case analyses completed within the past years have showed conclusively that there is need to focus on the most desirable outcomes (Drejer 2004). Small and upcoming entrepreneurs have also been benefiting the most from this concept of innovation. The other critical thing with innovation is that it cuts across all industries. Such industries have been embracing the power of research and development (R&D) to come up innovative services and products that can transform the experience of many clients (Drejer 2004). This concept has the potential to add value and ensure the best goals are realized.

Drejer (2004) go further to treat R&D as one of the best catalysts for effective innovations. Entrepreneurs must therefore focus on the power of innovation in order to produce numerous solutions to a specific problem affecting the targeted people. Numerous ideas and options are better towards addressing the same problem (Radnor & Walley 2008). The greatest question is how businesses and small corporations can embrace the growth of innovation among their employees. It is also critical to understand how different corporations can embrace powerful concepts in order to deal with various problems (Fitzsimmons, Noh & Thies 1998).

3.6 Services Innovation in the Oil and Gas Industry

The oil and gas (O&G) industry is responsible for the economic developments and realization of business goals in different parts of the globe. The global O&G industry has been engaging in the most appropriate business practices in an attempt to deliver quality to different stakeholders. Alam (2006) believes that the success of many companies in this industry is something that dependant on the firm's ability to embrace new ideas, technologies and innovations. Past studies have showed conclusively that many firms in the industry have been unable to realize their potentials due to a wide range of challenges affecting them.

The industry is characterized and described by many experts as high risk (Dean & Kiu 2002). Failure to undertake the most desirable practices and business operations is something that makes it impossible for the firms to achieve their potentials. Positive business practices are something that adds value to the companies and eventually address the major challenges that might deliver positive results (Piercy & Rich 2014). Despite such issues, scholars and industrialists have been on the frontline to outline the most appropriate approaches towards amazing outcomes through the continued use of services innovation.

According to Radnor and Walley (2008), the '*oil and gas industry has become capital-intensive and a high-risk industry*' (p. 17). This happens to be the case because players in the industry use '*advanced, complex, and integrated products, equipment, machines, systems, and production facilities*' (Dean & Kiu 2002, p. 410). This issue affects the strategies and processes undertaken by companies in an attempt to achieve the most desirable outcomes. The industry has continued to contribute a lot to the global business economy. From a global perspective, the '*O&G operator companies are the license holders*

for the production facilities and are responsible for the safe and cost-effective design, installation, operation, maintenance, as well as removal of the production facilities at the end of life' (Radnor & Walley 2008, p. 18). This shows clearly that companies in the sector that embraced the best industry asset management (IAM) is something that makes it possible for them to record positive outcomes. IAM has been considered as powerful approaches by educationists and business theorists as a useful aspect that can drive services innovation. The important goal is ensuring various business practices and approaches are aimed at promoting better practices and approaches that can add value to the company.

Many companies operating in this industry are supported by '*a large number of service companies that are known to provide quality services based on a combination of advanced technology and knowledge to varying degrees*' (Dean & Kiu 2002, p. 11). In an attempt to achieve the best results, technological innovations focusing on effective service practices is something taken seriously in an attempt to achieve the best results. As a result, many companies in Norway and Middle East have managed to realize their potentials. The use of lean has been embraced whereby the companies embrace the most appropriate approaches to streamline their internal processes (Cormican & O'Sullivan 2004). Consequently, the processes have outlines the best strategies that can streamline operations, include different stakeholders, and attract appropriate processes that have the potential to achieve the most desirable outcomes.

The success of many companies in the global O&G industry has been coupled with the use of services innovation (Radnor & Walley 2008). However, the industry has been characterized by a wide range of challenges that affect the final outcomes. A study conducted by Cormican and O'Sullivan (2004) outlined a number of challenges and obstacles that were making it impossible for many players to achieve their potentials. The first challenge observed in the industry was the '*increasing level of operational costs and maintenance needs of the production facilities as many of the facilities*' (Cormican & O'Sullivan 2004, p. 821). Many companies have been forced to embrace new designs and assets that have the potential to achieve the most desirable outcomes (Radnor & Walley 2008). The industry is also '*characterized by increased support needs since many oil fields have matured*' (Cormican & O'Sullivan 2004, p. 821).

Companies in this industry have been focusing on new fields for exploration. Such fields are usually marginal and located in deeper waters that require new, complex, and extensive technologies (Radnor & Walley 2008). As well, new oil fields have been identified in remote geographical locations across the globe that is usually characterized by less developed infrastructure and transportation processes (Radnor & Walley 2008). This challenge has been affecting the performance of many firms in this industry. However, firms using lean models have been able to streamline operations and subsequently address a wide range of challenges that might affect the final outcomes (Piercy & Rich 2014). The world is also in need of gas and oil than ever before in order to support various aspects of the economy. The ultimate goal of many players in the industry has been to fulfill these changing needs of the global consumer. Unfortunately, it has become '*impossible (or hard) to keep the economy*

of production optimal especially at a time when the major oil fields have entered into their tail-end production phases' (Cormican & O'Sullivan 2004, p. 823).

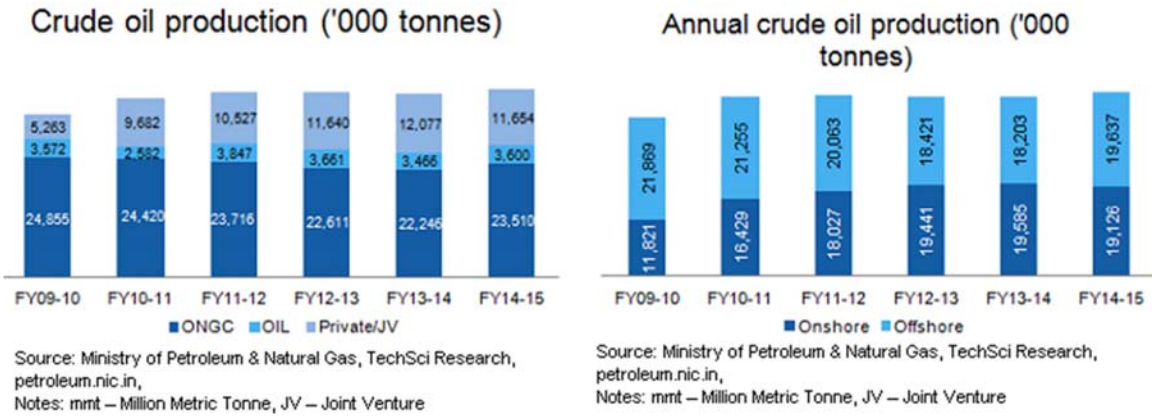

Figure 2. Oil and Gas production
Source: Statistics Norway (2016)

Integrated and collaboration operations '*between the offshore (or onshore) and across operator and service provider companies have been focusing on the most appropriate processes that can become powerful solutions to the challenges faced by many players in the O&G industry*' (Brax 2005, p. 147). Within the past two decades, theorists and industrialists have been focusing on the development of both collaborative and integrated operations that have the potential to define various work processes. Consequently, new models have been suggested to integrate and streamline activities across disciplines for both offshore and onshore locations (Bragg 1998). Companies in established economies such as Norway and Saudi Arabia have been streamlining operations across stakeholders and services companies. The proposed model in these countries has made it easier for the leading firms to have real time information that is always availed to all the involved parties and stakeholders. The approach has led to streamlined operations that deliver value and produce the most desirable results.

Using the concept of services innovation, successful companies have managed to focus on the most desirable practices and strategies that can combine lean, Industry Asset Management (IAM), and services innovation (Bovik 2004). Modern aspects of technology have been critical towards promoting the coordination and performance thus achieving the most desirable results. The focus of the industry has been '*to integrate service providers' resources with the operator companies' resources to ensure increased production regularity*' (Brax 2005, p. 148). Numerous service and advice providers have emerged within the past few years. Such firms have been presenting adequate technological ideas and managerial concepts that have the potential result in effective asset management while at the same time addressing the unique challenges that might affect the level of performance.

Theorists have suggested the idea of integrating service providers and monitoring the performance of different functions of the business organization. Such support services can

be used to address issues associated with industry asset management (IAM). The approach has been focusing on the best approaches to improve equipment performance. The strategy has the potential to improve maintenance work processes and improve operation (Bovik 2004). Companies have been focusing on the most strategies to ensure continued regularity and at the same time improve the level of production.

Continued implementation of the most desirable services innovation within this industry is something that has made it easier for many firms to embrace innovative solutions that have the potential to deliver the most desirable results. As well, services innovation has become a powerful approach that can address a wide range of challenges that might affect the targeted goals and outcomes. Case studies have indicated that '*the continued use of lean and service innovation can get companies in the oil and gas industry closer to better understanding and embracing various industrial service processes, innovation practices, and innovation processes*' (Seddon & Brand 2008, p.8). Such processes and innovative approaches can make it possible for many companies to focus on the best ideas and eventually achieve the most desirable outcomes.

Chapter 4 Research Findings

4.1 Introduction

This section presents the findings obtained from the use of primary interviews focused on technical employees, stakeholders and other consultants in China Oilfield Services Limited (COSL). It also presents results of the case studies conducted on target companies namely Schlumberger, Halliburton and Weatherford. It was guide by the following inquiries:

1. How can service innovations contribute to COSL growth and development in the ever more competitive environment?
2. What approaches is COSL utilizing to stimulate innovation?
3. What processes do they have to develop as new or improved services?

4.2 China Oilfield Services Limited (COSL)

China Oilfield Services Limited (COSL) is one of the leading integrated oilfield services providers in the Asian offshore market (Cormican & O'Sullivan 2004). The company currently focuses on the most appropriate business approaches in an attempt to realize the most desirable business outcomes. The firm is known to operate four main divisions that support its core business model. The four major services divisions operated by the firm include Geophysical Services, Drilling Services, Well Services, and Marine and Transportation Services' (Cormican & O'Sullivan 2004).

The purpose of these services has been to cover the exploration, continued development, and constant production phases of the gas and oil industry thus achieving the targeted business potentials. According to the firm's website, COSL is known to have large and diverse offshore oilfield services facilities in different parts of China (Bovik 2004). The extensive services provided by the firm are known to cover offshore China and other regions across the Asia-Pacific. It has also been focusing on the most desirable practices in an attempt to extend its business practices internationally. Some of the targeted regions are in the Middle East, the Americas, Africa, and Europe.

The current target of the company is to touch more than thirty countries across the globe and deliver quality to different areas around the world. COSL is unrelentingly striving to embrace the most desirable practices and approaches that have the potential to provide win-win scenarios to every shareholder (Bertolini et al. 2004). Much focus has been on the best practices that can ensure the company's customers, partners, communities, and employees are supported and their challenges addressed. However, these findings show clearly that COSL has not been able to achieve every targeted goal (Seddon & Brand 2008). The situation has therefore called for the most desirable approaches and practices that can promote the best ideas and processes throughout the company. The company will ensure the most appropriate innovative ideas are embraced thus making it possible for the company to realize their potentials.

4.2 Case Studies

The targeted companies were Schlumber, Halliburton and Weatherford. These firms were observed to engage in the most appropriate business processes thus adding value to the targeted clients and business partners. Halliburton Company is one of the leading American multinationals in oil services. It has operations in over 80 nations across the globe. Globally, the firm is an employer to over 70,000 people (Seddon & Brand 2008). The other company is Schlumberger and operates in over 85 nations. The company has its headquarters in London, Paris, and The Hague in the Netherlands (Bertolini et al. 2004). Weatherford International has been a leader in producing oil exploration and drilling products. The international oil and natural gas firm embraces adequate business processes to ensure completion, production, evaluation, and intervention. It is headquartered in America, Houston. In order to produce meaningful findings, the Norwegian oil and gas services firm were also examined throughout the study.

The examined firms are leaders in the oil and gas industry. The study findings indicated clearly large service companies were focusing on similar approaches in order to deliver knowledge-intensive support services that have the potential to support core activities in every oil and gas company. The companies were also seeking consultations from different services providers and innovation experts in order to achieve tangible results. The three companies targeted throughout the study were constantly in demand of a wide range of services varying from engineering needs to technology related services. The major technological needs of the companies included engineering, construction and building, installation, and commissioning of services for maintenance and modification purposes (Bertolini et al. 2004). The firm sought the expertise of different professionals in the industry in an attempt to achieve the most desirable outcomes.

In Norway, majority of the examined companies indicated clearly that services innovation was undertaken in a professional manner while at the same time focusing on the concept of industrial asset management (IAM). In an attempt to realize their goals, pure management services have been taken seriously in the O&G industry. The approach more or less similar to lean, most of the companies in the Norwegian industry have been including every player in order to promote organizational productivity and effectiveness.

Continued analysis has been done in such companies in an attempt to promote efficiency analysis. As well, continued analysis is done in different companies in an attempt '*to improve communication and information flow thus addressing the needs of more stakeholders*' (Wood 2004, p. 9). Solution providers within the industry have been supporting the performance aspects of many firms in the industry. In addition, many firms in the American and Norwegian O&G industries take advantage of developments in the fields of information and communication technology (ICT). Through continued presentation and use of technological innovation, it has become possible to introduce superior services such as remote support and delivery of quality services (Bertolini et al. 2004).

In the Norwegian industry, a new concept has been observed known as smart OMS. The model has been embracing powerful strategies and concepts that can deliver the most desirable outcomes while at the same delivering value. There have been a number of approaches aimed at adding value to the targeted stakeholder. The SMART-OMS stands '*for 'smart operations, maintenance, and support'* (Seddon & Brand 2008, p. 9). Companies in the industry have become a pacesetter whereby the concept of integrated operations (also known as e-operations) continued to improve coordination, promote sustainable practices, and focus on the most desirable results. Amaratunga et al. (2002) has also indicated conclusively that majority of the companies have been based on advanced acquisition of knowledge and technology thus improving the level of performance in the industry.

The study findings have indicated clearly that 'services are playing an important role in revenue generation in many companies in this industry' (Seddon & Brand 2008, p. 10). The observation from this survey was that the operators in the industry were the major players in the services industry in the Norwegian economy (Wood 2004). Many operators in this industry have been evaluating between the continued use of internal resources and the purchase of different external services. Advice from different players and innovative providers is something that has been taken seriously in an attempt to achieve the most desirable outcomes.

In Norway (and elsewhere for that matter), there have been stringent HSE requirements towards continued production regularity is something that continued to play a vital role towards the continued use of various external and internal resources. The issue of services innovation in this industry has focused on the critical area of safety. Past observations have indicated that most of the recurrent events are usually related to the issue of safety and accidents especially on offshore production facilities. Such accidents and injuries are usually encountered during operations and maintenance of different assets in industry and exploration. That being the case, many players in the O&G industry in Norway continue to prefer continued use of internal '*resources for these operations and generally do not in-source specialists from external service suppliers*' (Amaratunga et al. 2002, p. 18).

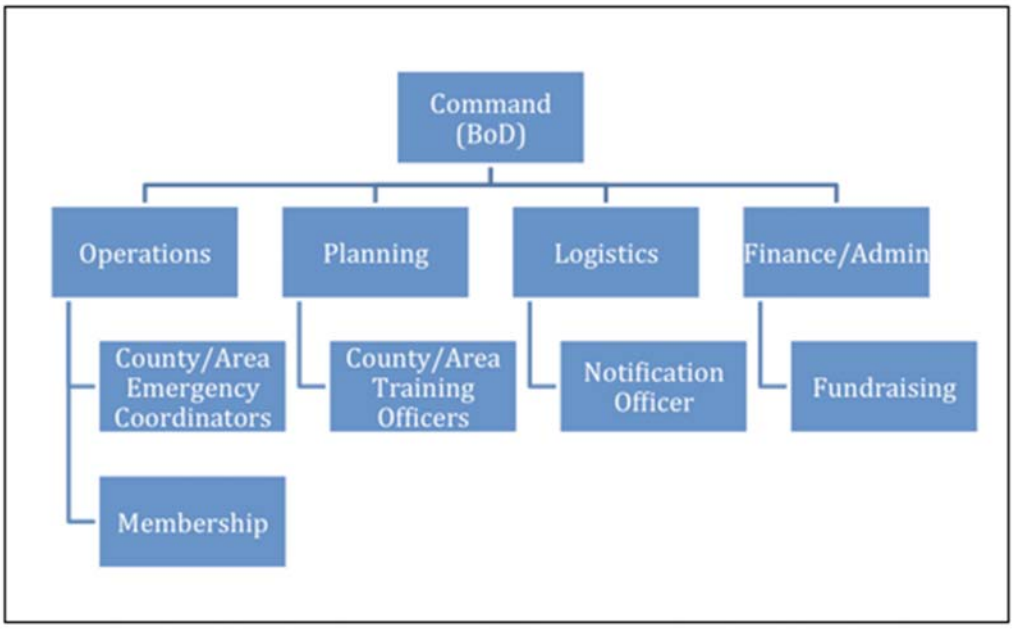

Figure 3. Leadership for effectiveness in the O&G industry
Source: Modified from Emergency Management Institute (2016)

Service innovation has become a powerful model that continues to support the needs of many companies in both the American and Norwegian oil and gas industry. As a general practice, the conducted study has revealed that many O&G operators tend to outsource a wide range of drilling operations, sub-sea services, and well services (Amaratunga et al. 2002). This has been the case because most of the outsourced companies possess competencies and skills that have the potential to add value and deliver the most desirable outcomes. These specialist companies have the know-how to ensure every practice and exploration is executed in a professional manner thus delivering quality. The market has been characterized by new professionals and innovative companies that deliver customized solutions and eventually produce tangible results. However, the study indicated clearly that of these specialists service companies were buying numerous services from various support service companies (Amaratunga et al. 2002).

The outsourced services embraced by the companies included '*operational support services, technical process performance improvement services, modification services, up-gradation services, maintenance services, product support services, and field services*' (Wood 2004, p. 8). Some players such as manufacturers, engineering companies, and original equipment producers have been selling quality operational support services. The other services include '*product support services, work process performance improvement services, technical process performance improvement services, and training services*' (Wood 2004, p. 9).

The use of outsourced services from firms such as Aker Solutions is something that has made it possible for companies to achieve their goals. This study shows conclusively that numerous aspects of service innovation have led to numerous benefits. According to Bovik (2004), the performance of the examined firms is a clear indication that services innovation is something that continues to play a revolutionary role in the oil and gas industry. Alam (2006) argues further that '*technological innovation has had a profound effect on all aspects of the supply chain*' (p. 240).

Modern approaches have emerged whereby companies are embracing the power of both 3-D and 4-Dimension seismology technologies to improve various distillation processes. Such technologies have been '*observed to promote iso-merization to liquefaction and re-gasifaction*' (Alam 2006, p. 247). Consequently, Norwegian and American firms in the O&G industry have managed to realize their business goals and potentials. Services innovation, according to these findings, is something that will have profound implications on the manner in which different '*companies explore, drill, produce, process and distribute oil and gas*' (Amaratunga et al. 2002, p. 29). Future prospects show clearly that companies in the oil and gas industry will be able to benefit from the power of services innovation.

Chapter 5 Discussions and Conclusions

Different providers of services and innovative technologies within the O&G industry possess specific concepts that have the potential to drive positive results. The providers of such services begin by considering how the targeted services have the potential to benefit the targeted clients (Tidd & Hull 2005). That being the case, companies in the industry should be aware of the most desirable innovations and services that can resolve various challenges and eventually produce quality results.

Most of the companies in the Norwegian sector have succeeded due to the continued use and power of services innovation. Powerful service innovations are the ones that have the potential to smoothen operations will at the same time improving the level of productivity. Many service companies have understood how to involve themselves in every stage of the client's operations (Wood 2004). The approach has the potential to address the existing weaknesses and problem areas.

5.1 Discussion on COSL's service innovation

As mentioned earlier, China Oilfield Services Limited (COSL) is known to have large and diverse offshore oilfield services and facilities in different parts of China (*China Oilfield Services Limited* 2016). The services presented and offered by the firm support offshore China and other nations across the Asia-Pacific region. As the firm focuses on the best approaches and business practices, there is need to consider most of the approaches and strategies embraced by the above companies including those in the Norwegian oil and gas industry. For instance, the firm can consult services similar to those provided by Aker Solutions (Tidd & Hull 2005).

The service provider will be able to offer customized solutions that have the potential to address the needs, wants, expectations, and preferences of China Oilfield Services Limited. The partnership should also focus on the most desirable approaches that have the potential to address every weak point making it impossible to achieve the targeted results (Piercy & Rich 2014). The service provider will be able to present powerful technologies and innovative concepts that can add value to the company's processes and eventually deliver the most desirable support to the targeted customers.

The move will make it possible for the firm to have greater business potential than generic solutions (Tidd & Hull 2005). The company should also the targeted services and support systems are tailor-made depending on the specific goals targeted by this company. The consideration and acquisition of most desirable practices is something that will make it easier for the firm to achieve the use of superior equipment and methods depending on the targeted business needs (Partington 2003). The advice and representation of new innovations will play a significant role towards ensuring that the oil field is standardized. Companies that have followed the advice of different service providers have achieved a new potential thus being able to deliver value and produce the most desirable results.

As well, China Oilfield Services Limited (COSL) should consider specific qualifications and competencies possessed by the targeted service provider. Aker Solutions has been on the frontline to promote the most desirable practices and ensure every process focuses on the changing needs of the clients. When China Oilfield Services Limited considers these issues from a professional perspective, it will be possible to '*reduce inventory, maintenance and training costs, and yield the competitive advantages of higher productivity and reliability*' (Grönroos 2000, p. 73). Competition has also been observed to increase in the oil and gas industry. Increased levels of competition have been observed with reduced profit margins for companies operating in high-intensive industries such as the oil and gas industry (Partington 2003). This gap explains why there has been the need to embrace the competencies and skills provided by different service companies. The firms have proved to be innovative and capable of optimizing the entire work processes thus promoting be cost-effectiveness.

Many companies in the global oil and gas industry have been focusing on the issue of employee safety and health (Kumar & Kumar 2004). Quality remains an important aspect in every oil exploration process. Companies should therefore embrace the most desirable processes in an attempt to have continued improvements. Service providers are usually capable of working continuously with their clients in an attempt to ensure every business process undertaken by the targeted company can have cost effective, efficient, and safe processes.

A study conducted by Kuczmarski (2003) indicated that the service market has '*been growing and putting an increased demand and pressure on many companies in the oil and gas industry in order to be more effective and efficient*' (p. 538). Knowledge and sustainability are critical aspects and ingredients for continued survivability especially in a competitive market (Kumar & Kumar 2004). Many Service providers have been able to observe, examine, and analyze the needs of the targeted customers.

5.2 Recommendations

The proposed kind of collaboration between China Oilfield Services Limited and Aker Solutions will leverage and manage various exploration processes. The move will ensure the company makes appropriate decisions on technology that can make it easier for the firm to explore oil in deep waters and other inaccessible regions. Aker Solutions should be consulted throughout the process in order to ensure the best decisions are made (Tidd & Hull 2005). This move, if implemented in a professional manner, will make it easier for China Oilfield Services Limited (COSL) to extend the life of its targeted gas fields and oil. As well, the approach will ensure the company works hard to access inaccessible fields (*China Oilfield Services Limited* 2016).

There is also need to address some have technological and challenges facing many companies in this industry such as China Oilfield Services Limited. Innovation should be embraced as a powerful model for developing potentials and ensure they achieve goals. Aker Solutions is a powerful approach that will deliver technology and innovation to help the

company add value and eventually achieve its potentials. The best recommendation is for the company to develop a powerful technology and innovation strategy (Grönroos 2000). COSL should also embrace the use of decision science support technologies to model appropriate practices and align technology (Tidd & Hull 2005). The strategy will be used to align business processes, objectives, and support the R&D department to produce powerful ideas that can improve performance. COSL will also be expected to use powerful technology management processes (*China Oilfield Services Limited* 2016). Talent management will be considered to ensure the human resources are managed in a proper manner. Future challenges will be addressed an outline new solutions that will ensure the best solutions are considered to address the existing challenges and focus on the needs of the end user.

The other useful recommendation for COSL to acquire real time data to ensure drilling operations and site management processes are supported in a professional manner (*China Oilfield Services Limited* 2016). Technologists should also be involved throughout the innovation process to support every business agenda. The Lean Thinking concept should also be combined with the best practices (Kuczmarski 2003). Different stakeholders should be empowered while at the same time promoting the level of communication. With the continued use of technological concepts and services innovation, it will be possible to acquire new technological solutions that have the potential to deliver tangible results (Alam 2006). The best approaches towards effective asset management characterized by technological optimization and lean concepts will add value and make it possible for this company to achieve their potentials.

These suggestions can be used to design a powerful model of service innovation for COSL (*China Oilfield Services Limited* 2016). By so doing, this big offshore oilfield service company in Asia can embrace the best practices such as services innovation, lean thinking, and consultancy from Aker Solutions (and similar services providers) to promote the most desirable strategies. The newly-designed model will definitely help COSL achieve the most desirable service potential capabilities, gain economics of scale, address every competitive issue affecting it, make the best optimal competencies, both human capital and non human assets, and address the major market and non-market adversities in current crises-ridden global scenario. The ultimate goal will be to ensure COSL becomes a leading player and a recognizable competitor in the global oil and gas industry (Kuczmarski 2003). These aspects, if implemented effectively, can make it possible for COSL to achieve its business potentials.

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