Critical Success Factors Influencing Effective Oil Exploration in Buliisa District, Uganda

Paul Buhenga Masiko
Uganda Management Institute, Kampala, Uganda.

Abstract

The purpose of this study was to explore the Critical Success Factors (CSFs) responsible for the effectiveness of oil exploration in Uganda. Descriptive cross sectional research design was employed. Qualitative and quantitative data were collected from 127 randomly selected respondents using questionnaires and focus group discussions. Multiple regression analysis was employed in testing the hypotheses. Research findings indicated that stakeholder management was the most critical factor for success of oil exploration in Buliisa District. This was followed by human resource competence. This study confirms that the CSFs have a direct influence on effective oil exploration in Buliisa District, Uganda. The paper contributes to literature on oil exploration in Uganda, an area that is still in its inception stages. The study thus recommends stakeholders' management plan to periodically monitor and evaluate the implementation programs of oil exploration. In addition oil exploration organizations should build both human resource and technology competences in terms of skills, knowledge and abilities since they are essential ingredients of knowledge transfer. Future studies should consider longitudinal research design to as well as extending to other oil exploration districts in the Albertine region considering that this study was considered for a short time and in only one oil exploration district of Buliisa.

Key words: Human Resources Competence, Technology Competence, Stakeholders' Management, Effective Oil Exploration, Quality Assurance, Cost Management

Introduction

Oil and Gas deposits occur naturally throughout the world in every continent and ocean (Olmstead, 2001). It is believed that most of the deposits are several thousand meters deep. The oil industry's mission is to find, develop, refine, and market these resources with high economic returns to the owners while protecting the fixed investment in the operation (Mooney & Smith, 2012). The main facets of the oil and gas industry are exploration, production, refining, transportation, and marketing. According to Lyons and Plisga (2005) exploration for oil and gas reservoirs consists mainly of geological testing and drilling of exploratory "wildcat wells". Oil and gas from the drilled well is produced through primary separation facilities, into individual streams and this process requires effective management.

Effective oil exploration represents the first piece of a long petroleum value chain referred to as the upstream. This is followed by the midstream, which includes transportation and oil trading, and lastly the downstream which includes oil refining and marketing (Moffet and Inkpen, 2011). Rockart (1979) describes CSFs as specific to the industry, sector, context sensitive and time. Organizations may need to continuously monitor the market to trace changes in the CSFs. Vasconcellos and Werikhe (2012) contend that CSFs are conditional in nature as they are highly dependent on industry situations. Specifically, Thompson and

Strickland (2005) and Grant (2010) assert that even within a sector of an industry, CSFs are context specific and will vary from time due to changes in industry environment such as competition, technological innovations and maturity of the industry. Kenney (1999) describes CSFs as contributors to achievement of business objectives, pursuing a superior position in the market for the organization in the market. For the organization to realize a superior position in the market, it may be conditioned on its strengths, weaknesses, opportunities and threats (SWOT) analysis. The study is triangulated demonstrating how CSFs influence effective oil exploration in Buliisa District, Uganda.

The context

In today's increasingly commoditized and globalized business environment, oil companies are finding it necessary to increase their competitive advantage and to boost their operating efficiency and effectiveness (Olmstead, 2001). Yet, achieving this is challenging, especially within the context of the complexity and excessive competition. One strategy that oil companies should employ is the full integration of all assets and processes into a single management system – participation, consultation and inclusion. According to Olmstead (2001) efficiency, effectiveness and strategy for oil exploration are simple.

The Problem

Mooney et al, **(**2012) observe that oil turned out to be a cursed resource for most oil producing African countries because of conflicts between foreign oil companies and local communities. Oil- related conflicts have evolved around land ownership and compensation for land appropriation as well as compensation for environmental damages due to oil exploration operations (Werikhe 2012). Most of all, the disputes in regard to oil concern oil spills and whether affected communities are eligible for compensation. At the national level, conflicts have centered on sharing of oil revenues, allocation of public goods between various ethnic-regional groups and technology competence (Muwanga & Barifaijo, 2006). Yet, Mooney & Smith **(**2012), reiterate that regardless of a company's size, location or even industry, one aspect of operational success and excellence that is often overlooked and underrated is "people". This is because; humans are a peculiar resource in any venture. Surprisingly, oil explorers, investors as well as business leaders have overlooked this most critical factor. However, for an oil company to succeed, people management, change management, cultural inclusion and conflict prevention must be at the helm of any venture such as oil exploration.

Literature review

The management competence theory by Prahalad and Hamel (1990) postulates that a core competence is a specific factor that a business considers central to the company or its employees' work. The Chartered Institute of Personnel and Development (2012) describes human resource competence among the CSFs that people need to perform a job.

Edvinsson and Malone (1997); Sveiby (1997), relate the human resource competence to human capital which derives value from intellectual capital. This is illustrated as a tripartite model comprising

human capital, knowledge sharing and internal components. This possibly means that skilled human resource will invariably drive innovation and human capital will subsequently comprehend the benefits of favorable customer, supplier and broader external relations. Human capital is portrayed as critical for businesses to compete effectively (Sveiby, 1997). Fitz-enz, (2000), Bontis and Fitz-enz (2002) singled out human resource competence as critical for business to compete effectively, suggesting that people, not cash, buildings or equipment are critical differentiators of business enterprise to realize success (Fitz-enz, 2000). Kaplan and Norton (1996), Guthrie and Petty (2000) affirm the need for intellectual capital as an asset in terms of competences. Therefore, organizations in the oil sector of Uganda will require personal knowledge management, skill and abilities which depict knowledge sharing as a catalyst to the organization's workforce to realize human resource competence and obtain general success.

At the 2002 World Summit on Sustainable Development, stakeholders were defined as those who have an interest in a particular decision, either as individuals or representatives of a group. This includes people who influence a decision, or can influence it, as well as those affected by it. Stakeholders might include local community members, non-government organisations, governments, shareholders and employees. It should be recognized that some stakeholders have different value systems, protocols and customs. A critical element of the development of the oil sector is the establishment of a strong partnership between the International oil organizations and the Government of Uganda (Ministry of Energy and Mineral Development, 2008). Stakeholder participation theory has over the years been applied in research, policy and management of natural resources among others (Dearden et al. 2005, Reed 2008, Chapin et al. 2010). The argument for involvement of stakeholders includes; increased efficiency and ownership of decisions (as people are more likely to support and implement decisions they have participated in making); improved accuracy (as a more diverse and broader knowledge base is utilized), and strengthened legitimacy (as people affected by decisions are invited into the process of making them) of management and conservation efforts (McCool and Guthrie 2001, Beierle and Konisky 2001, Colfer 2005).

However, stakeholder engagement is not without critique. Authors such as Brody (2003) contend that the process slows down decision-making, causes conflicts and results in undue compromises. In support, Galaz (2005) argues that decision-making by various stakeholders may block strategic decisions such as avoidance of costly measures in favour of cheap negative consequences among participating resource users. Such outcomes might erode social capital rather than build it (Conley and Moote (2003). The supposition that local participation automatically improves legitimacy of decisions has also been questioned. Powerless and poor people may lack the capacity to participate fully, and so the decisions made in participatory processes might become more biased towards enforcing existing power structures than would decisions made by democratically elected and representative bodies. This process, labeled 'elite capture', has been described several times in the development literature (Platteau and Abraham 2002).

Technology is fundamental to human existence (Burke and Ornstein, 1995; White, 1962). At every stage within the cycle of life, humans continuously attempt to acquire new skills to refine existing skills hoping to enhance productivity and quality of life. However, measuring technological competence as a construct may be achieved by extending the work of Dyrenfurth and Layton as cited in Autio (2011). The scholars identified three components considered the dimensions of technological competence which

include; technological knowledge, technical and technological skills. These skills are often labelled by psychologists as psychomotor skills and are an important component of technological competence. They involve manual coordination and steadiness when using welding or soldering equipment. The third dimension is technological will and relates to being active and enterprising in the area of technology. This means technology is determined by human emotions, motivations, values and personal qualities. Consequently, the development of technology in society is dependent on citizens' will to participate in, and have an impact on technological decisions. Technological competence, in summary, will involve a balance between knowledge, skill, and emotional engagement. This means technological competence is the act of using human inventiveness (Hansen, 2008). Technology innovation will drive innovative projects and processes on budget and on time, requiring constant pressure to learn among the organization members and thus producing more with less. Van Zyl et al., (2011) confirm the constant pressure for organizations to learn because of globalization demands. However, this necessitates organization to work smarter and takes more risks than ever before.

However, the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh *et al. (*2003), postulate user intentions for new technology and subsequent usage behaviour. The theory assumes four key constructs (performance expectancy, effort expectancy, social influence, and facilitating conditions) which directly determine usage intention and behavior. Gender, age, experience, and voluntariness of use are posited to mediate the impact of the four key constructs on usage intention and behavior. Subsequent validation of UTAUT in a longitudinal study found that it accounts for 70% of the variance in usage intention (Venkatesh et. al., 2003).

Methodology

The research that informed this paper employed both quantitative and qualitative approaches as supported by Sekaran (2002). This was augmented by descriptive cross sectional designs. The triangulation of two designs was found by Babbie (2007) to strengthen quality, validity, as well as affirming the theoretical propositions. She further opines that cross sectional design is more appropriate in this kind of study because there is no need for repeated visits. A sample of 127 knowledgeable oil exploration experts was randomly selected. The response rate was 103, accounting for 81%. Data was analyzed using Factor analysis with the help of SPSS. On the other hand, qualitative data was analyzed through content and thematic analyses.

Findings

Table 1: Demographic Data

1	**Respondents' Category**	**Frequency**	**Percent**	**Cumulative**
	Senior Management	5	5	5
	Technical Staff	79	79	79
	HR Departments	2	2	2
	Corporate Affairs	2	2	2
	Local Leaders	7	7	7
	Local Councils	4	4	4
	Total	**99**	**100**	**100**
2	**Education Levels**	**Frequency**	**Percent**	**Cumulative**
	Secondary	25	24.3	24.3
	Diploma	10	9.7	34.0
	Degree	30	29.1	63.1
	Professional	6	7.8	70.9
	Masters	19	20.4	91.3
	Others	9	8.7	100.0
		99	100.0	100
3	**Distribution by Gender**	**Frequency**	**Percent**	**Cumulative**
	Male	78	**78.7**	78.7
	Female	21	**21.2**	21.2
	Total	99	100	100

According to Table 1, majority respondents are technical staff (79%) and most of the respondents have attained post-secondary education. This implies that the workforce had sufficient knowledge and skill to understand the questionnaire and provide relevant responses. On the other hand, only 21 percent of the respondents were female. This can be explained by the socialization around gender roles in the study community where females are less involved in manual tasks associated with the oil and gas sector.

Table 2: Relationship between Study Variables of the Critical Success Factors affecting oil exploration

		Human Resource Competence	Technology Competence	Stakeholder Management	Oil Exploration Effectiveness
Human Resource Competence	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	103			
Technology Competence	Pearson Correlation	.480**	1		
	Sig. (2-tailed)	.000			
	N	103	103		
Stakeholder Management	Pearson Correlation	.440**	.361**	1	
	Sig. (2-tailed)	.000	.000		
	N	103	103	103	
Oil Exploration Effectiveness	Pearson Correlation	.413**	.351**	.683**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	103	103	103	103
**. Correlation is significant at the 0.01 level (2-tailed).					

Source: Primary data (2015).

According to Table 2, there was a significant positive relationship between human resource competence and effective oil exploration (r=.413; p=.000<0.05) at 95% level of significance. This implies that enhancing the human competence such as knowledge, skills and abilities will contribute to an improvement in oil exploration effectiveness. Findings further indicate a significant positive relationship between technology competence and oil exploration (r = .351, P =.000 <0.05) at 95% level of significance. This shows that enhancing technology competence such as industry-wide technical competences and industry-specific technical competences will contribute to the success of oil exploration in Buliisa District. Finally, results showed a significant positive relationship between the stakeholder management and oil exploration (r = .683, P=.000 <0.05) at 95% level of significance. This implies a strong positive and significant relationship, which means that efforts to enhance stakeholder management can substantially contribute to the success of oil exploration in Buliisa District.

Relatedly, interviews with local practitioners and community leaders in Buliisa district indicated awareness and sensitivity to quality of human resource, stakeholder management, emerging technology and preservation environmental issues. The Drilling Supervisor in the Bugungu Oil Camp observed that human resource should be exposed to enhanced efficient competencies through research and development and adopt to the most efficient means of production (use of technologies) to operate at the minimum cost possible.

The elder of the Bagungu community in Buliisa District observed that the structure of Uganda's economy is still at infant level and suggested that local practitioners in the oil sector should strive to acquire knowledge from the foreign oil companies.

The town clerk and Chairman of the Land Board in Buliisa District observed that there is need to specify the roles and responsibilities of each stakeholder to deter duplication of roles. He pointed out that there is a constant threat of the possibility of CSOs and the World Bank not allowing the region to be exploited for oil considering the fragile ecosystem in the Albertine Graben region.

Multiple regression results

Multiple regression analysis was used to find out the influence of the independent variable on the dependent variable. The dependent variable considered was effective oil exploration. Table 3 presents the regression model of the variables.

Table 3: Coefficients for the Critical Success Factors affecting oil exploration

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.985	.353		2.789	.006
	Human Resource Competence	.108	.087	.107	1.236	.219
	Technology Competence	.088	.091	.081	.966	.336
	Stakeholder Management	.551	.074	.607	7.439	.000
a. Dependent Variable: Oil Exploration Effectiveness						

Source: *Primary data (2015).*

Table 3 shows the effect of the independent variable as measured by a standardised regression (B). This was used to determine whether the independent variable had a controlling effect on the dependent variable. The results show that statistically, human resource competence has a standardised coefficient (B) of 0.107, meaning that human resource competence explains the variations of the dependent variable by 10.8 percent, which further implies that human resource competence has a positive effect on the success of oil exploration in Buliisa district. Hence, if there is any improvement in human resource competences, there is likely to be a corresponding effect in terms of effectiveness of oil exploration. The results further show that statistically, technology competence has a standardised coefficient (B) of 0.088, meaning that technology competence explains variations of oil exploration effectiveness by 8.8 percent. Hence, any alteration on technology competence is likely to lead to a corresponding effect on effectiveness of oil exploration in Buliisa District. Finally, the model shows that stakeholder management had a standardised coefficient (B) of 0.551, implying that it explains the variations in effectiveness of oil exploration in Buliisa District by 55.1 percent. This is further explained in model summary in the Table 4.

Table 4: Model summary for Critical Success Factors affecting oil exploration

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.698[a]	.487	.472	.43469
a. Predictors: (Constant), Stakeholder Management, Technology Competence, Human Resource Competence				

Source: *Primary data (2015).*

The regression model summary in Table 4 shows that stakeholder management, technology competence and human resource competence all had a positive effect on the effectiveness of oil exploration in Buliisa District. This was evidenced by the adjusted R squared (R^2) =0.472 or 47.2%, implying that all the three independent variables combined accounted for 47.2 percent of the variations in oil exploration effectiveness. The rest of the variation could be attributed to other factors outside of this study. To explain this further, the analysis of variance (ANOVA) was computed as shown in Table 5;

Table 5: Analysis of Variance (ANOVA[b])

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	17.791	3	5.930	31.384	.000[a]
	Residual	18.707	99	.189		
	Total	36.497	102			
a. Predictors: (Constant), Stakeholder Management, Technology Competence, Human Resource Competence						
b. Dependent Variable: Oil Exploration Effectiveness						

Source: *Primary data (2015).*

The analysis of variance was used to confirm the quality of the regression model summary results. The analysis of variance "F" as shown in Table 5 is 31.384 with a significance of 0.000. This shows that "F" is statistically significant and implies that stakeholder management, technology competence and human resource competence have a statistically significant effect on oil exploration effectiveness in Buliisa District.

Discussion of findings

The first objective of this study was to establish whether human resource competence has an effect on effectiveness of oil exploration as a tripartite model which comprises of human capital, knowledge sharing and internal components and thus making the role of human capital central to the organization as a whole. The findings indicated that human resource competence has a significant positive relationship with effectiveness of oil exploration. The correlations indicate that human resource competence tends to pair with relatively high project success after the factor analysis, and vice versa. Kaplan and Norton (1996); Guthrie and Petty (2000) affirm the need for intellectual capital as an intangible asset in the form of competence processes and people have become vital resources for an organization in the twenty first century in transit to the information age to comprehend current wealth and future wealth. The previously mentioned

Findings revealed that, partly, the delayed payment of projects affected people and contractor advance affected the performance of Mubende- Kakumiro- Kibaale- Kagadi road, and Kyenjojo-Kabwoya-Hoima-Bulima road in terms of ability to complete the project within time which had an effect on the final project cost. Delayed payment of contractor claims, coupled with continuous design changes, slowed the road works. Puri and Tiwari (2014:66) noted that delays in payment have significant effects on works due to constrained cash flow to the contractor. Mulumba (2016:41) noted that delayed payment leads to delay in project progress which is a function of extension of time and insolvency. The findings from interviews and documentary reviews give the actual status of performance of road transport projects used to triangulate and concretize the findings from the surveys. A UNRA Engineer noted that:

> *The Kyenjojo-Kabwoya road which starts from Kyenjojo junction and two stretches Kyenjonjo-Kagadi and Kagadi-Kabwoya and one big bridge at Muzizi and road connects to Kabwoya to Hoima is showing all signs that will not be implemented within the contracted time. He said the cost and time overruns on this road is due because they found new sections of swamps that were identified and yet the initial design did not identify such swamps which increased the cost.*

This could be attributed to inadequacy of designing at planning stage by UNRA. As Ochary (2016:55) noted the swamps delay works as they need more time to be treated, filled and surfaced resulting into cost over runs.

There were mixed reactions about budget shortfalls basing on the interviews conducted. The interviewed respondents from UNRA and Consulting Engineers attributed the failure to absorb all the funds allocated for projects to have affected implementation, leading to delays in the selection procedures embedded in the procurement laws. Ochary (2016:40), in corroboration, noted that some of the issues affecting their absorption were beyond their control like delays in procurement, land acquisition and whistle-blowers whom a respondent said were interfering in road project implementation.

According to Mulumba (2016), some issues that lead to shortfalls emanate from lacunas within the procurement process for example failure to undertake market price assessment prior to commencement of the re-tender of the procurement. There was non-adherence to the construction schedule on the roads. According to UNRA Report (2016), the time overruns experienced on the project were attributed to the following factors: scope changes which resulted in the addition of the construction of the road, and delays in effecting payment to the contractor for completed civil works. The time overruns experienced on the project were attributed to design changes during construction stage, i.e. the construction of bridge foundations, unforeseen swamp filling, compensation and delays in effecting payment to the contractor for completed civil works.

Similarly, a UNRA Report (2016) noted that the time overruns experienced on the project are attributed to the following factors: design changes during construction which were effected to raise the road to counter the effects of floods in low-lying areas, fuel shortages which were experienced during the period, and lack of qualified personnel on the part of the contractor.

Similarly, Ochary (2017) noted that once a construction project is awarded, its time duration is identified, and the completion time of the project is then defined and included in the contract. It becomes the contractor's objective to schedule his construction activities and that of his subcontractors to meet the identified project duration and ensure project success.

A respondent from UNRA observed that, "*some delays on the roads are attributed to the contractor's slow mobilisation thus affecting project schedule*". She also observed that:

> *the contractor delay to engage a local sub-contractor as is required in the contract therefore UNRA could not remit payments before the local contract supposed to do the earthworks is on site. It is a requirement under the PPDA guidelines that a main contractor when foreign has to allocate a certain percentage of works to a local company as a subcontractor and that work is supposed to be accomplished with the main schedule in consideration.*

Likewise, Amoako (2011) expanded further on the subject of completion time of the project and noted that a conflict may occur between the contractor and his subcontractors if any of the parties does not adhere to the schedule. This applies to both parties, the main contractor and subcontractor, because if any party delays the execution of his scheduled construction activities, it will consequently delay the progress of the activities of the other party (Sambasivan and Soon, 2007).

Findings further revealed that the Mukono-Katosi and Kisoga-Nyenga roads had a lot of complexities. However, the increase in complexity, the over-supply of specialist firms, and the declining construction output cultivated an adversarial atmosphere which had a negative effect on the contractor relationships (Wiguna, and Scott, 2015:11). Furthermore, relationship studies between main contractors have received little to no attention (Enshassi, Najjar, and Kumaraswamy, 2017:77). This is detrimental, considering the relevance the complexities had to the eventual contract termination of the Mukono-Katosi and Kisoga-Nyenga (74.2km) road. A respondent noted that:

> *Delaying payment to contractors has not only delayed UNRA road projects but has led to contractors abandoning sites and eventual contract termination. He noted that this problem is across all sectors in government hence requiring immediate policy shift if service delivery is to be enhanced.*

The UNRA Annual Performance Report (2017) indicated that UNRA is determined to implement road projects in a timely manner but they are let down by delays by the Ministry of Finance in releasing funds for paying contractors and compensating land owners along project areas. Delay in payment at the higher end of hierarchy is likely to trickle down the chain of contracts. More specifically, delay in payment for completed works is likely to constrain contractors' cash flow, which in turn might affect timely payment of subcontractors, workers, suppliers, and service providers. Participants further associated delay in payment with slow progression of works and inefficient utilization of time; which in turn, had negative implications on time-related costs, such as maintenance of management.

reasons affirm human capital as critical for businesses to compete effectively (Sveiby, 1997). Fitz-enz, (2000); Bontis and Fitz-enz, (2002) confirm human capital as the most critical factor if business are to compete effectively, suggesting people, not cash, buildings or equipment are critical differentiators of business enterprise to achieve success (Fitz-enz,2000,p.1).

Kaplan and Norton (1996); Guthrie and Petty (2000), also affirm the need for intellectual capital as an intangible asset in form of competence processes and people to become vital resources for an organization in the twenty first century.

The second objective of the study was to find out the effect of technology competence on oil exploration. The research findings indicated that technology competence as an organization strategy has a significant positive relationship with enhancement of effectiveness of oil exploration. Appropriate organization strategy for technology competence strongly contributes towards project success and technology competence emphasizes technology as basic to human existence (Burke and Ornstein, 1995; White, 1962). This means that at every stage within the cycle of life, humans continuously attempt to acquire new skills to refine existing skills in pursuit of enhanced productivity and quality of life. Skilled labor motivates nearly every human activity. In a democratic society, citizens get to know something about technological concepts and principles, as well as the nature and history of technology. Technical and technological skills are two skills that are part of most human activities and are vital for the survival of humankind. Skills are often labeled by psychologists as psychomotor skills and are an important component of technological competence. They involve tangible ability, as well as practical intelligence, which relates to being active and enterprising. This means technology is determined by human emotions, motivations, values and personal qualities. Consequently, the development of technology in society is dependent on citizens' technological will to participate and have an impact on an individual or society (Hansen, 2008).

The third objective of the study was to determine the effect of stakeholder management and effectiveness of oil exploration among its partners. The research findings indicated that the organization's strategy for stakeholder management has a significant positive relationship with effectiveness of oil exploration among the partners. As an organization strategy,

Stakeholder management strongly contributes towards project success (Turner and Muller, 2003; Bourne, 2005, 2006 and 2007; Kerzner, 1997). Reviewed literature also indicates that project success is linked to the strength of the relationships created by effective regular planned and adhoc communication with all stakeholders (Bourne & Walker, 2005). In another perspective, Kerzner, (1997) states that project success is often measured by the actions of three groups namely; project manager and project team, the parent organization and customer organization. This implies that interplay between and among project stakeholders have a bearing towards project success. Further, Bourne, (2005, 2006) notes that categorization and charting of stakeholders holds the key to targeting the right stakeholders at the right time in the project life cycle and provides them with appropriate engagement, information and communication according to their direction of influence. This notion implies that stakeholder identification should be continuous to have an update organization strategy for stakeholder management. This means that an organization will have to be alert and flexible to suit the dynamism of their stakeholders. Similarly Kerzner, (1997) notes that the modern project

manager relies on the need to have dynamic organizational structures to enhance project success. An organization with poor stakeholder relationship management is bound to have an inappropriate organizational strategy for stakeholder management and hence compromise its success. This means organizations should strive to maintain good relationship with its stakeholders a condition which will determine the success of the project undertaking. There is great chance for organizations that score highly in project success to register good relationships with their stakeholders.

Conclusions

Human resource competence affects the organization strategy for Information management, technical skills development and influence of managerial hierarchy which are the most CSF within human resource competence. Thus, to achieve effectiveness of oil exploration in Uganda‘s oil sector, the learning organization may conduct benchmarking with the more experienced organizations. The learning organization is understood through social networking analysis, which means effectiveness of oil exploration will be synonymous with growth of personnel knowledge which translates into better services or products.

Results for this study indicate that collaboration network and recognizable application of new technology were the most CSF within technology competence. The effectiveness of oil exploration should be engaged within the organization strategy to manage technology competence. The collaboration network and recognizable operation of new technology is achieved through knowledge sharing with the external business environment through communities of practice.

The research findings indicated leadership as key in the management of Uganda‘s oil exploration sector. The most CSFs in stakeholder management have been identified as; Leadership accessibility to accurate information and its exploration, leadership commitment to oil exploration because other stakeholders expect them, leadership goodwill to oil exploration, leadership commitment to oil exploration as a result of mutual benefit, leadership with the highest influence in the management of the oil sector and influence of the local government administration with regards to oil exploration.

Recommendations

Government of Uganda should improve technical know-how and technology transfer through partnerships with higher institutions of learning as a means to uphold high skills in the oil sector and ensure oil career development. Government of Uganda should utilize the oil expatriates, benchmark with experienced oil companies, train staff externally and devise competitor strategies to improve quality of personnel in the oil sector.

The Government of Uganda should monitor data entry, analysis and sharing in order to make evidence-based decisions. Government needs to uphold the existing information management systems and sensitize employees on their usage and merits.

Government of Uganda and the relevant sectors should encourage and support geologists and other scientists in their quest for research and development in oil exploration and related activities.

Top management should work hand in hand with middle management because middle managers have a direct supervisory role in field operations which makes them privy to information on practical issues affecting personnel performance and which may inform decision making at top management level.

The Government should support local enterprise development by hiring local suppliers and collaborating with local organizations in Buliisa District to achieve enterprise development through oil exploration. Community development programs such as Buliisa Health Outreach Program, Education Programs and Enterprise Development should be enforced as well.

Stakeholder management should be enhanced but premised on the fact that oil exploration can only exist with informed consent of stakeholder community.

Government of Uganda should provide a recovery oil fund to implement conservation projects and mitigate specific implications of oil on the social, economic and political landscape along Albertine Graben. Safeguarding local culture, species such as birds and marine life should be conducted jointly across the concerned ministries.

The Ministry of Energy and other stakeholders should design restoration projects to prevent and reduce further loss of; savannah grass, fish and wild life and promote conservation to preserve Buliisa District's Eco system.

Government should fund research to investigate the effect of compensation on the community as a result of oil exploration in Buliisa district, safety at the oil sites, community concerns as a result of their experience with major oil projects at the exploration stage.

Government of Uganda through the concerned sectors should conduct an in-depth study of stakeholder relationships in the Albertine Graben region to address individual stakeholder concerns and forestall stakeholder conflicts.

Government of Uganda and Partners to study the entire Upstream of the Petroleum value chain in Uganda's context.

References

Amin, M. (2005).*Social science research, conception, methodology & analysis*: Makerere University.

Ansell, C., & Gash, A. (2006). *Collaborative Governance in Theory and Practice*. Paper presented at the Center for Organizational Research. University of California, Irvine.

Aran., (2009).Case study research design and methods. Available:

http://littlecomputerscientist.wordpress.com/2009/06/18/notes-on-case-study-research-design-and-methods/ (Accessed on 28th June 2012).

Autio., O. (2011).The Development of Technological Competence from Adolescence to Adulthood. *Journal of Technology Education*, Vol. 22 Number 2, pp.72.

Babbie., E. (2007). *The practice of social research*, (11th edition).Thomson Wads Worth.

Beierle, T. C., & Konisky, D. M. (2001). What are we gaining from stakeholder involvement? Observations from environmental planning in the Great Lakes. *Environment and Planning C*, Vol. 19 Number 4, pp. 515-528.

Billikopf, G. (2006). Managing people on the farm. Available: http://www.cnr.berkeley.edu/ucce50/ag-labor/7labor/01.htm (Accessed on 28th June 2012).

Bontis., N., and Fitz-enz, J., (2002), —Intellectual capital ROI: a causal map of human capital antecedents and consequents‖, *Journal of Intellectual Capital,*Vol3 Number 3, pp.223-247.

Brody, S. D. (2003). Measuring the effects of stakeholder participation on the quality of local plans based on the principles of collaborative ecosystem management. *Journal of planning education and research,* Vol. 22, Number 4, pp. 407-419.

Brooking., A. (1996). *Intellectual Capital:* Core Assets for the Third Millennium Enterprise, Thompson Business Press, London.

Burke., J, Ornstein, R. (1995). *The axe maker's gift: A double edged history of human culture.* New York: Putnam's.

Cassiman, B and Valentini, G., (2009), Strategic organization of Research and Development: the choice of basicness and openness, *Journal of Strategic Organization,* Vol.7, Number 1, pp.43-73.

Chapin, F. S., Carpenter, S. R., Kofinas, G. P., Folke, C., Abel, N., Clark, W. C., ... & Swanson, F. J. (2010). Ecosystem stewardship: sustainability strategies for a rapidly changing planet. *Trends in Ecology & Evolution,* Vol. 25 Number 4, pp.241-249.

Chartered Institute of personnel and development. (2012). Competence and competency 138 Frame works. Available: http://www.cipd.co.uk/hr-resources/factsheets/competence-competency-frameworks. aspx#link_ cipd_ view (Accessed on 28th June 2012).

Colfer, C. J. P. (2005). *The complex forest: communities, uncertainty, and adaptive collaborative management.* Resources for the Future.

Conley, A., & Moote, M. A. (2003). Evaluating collaborative natural resource management. *Society &Natural Resources,* Vol.16, Number 5, pp. 371-386.

Council on Library and Information Resources., (2005). The business risk model. Available: http://www.clir.org/PUBS/reports/pub90/appendix1.html (Accessed on 28th June 2012).

Dan, Z and Barclay, I (2006). Complexity theory and knowledge management application: The electronic *Journal of Knowledge management,* Vol. 4, Number 1, pp.11-20.

Dearden, P., Bennett, M., & Johnston, J. (2005). Trends in global protected area governance, 1992–2002. *Environmental management,* Vol.36 Number 1, pp.89-100.

De Wit B., Meyer R., (2004). *Strategy: Process, Content, Context: An International Perspective.* London: Thomson Learning.

DenzinN., and Lincoln Y. (Eds.) *The landscape of qualitative research:* Theories and issues. Duit, A. (2012). *Stakeholder participation, learning and ecosystem management.* Statsvetenskaplig tidskrift, 77.

Duit, A., Galaz, V., Eckerberg, K., & Ebbesson, J. (2010). Governance, complexity, and resilience. *Global environmental change,* Vol. 20 Number 3, pp.363-368.

Earl, M J., (1994). The new and the old of Business Process Redesign. *Journal of Strategic Information Systems,* Vol.3 Number 1, pp.5-22.

Edvinsson, L., and Malone, M., (1997).*Intellectual capital: Realizing your company's true value by finding its hidden brainpower.* New York, NY: Harper Business.

Energy Information Administration., (2008). *U.S. crude oil, natural gas and natural gas liquids reserves* 2008 annual report. Washington: Energy Information Administration.

Ennis, R, M. (2008).Competency models: A review of the literature and the role of the Employment and Training Administration (E.T.A). Available: http://www.careeronestop.org/competencymodel/info_documents/OPDRLiteratureReview.pdf (Accessed on 28th June 2012).

Fai, F and Tunzelmann, N, V (n.d). Industry-specific competences and converging technological systems: evidence from patents. Available: www.bath.ac.uk/management/research/pdf/2000-08.pdf (Accessed on 28th June 2012).

Fitz-enz, J., (2000), *The Return on Investment of Human Capital*. Amacom, New York. Fontaine, C, Haarman, A and Schmid, S. (2006).The Stakeholder theory. Available: http://www.edalys.fr/documents/Stakeholders%20theory.pdf (Accessed on 28th June 2012).

Freeman, R.E, Andrew C.W and Parmar, B. (2004).Stakeholder Theory and The Corporate Objective Revisited. *Organization Science*.Vol.15, Number 3, pp.364-368.

Fries B, Baumgartner RJ (2008). *Success factors of petroleum exploration and production* companies. Int. J. Serv. Oper. Manage. 4: 145- 164.

Galaz, V. (2005). Social-ecological resilience and social conflict: institutions and strategic adaptation in Swedish water management. *AMBIO: A* Journal *of the Human Environment*, Vol.34 Number 7, pp.567-572.

Global Witness., (2010).Donor engagement in Uganda‘s Oil and Gas sector. An agenda for Action. Available: http://allafrica.com/download/resource/main/main/idatcs/00020330:2d7455ab043ea47579c c34 3c2a1a9fb4.pdf (Accessed on 28th June 2012).

Grant, R, M., (2010).*Contemporary Strategy Analysis: Text & Cases* (7 edition.).Chichester: John Wiley and Sons.

Grunert K.G, Ellegaard C (1993). *The concept of key success factors: theory and method*. Chichester: John Wiley.

Guthrie, J., and Petty, R., (2000) —Intellectual Capital: Australian Annual Reporting Practices‖, *Journal of Intellectual Capital,* Vol 1, Number 3: pp.241–51.

Hahn-Hägerdal, B., Galbe, M., Gorwa-Grauslund, M. F., Lidén, G., & Zacchi, G. (2006). Bio-ethanol–the fuel of tomorrow from the residues of today. *Trends in biotechnology,* Vol. 24 Number 12, pp.549-556.

Hansen, R. (2008). *Human ingenuity research project.*5th Annual International Conference on Technology Education Research. Griffith Institute for Educational Research, Brisbane, Australia.

Hewlett, Barry, S., and Bonnie, H., L. (2008). *Ebola, Culture and Politics: The Anthropology of an Emerging Disease.* Belmont, USA: Thomson Wards Worth.

Imaka, I and Tamale, M. (2012, November 27th) *The Petroleum Bill 2012,* Daily Monitor.

Inkpen, A., and Moffett,M., H. (2011).*The Global oil and Gas Industry.* Penn Well Corporation. Tulsa, Oklahoma.

Jjumba, R.J. (2002). *An Analysis of Human Resource capacity Development Function in NGOs in Uganda. A Case Study of YMCA and foundation of human rights initiative.* Uganda management institute.

Jingjing W (2006). *A Study of perceived Key Factors of Success among salmon importers and distributors in shanghai.* Norway: University of Tromso.

Jones, G.R. (2004). *Organizational Theory, Design, and Change,* (4th edition). Upper Saddle River, NJ: Prentice Hall.

Kabagambe, F.K. (2012, August 25th) *we will start using our oil by 2014,* Saturday Vision. Kabanda, F: *Overview of Uganda's Upstream Petroleum Sector.* (2008). A presentation at a workshop of lawyers on Energy Law and Policy: Kampala: Ministry of Energy and Mineral development.

Kalkan, V. D. (2008). An Overall View of Knowledge Management challenges for Global Business. *Business process Management,* Vol.14 Number 3. pp.390-400.

Kanter, R. M. (2000). The enduring skills of change leaders Ivey. *Business Journal,* Vol.64 Number 5 pp. 31-37.

Kaplan, R., and Norton, D., 1996, Using the Balanced Scorecard as a strategic management system, *Harvard Business Review*, January-February.

Karugaba, M. (2011, November29th).*Oil firm licences still valid-energy officials,* New Vision.

Kasita, I. (2012). Uganda Oil Exploration Company Finds Empty Well, Looses Millions. Available: http://www.africa-uganda-business-travel-guide.com/uganda-oil-exploration- company-finds-empy-well-looses-millions.html (Accessed on 28th June 2012).

Kathman, J and Shannon, M. (2011).Oil Extraction and the Potential for Domestic Instability in Uganda. *African Studies Quarterly,* Vol.12 Issue 3, pp24-45.

Kenney, D.S (1999). *Are community-based watershed groups really effective?* Confronting the thorny issue of measuring success. Chronicle Community, 3: 33-37.

Kiiza, E. (2012, May 29th) *Bunyoro deserves 10% of oil revenue,*New vision.

Kisambira, E. (2009). Uganda: Oil Reserves Rival Saudi Arabia's, Says U.S. Expert.Available: http://allafrica.com/stories/printable/200906020555.html (Accessed on 28th June 2012).

Know Kapital. (2012). What is Knowledge capital? Available: http://www.knowkapital.com/index.php?option=com_content&view=category&id=48&Ite mid =26&lang=en (Accessed on 28th June 2012).

Krejcie, R, V. (n.d). Determining Sample size for research activities. Available: http://people.usd.edu/~mbaron/edad810/Krejcie.pdf (Accessed on 28th June 2012).

Lebel, L., Anderies, J. M., Campbell, B., Folke, C., Hatfield-Dodds, S., Hughes, T. P., & Wilson, J. (2006). *Governance and the capacity to manage resilience in regional social-ecological systems.*

Levin, D, Z, Cross, R, Abrams, L, C and Lesser, E, L. (2002).Trust and Knowledge sharing: A critical combination. *IBM Institute for knowledge Based Organizations* Vol.1 Number 9. Available: http://www.ibm.com/services/insights/ibv-trust and know.htm (Accessed on 28th June 2012).

Lincoln, Y.S and Guba, E.G. (1985). *Naturalistic inquiry.* Beverly Hills, CA:Sage. Loo, R. (2002). The Delphi method: A powerful tool for strategic management. *Policing,* Vol.25 Number 4 pp. 762-770.

Maak, T. and Pless, N. M. (2006). Responsible leadership in a stakeholder society: A Relational perspective. *Journal of Business Ethics,* Vol.66, 99-115.

Management study guide. (2012).McClelland's Theory of Needs. Available: http://www.managementstudyguide.com/mcclellands-theory-of-needs.htm (Accessed on 28th June 2012).

McCool, S. F., & Guthrie, K. (2001). Mapping the dimensions of successful public participation in messy natural resources management situations. *Society & Natural Resources*, Vol.14 Number 4, pp. 309-323.

Mugenda. O and Mugenda. G. (1999).Research methods: Quantitative and qualitative approaches.

Mugerwa, F. (2012, June26th).Dire state of oil communities shocks MPS, Daily Monitor.

Mugisha, A. R., & Jacobson, S. K. (2004). Threat reduction assessment of conventional and community-based conservation approaches to managing protected areas in Uganda. *Environmental conservation*, Vol. 31 Number 03, pp. 233-241.

Mwakali, J.A and Byaruhanga, J, N, M., (n.d).Local content in the Oil and Gas Industry:Implications for Uganda. Available: http://news.mak.ac.ug/documents/Makfiles/aet2011/Mwakali.pdf (Accessed on 28th June 2012).

Mintzberg H, Ahlstrand B, and Lampel J. (1998). *Strategy Safari: A Guided Tour through the Wilds of Strategic Management.* New York: The Free Press.

Ministry of Energy and Mineral development: Annual report (2010). Kampala: Ministry of Energy and Mineral Development.

Ministry of Energy and Mineral Development: National Oil and Gas Policy for Uganda. (2008). Kampala: Ministry of Energy and Mineral Development. Available: http://wildugandablog.com/wp-content/uploads/2010/06/national-oil-and-gas-policy-for-uganda.pdf (Accessed on 28th June 2012).

Ministry of Water and Environment: Performance report (2011). Kampala: Ministry of Water and Environment.

Moesinger, K and Maglio, A. (1997). Ogoni and Nigeria conflict over oil. Available: http://www1.american.edu/ted/ice/ogonioil.htm (Accessed on 28th June 2012).

Musisi, N, A. (2009). *Stakeholder Management & Comphance with election guidelines in Uganda. Acase study of the 2006 elections in Kasese Town Council* Unpublished dissertation for masters in management studies (project planning and management).Uganda Management Institute.

Nakiyemba, J. (2009). *Management of stakeholder and project success among humanitarian organizations northern Uganda. A case study of war child Holland* Unpublished dissertation for masters in management studies (project planning and management). Uganda Management Institute

Njuba, D. (2010).*Contribution of rewards to teachers' retention in private secondary schools in Luwero District: A case study of Wobulenzi Town Council.* Unpublished dissertation for masters in Management studies (HRM).Uganda Management Institute.

Nonaka, I, and Takeuchi, H. (1995).*The knowledge-creating company.* New York: Oxford University Press.

Nguyen, S. (2010).Implementing Change and Overcoming Resistance. Available: http://workplacepsychology.net/2010/02/05/implementing-change-and-overcoming-resistance/ (Accessed on 28th June 2012).

Nsamba., Y, Mugasa, B., Kitalibara,l, Bitamale,I, Muliinda,W, Irumba,A,Jilly,N, Byarufu, M, K, Muhumuza, J, Nyakatura, P, Kajura, J, Rwamukaga, E and Akugizibwe, I. (2012).Action oriented research to strengthen Bunyoro Kingdom to defend her cultural heritage from negative impacts of Oil and gas industry development in Uganda. Available: http://www.nape.or.ug/lib/RESEARCH_BUNYORO_HERRITAGE_&_OIL-GAS_INDUSTRY_2012.pdf (Accessed on 28th June 2012).

OmukamaIguru 1, S, G. (2012, June20th).*Colonial agreement on resources still stands, says Bunyoro king,* Oil in Uganda.

OpenLearningWorld.com (2011).Stakeholders in the Process. Available: http://www.openlearningworld.com/books/Introduction%20to%20Strategic%20Management/Stakeholders%20in%20the%20Process/Stakeholders%20in%20the%20Process.html (Accessed on 28th June 2012).

Platteau, J. P., & Abraham, A. (2002). Participatory development in the presence of endogenous community imperfections. *Journal of Development Studies,* Vol.39 Number 2, pp.104-136.

Pretty, J., & Ward, H. (2001). Social capital and the environment. *World development,* Vol.29 Number 2, pp.209-227.

Reed, M. S. (2008). Stakeholder participation for environmental management: *a literature review. Biological conservation,* Vol.141 Number 10, pp. 2417-2431.

Rockart J. (1979). —Chief executives define their own information needs‖. *Harvard Business Review,* March - April 1979, pp. 81-92.

RWE Dea.(n.d).More gas and oil through expertise. Available: http://www.rwe.com/web/cms/mediablob/en/53802/data/54434/17/rwe-dea-norge/media-centre/RWE-Dea-More-gas-and-oil-through-expertise.pdf (Accessed on 28th June 2012).

Sandersen, H. T., & Koester, S. (2000). Co-management of tropical coastal zones: The case of the Soufriere marine management area, St. Lucia, WI. *Coastal Management,* Vol.28 Number 1, pp.87-97.

Sarantakos, S. (2005). *Social Research* (3rd Edition).Pelgrave Macmillan, Newyork.

Sekaran, U. (2003). *Research methods for Business: A skill Building Approach.* Southern Illinous University, (4th Ed).New jersey: John Wiley & sons, Inc.

Sheikhzadeh, M, Arasti, M.R and Kotobzadeh, R. (2012).Identifying key success factors in upstream sector of oil and gas industry in Iran. *African Journal of Business Management,* Vol.6 Number 20, pp.6156-6165.

Sirota, D. Mischkind, L.A. and Meltzer, M.I. (2005).*The enthusiastic employee: How companies profit by giving employees what they want.* Prentice Hall, New Jersey USA.

Stringer, J. S., Zulu, I., Levy, J., Stringer, E. M., Mwango, A., Chi, B. H., & Sinkala, M. (2006). Rapid scale-up of antiretroviral therapy at primary care sites in Zambia: feasibility and early outcomes. *Jama,* Vol. 296 Number 7, pp. 782-793.

Sudtongkong, C., & Webb, E. L. (2008). Outcomes of state-vs. community-based mangrove management in southern Thailand. *Ecology and Society,* Vol. 13 Number 2, pp. 27.

Summit, J. (2002). World summit on sustainable development. *Johannesburg Summit. org.* nd Web.

Sveiby, K. E. (1997), *The New Organizational Wealth: Managing and Measuring Knowledge based Assets,* Berrett-Kohler, San Francisco, CA.

Thierauf R. 1982. *"Decision Support Systems for Effective Planning and Control: A Case study Approach".* Prentice-Hall, Englewood Cliffs USA.

Thompson J.D, Strickland A (2005).*Crafting and Executing Strategy.* New York: McGraw- Hill.

Tullow Oil plc. (2012). Exploration Success. Available: http://www.tullowoil.com/index.asp?pageid=48 (Accessed on 28th June 2012).

Uganda Wildlife Authority. (2009).Maintaining the conservation and tourism value of protected areas in petroleum development zones of the Albertine Rift: Ensuring Win-Win Policy Approaches. Available: http://www.uws.or.ug/wp-content/uploads/Oil_Document3.pdf (Accessed on 28th June 2012).

United Nations Education and scientific and cultural organization. (2003). Social and human sciences: Best practices on indigenous knowledge. Available: http://www.unesco.org/most/bpindi.htm (Accessed on 28th June 2012).

United Nations. (2002). Report of the world summit on sustainable development. Available: www.unmillenniumproject.org/.../131... (Accessed on 28th June 2015).

Valle, V. (2000).Chaos, Complexity and deterrence. Available: http://www.au.af.mil/au/awc/awcgate/ndu/valle.pdf (Accessed on 28th June 2012).

Van Zyl, E. S., Kleynhans, R., & Du Plessis, M. (2011). Understanding and approaching the cultural gap between first world leaders and their third world workforce: An African focus. *Afr. J. Bus. Manage*, Vol.5 Number 17, pp.7171-7178.

Vasconcellos, E.S, Hambrick, D.C (1989). Key Factors of Success: Test of a General Theory in the Mature Industrial- Product Sector. Strategy. Manage. J., 10: 367-382.

Venkatesh, V, Morris, MG, Davis, G.B. Davis, F.D. (2003). User Acceptance of Information Technology: Toward A Unified view. *MisQuarterly* Vol. 27 Number 3, pp.425-478.

Walonick,D,S. (1993).General systems theory. Available: http://statpac.org/walonick/systems-theory.htm (Accessed on 28th June 2012).

White, L. (1962). *Medieval technology and social change*. Oxford: Clarendon Press.

Wiig, K. (1993). *Knowledge Management Foundations*: *Thinking about Thinking How Organizations Create, Represent and Use Knowledge*. Schema Press.

Yaffee, S. L. (1996). *Ecosystem management in the United States: an assessment of current experience*. Island Press.

Yang, J, Shen, G,Q,Ho, M, Drew, D,S and Chan, A,P,C (2009) Exploring critical success factors for stakeholder management in construction projects. *Journal of civil engineering and management* Vol. 15 Number 4 pp. 337-348.