

# Knowledge Retention and Aging Workforce in the Oil and Gas Industry: A multi perspective Study

## Abstract

**Purpose** – The purpose of this article is to investigate how companies are handling the task of knowledge retention from old age retiring workers in oil and gas sector by providing a detailed insight on the challenges and strategies related to knowledge retention through inclusion of companies from different geographical locations across the globe.

**Design/methodology/approach** –The study adopts a qualitative research methodology and 17 semi structured interviews with open ended and probing questions, were conducted to gain an in-depth insight of the knowledge retention phenomena.

**Findings** – Knowledge Retention activities tend to be inconsistent in majority of the oil and gas companies and not much work being done regarding knowledge loss from old employees because of the fall in oil prices and layoffs. The oil prices turn out to be a decisive factor in oil and gas industry regarding workforce and knowledge retention activities. The political situations and geographical locations of the companies also affect the knowledge retention activities. Moreover, aging workforce and retirements issue is more acute in upstream sector.

**Research limitations/implications** –The focus of the study was on oil and gas sector and thus the research results may lack generalisability.

**Originality/value** – This paper fulfills an identified need of investigating the issues and challenges of knowledge retention regarding old age retiring employees by taking into account a global perspective and providing a comparison among different companies at different geographical locations.

**Keywords:** Knowledge retention, Old age retiring workers, Oil and Gas

## 1. Introduction

Knowledge Retention has become an important and inevitable activity in organizations these days due to changing demographics and graying of employees as there is an inexorable threat to

the organizations for knowledge loss when employees leave (Stevens, 2010, Levy, 2011, Jennex, 2014). Knowledge based organizations utilize knowledge to generate revenue and for this purpose, knowledge workers are the people working in these organizations who possess, create and apply knowledge (Nonaka and Takeuchi, 1995) to generate this income. Losing these workers means organizations lose the much-needed knowledge which is basis for their competitive advantage. Knowledge of these employees is of key importance it may provoke decay of organizational memory when these employees leave which in turn may reduce the firm's ability to identify and use past knowledge for competitive advantage (De Massis et al., 2016); as the success of the organization depends on the capabilities of the key individuals combined together to achieve the organizational goals (Petruzzelli and Savino, 2014). Moreover these employees possess organizational knowledge, knowledge of governance and knowledge of networks and relationships developed over a period of time within the organization and this knowledge of past is key to enhance and sustain firm's performance (De Massis et al., 2016). Nerkar (2003) is also of the view that knowledge creation is an evolutionary process spread over time and combining the current knowledge with the past knowledge evolved over time enhances the impact of new knowledge. Experienced employees who have been working in the organizations for long time can combine the past knowledge and current knowledge to effectively manage the organizational goals and if they leave the organizations, they will take away with them the knowledge accumulated over time. Majority of the researchers have identified the retiring workers as key contributors to knowledge loss (Calo, 2008, Stevens, 2010, Ball, 2011), suggesting application of comprehensive knowledge retention strategies to avoid this knowledge loss (Leibowitz, 2009). Researchers are of the view that there hasn't been much work done regarding retention of employees' knowledge (Levy, 2011, Constantin Bratianu et al., 2015) and organizations even knowing that they are going to lose valuable knowledge due to retirements of old age employees, don't have formal procedures to handle this pending knowledge loss (Leibowitz,2009). This study focuses on this aspect of knowledge retention from old age retiring workers normally termed as baby boomers. Studies (Ball, 2011, Joe et al., 2013, Levy, 2011) have shown that organizations are going to lose a large number of old age employees in the next 5-10 years thus creating a tremendous knowledge loss.

While this phenomena of baby booming is happening globally, some industries particularly manufacturing and oil and gas sector are suffering the most (Ball, 2011). Oil and gas is a big and complex industry with companies having setups all over the world with a huge multicultural and diverse workforce. Thus, it makes the situation quite challenging for companies to carry on and manage knowledge management activities in different sectors and across different locations. Moreover, change in oil prices brings a huge change in the strategies and work flow of oil and gas sector. The existing literature does not provide a detailed insight on the challenges and strategies related to knowledge retention especially how organizations are actually dealing with knowledge loss of old age employees. There is also paucity of research on a global perspective regarding knowledge retention activities from old age employees. Therefore, this study adds to the growing body of literature by focusing on a global perspective and conducting interviews in oil and gas companies from Asia, Europe, Australia, USA and Africa focusing on:

- What is the current situation of old age retiring workers due to economic crisis and how oil and gas sector is handling the issue of these old age retiring workers?
- What strategies are being adopted for knowledge retention and the challenges in their successful implementation in a global perspective?
- What are the organizational dynamics due to different geographical locations and whether there is any difference in upstream, downstream, and mid-stream sectors regarding knowledge retention of old age workers?

Next sections will cover literature review, research methodology, data analysis and discussion of results and finally the conclusion of the study with future recommendations.

## **2. Literature Review**

In today's world, the workforce can be categorized into three groups namely X generation, Y Generation, and Baby Boomers. According to Yu and Miller (2005), employees born between 1945 and 1964 are termed as baby boomers and they continue to enter retirement in the next 5-10 years. In this article, they will be referred as old age retiring workers to make the understanding clearer. As stated by Johnson (2011), in a survey of Fortune 1000 companies performed by Ernst and Young, there will be labor shortage as stated by 62% of the employees showing that proper

strategies need to be devised to handle this crisis. Low fertility rates are causing major shift in the demographics of workforce and competition for skilled labor force will be tough in the upcoming years (Beechler and Woodward, 2009).

Major source of knowledge loss is retirement of old age employees (Harvey, 2012). A higher rate of retirement leads to decreased efficiency and productivity, reduction in organizational memory and availability of mentors for instructing new personnel (Aiman-Smith et al., 2006). When a long term employee leaves, it's not just a worker moving out of the organization but years of knowledge and experience that is of great worth for an organization (Calo, 2008). Ebrahimi et al. (2008) emphasizes the importance of old age retiring workers as "Their life experience, their in-depth knowledge of different professional environments (network of contacts, who knows what?), and their knowledge of the culture of these environments (collection of codes, symbols, shared significance, etc., permitting to know how to deal with who?) bestows them differentiated aptitudes to understand issues, interpret information, connect various information and data, integrate knowledge, and finally, connect and coordinate knowledge carriers" (P. 129). An effective KM system focuses on people who can give value and act upon the valuable information (Cowley-Durst, 1999). Thus, people are the driving force for knowledge dissemination especially those who are in senior positions and have decades of experience. Older employees are good at doing good and quality work, they tend to be more reliable, better reading and communication practices and finally, have good performance records and experience (Ball, 2011). These senior employees are a huge asset, possess a lot of experience, good reputation and deep insight of the company developed over a long period of time, which new employees lack and can't replicate (Lesser and Rivera, 2006). This in turn helped organization flourish and gain competitive advantage over competitors. To sustain this competitive advantage, retention of these expert's knowledge is of critical importance (Ball, 2011, Levy, 2011, Martins and Meyer, 2012, Daghfous et al., 2013). In today's knowledge based economy, knowledge is well accepted as source of competitive advantage (Grant, 1996) especially the tacit knowledge which is possessed by experienced people of the organizations. A company evolves naturally with its own goals and capability of regenerating itself when the organizations focus on intangible resources such as human knowledge instead of focusing on material assets (De Geus, 2002). Investing on the development of employees harvests a sense of identity and belonging to the living companies enabling them to withstand the dramatic changes

over time. "Emphasis on profits and on the maximization of shareholder value ignores the two most significant forces acting on companies today: the shift to knowledge as the critical production factor and the changing world around the companies" (De Geus, 2002). Due to fall in oil prices, the oil, and gas companies are laying off employees and majority of them are senior experience workers. As the companies are struggling with the business, they are not paying much attention to knowledge retention and they might realize this at later stages. Thus, organizations need to value the knowledge of these experienced retiring workers.

Not all old age retiring workers are important for the organization but those people who have deep insight of a particular subject and possess specialized knowledge are the most powerful basis for creating value within the organization and these personnel are trained and qualified particularly by experience (Huber, 1999). Yu & Miller (2005) state that baby boomers have had to work in all three phases of a progressive economy (from Industrial to knowledge workers) and thus have lot more experience as compared to their counterparts and possess very effective set of skills in terms of leadership, management, mentoring and coaching (Table 1).

	<b>Industrial Economy (to 1980)</b>	<b>Service Economy (1980-2000)</b>	<b>Knowledge Economy (2000-)</b>
Baby Boomers	*	*	*
X Generation		*	*
Y Generation			*
	Industrial Workers	Service Workers →	Knowledge Workers

Table 1: The changing nature of workforce (Source: Yu & Miller (2005))

To capture the knowledge of these old age retiring workers, companies need to perform the knowledge retention. Knowledge retention is a relatively new field which deals with the capturing the knowledge of departing employees. Levy (2011) is of the view that knowledge retention, a sub-discipline of knowledge management, hasn't been fully covered in academic research. Constantin Bratianu et al. (2015) define knowledge leakage in terms of knowledge loss and knowledge retention. They reveal that despite the serious consequences of knowledge loss in terms of organizational productivity, there hasn't been much research done in this area. Previous

studies on knowledge loss of old age employees are mostly theoretical in nature for example, many studies (Calo, 2008, Strack et al., 2008, DeLong, 2004, Beazley et al., 2002, Ropes, 2013) provide the conceptual foundation of the importance of knowledge loss from baby boomers and emphasize that it should be retained. Only few studies focused on practical knowledge retention. According to Tsui et al. (2005) questions and answer driven application can help preventing knowledge leakage due to turn over or other factors such as retirements. In such systems, the users interact with each other by asking questions and providing answers. These systems help in retaining the knowledge of experts and help in development of a knowledge base. However, for these systems to work properly, a lot of knowledge enablers come into play. Further going a step forward to retain the knowledge of experts, Dave Snowden argues about that “We always know more than we will say, and we will always say more than we will write down”(Snowden, 2002). He emphasizes that all the tacit knowledge can never be codified and the deep tacit knowledge possessed by experienced employees is explored when they are asked questions in a specific context. Based on this, he argues that narratives and story-telling in which the experienced employees can share their situational experiences is an effective tool for retaining the knowledge as narratives enable knowledge management through shared contexts (Snowden, 2002) helping in communicating complex ideas in simple and memorable ways. Hofer-Alfeis (2008) proposed a debriefing process for leaving experts which involves identifying proficiency areas, transfer of relationship knowledge; codified knowledge and lessons learned. Levy (2011) performed a case study in Israel and developed a four-stage framework for knowledge retention of retiring workers which involves initiation, scope, transfer and integration. Harvey (2012) in a case study investigated a knowledge retention strategy for late-career nurses in Canada and supports the use of mutual exchange model for effective knowledge transfer to new recruits. McNichols' (2010) performed research on perspectives of Generation X to retain the knowledge from baby boomers in aerospace industry revealed that top management support, effective mentoring relationships and dynamic team environments are crucial for effective knowledge transfer. Daghfous et al. (2013) did a general investigation on the drivers and impacts of knowledge loss and associated retention strategies in manufacturing industry and their study revealed that organization should retain knowledge through strategic coordination among units and networking strategies. Joe et al (2013) identified that when old experts leave, organizations lose subject matter expertise

knowledge, knowledge of business relationships, knowledge of governance, organizational knowledge and knowledge of business processes.

### 3. Research Context and Motivation

The literature on the issue of knowledge retention and especially baby boomers is scanty mostly focusing on the theoretical aspects. Further there is a lack of holistic approach in exploring this research area as previous studies discussed a few aspects of knowledge retention as discussed above. Finally, there is lack of research on how organizations are actually working on knowledge retention strategies for aging workforce and what are the issues and challenges in this regards. This study attempts to fill this gap by conducting study in oil and gas sector. Oil and gas sector will have a significant impact because of the shortage of technical people in the next five to ten years as majority of the employees will retire thus triggering alarm for the success of future projects (Ball, 2011, McKenna et al., 2006). In 2011, Microsoft sponsored the third Oil and gas Industry collaboration survey. Survey shows that in oil and gas companies, more than 40% people are older than 50 years and 66 % are older than 40 years (Fig. 1). Moreover, due to current economic crisis and fall in oil prices, employees are being laid off and majority of these employees are old age retiring workers.

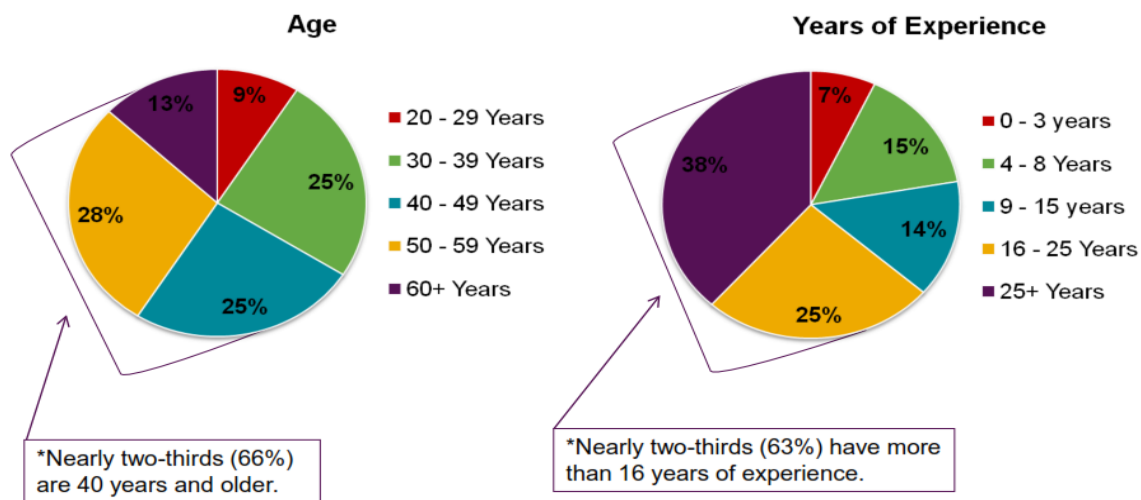


Figure 1: Aging workforce in Oil and gas industry (Source: Microsoft Accenture Oil and Gas survey 2011: <http://news.microsoft.com/download/archived/presskits/industries/manufacturing/docs/accituresurvey.pdf>)

These factors intrigued the researchers to conduct research in this area. This article makes significant research contribution by considering factors not studied before as discussed below:

1. Oil and gas industry is unique as it is facing baby boomer crisis more than any other industry coupled by the fact that not many new people are joining the oil and gas sector. This situation poses challenges in terms of knowledge retention and thus this research takes on a holistic approach to investigate the situation of old age retiring workers, effect of current oil prices, different knowledge retention strategies adopted and their effectiveness in oil and gas companies.
2. A global perspective is taken by interviewing people across a diverse range of companies from Asia, Europe, Australia, USA and Africa to gain a deeper understanding of the baby booming phenomena under different contexts. Previous studies mainly focused on a few countries from West and no comparison has been made on aging workforce situation across different geographical locations.
3. Targeting different geographical locations also allowed making a location wise comparison of companies in terms of knowledge retention form old age retiring workers yielding interesting results. A further comparison has been made between upstream, downstream, and mid streams sectors of oil and gas.

#### **4. Methodology**

To obtain a deeper understanding of subject understudy, qualitative methods such as interviews are considered more appropriate as compared to quantitative methods such as questionnaires. Therefore, interviews are the most appropriate method when a detailed insights are required from the individual participants (Bruce and Berg, 2001). This method also provides opportunity for interactive dialogue with the respondents to tap on their front-line experience. For the current research, data has been collected through semi-structured interviews by asking open ended and probing questions to gain a deeper insight of the research topic (Gill et al., 2008). Due to nature of the research questions, scattered knowledge and to cover a global perspective of oil and gas sector, 16 companies were selected to gain a practical insight about knowledge retention. The interviewees were selected based on their vast amount of front line experience and available contact points of the research team. The participants represented “elite informants” working at key positions and involved in supervising KM activities. Elite interviewing is common



qualitative method with the benefits of yielding insightful information (Marshall and Rossman, 2011). The participants were contacted through emails, LinkedIn profiles and phone calls. Based on availability; a total number of 17 interviews were conducted. Details on experience, location and positions of the employees are provided in table 2 and 3. The key informants selected were mostly senior persons working in oil and gas sector over a long period of time. Eleven of the participants had more than 10 years of experience in respective organizations with only 5 participants having experience less than 10 years. Moreover, most of them were directly involved in the KM initiatives within their organizations. All the participants had key managerial positions with teams working under them. Thus, these participants satisfied the criteria for relevance, experiences, and knowledge related to the central research question. The duration of each interview was around 50 minutes. Through the consent of participants, interviews were recorded and transcribed afterwards. Notes were also taken during the interviews and later matched with the transcribed data for the analysis purposes.

The study adopts grounded theory building approach (Charmaz, 2006) through the analysis of this qualitative data. Grounded theory is a well-known qualitative technique; a systematic way of inquiry, which focuses on development of codes into categories and then determines the interaction and relationship among different categories to produce a cohesive explanation of the whole phenomena under study. This technique is suitable when there is scarce knowledge available on some topic and main aim is to produce some fresh knowledge on that topic through the lens of participants involved in the study and thus the term grounded theory as the outcomes are grounded in data by following a systematic procedure (Strauss and Corbin, 1998). Using a qualitative analysis software Atlas.ti and following a step-wise coding procedure, careful line by line analysis of the raw data in transcribed interviews was performed and initial codes were defined. Coding involves naming the data segments in a way that categorizes and summarizes a piece of data (Charmaz, 2006). Using constant comparison method, the codes were grouped together into categories and sub-categories highlighting the main concepts and themes in the data. Eventually focused coding was performed to select the most significant and relevant codes to be examined further to develop the analysis and for theoretical sampling. The analysis continued until theoretical saturation was achieved and no new concepts emerged from the interviews. The authors used techniques such as self monitoring, member checks and triangulation to address the validity of research. The results were verified from the interviewees

<b>Company</b>	<b>Location</b>	<b>No of employees in Company</b>
A	USA	20k-50k
B	USA	50k-100k
C	Russia	50k-100k
D	Australia	50k-100k
E	Netherlands	50k-100k
F	Pakistan	20k-50k
G	Nigeria	0-20k
H	Pakistan	0-20k
I	UAE	20k-50k
J	Middle East	20k-50k
K	Indonesia	0-20k
L	UK	20k-50k
M	India	20k-50k
N	UK	0-20k
O	USA	50k-100k
P	Thailand	0-20k

Table 2: List of participating companies

<b>Interviewee</b>	<b>Years of Experience</b>	<b>Position</b>
1	10	Managerial/ Consultant
2	30	Managerial/ Consultant
3	8	Managerial
4	7	Senior Manager
5	35	Director
6	8	Senior Drilling Engineer
7	6	Junior manager
8	30	Chief Drilling Engineer
9	15	Managerial
10	8	Managerial
11	10	Managerial
12	20	Director
13	10	Managerial
14	32	Managerial
15	40	Decommissioning Manager
16	26	Director
17	16	Managerial

Table 3: Details of participants in the research

and in some cases, interviewees made amendments in the transcribed data. In addition, the validation of results was also performed through grounding in theory and literature.

## **5. Results**

### **i) Current situation of aging workforce and impact of oil prices**

Participants stated that the situation is very critical in oil and gas sector because of the fall in oil prices and in coming months, oil companies will lose so many old aged employees. Companies need to have cash flow moving in the business. Thus, a workforce transition is inevitable. Old aged workers are preventing cash flows as they have got annual leave, long service leave and they are highly paid individuals. Interviewee 1 stated that,

*"In last 18 months, downfall of oil and industry has changed the situation. Current downturn in oil and gas, companies going from drilling 18 assets to 2 assets, thus the number of people and expertise they need are much less and old age workers are the most expensive staff they have irrespective of the knowledge they have or not".*

Participants mentioned that management and companies are under budget constraints due to which little bit of activities performed regarding knowledge retention are at halt at the moment. Interviewees believed that companies will have trouble after these people leave as stated by interviewee 9,

*"These people are knowledge banks that have deep experience in managing situations. You have many good young engineers but with old workers, when you have 20-30 years of experience, you look at the problem from different angles and thus you can make a better decision".*

According to interviewee 1, management is aware of it but it's not working apart from few cases at very high level as stated by interviewee 4 that because of the economic climate, a lot of expatriate employees had to return to their homes from a cost saving perspective, for example, the Executive director of his company went back to USA and 3 months before his departure, a person with similar expertise was brought to work with him.

Apart from financial crisis, it is also a challenging situation and from the interviews, it becomes clear that lot of people will be retiring in next few years from companies in developed countries. Moreover, in some companies, there are no people in the middle age group and other employees are very young. However, interviewees from Pakistan, India, Nigeria, Thailand and Indonesia

stated that the current workforce mostly comprises of young people and there are only few old age employees going to retire. According to interviewee 6, companies are working in a way that young engineers perform majority of the field work. So, companies train young engineers and after 2-3 years, they get enough experience to use technology. Old experts are supervising the jobs, they are looking at the big picture but the actual work is performed by younger employees. Thus, in developing countries, there is no issue of knowledge loss from old age workers in private companies, however, for government owned organizations, there is workforce crisis because of strict recruitment policies and there is huge age gap between the senior and junior employees depicting an interesting situation in terms of knowledge gap created when senior employees retire. Interviewee 17 from company P stated that their company expanded rapidly over the past years and most experts were sent abroad to manage the tasks which created a workforce gap and there are only few people available to train junior staff.

## **ii) Knowledge Retention Strategies and their Impact**

### ***a) Absence of holistic approach and not well established and consistent programs for knowledge retention of departing employees across the board***

The inconsistency of the knowledge retention programs emerged out to be a major area of concern among all interviewees. Companies do have procedures for knowledge retention but tacit knowledge gained through long term experience cannot be transferred easily. According to interviewee 9,

*"I believe you have to keep those resources (old age employees) for long time, some companies keep those employees even after the age of 70 but it is done more in consulting companies. If this is done in oil and gas companies, it will be much better as at the moment, I don't think it is happening".*

Most of the time, new entrants struggle to find an expert to teach them. Some companies have built directories of experts where employees can find relevant people who volunteered to help but it is not consistent across the board. According to interviewee 2 who worked for many companies,

"Oil and gas companies do have knowledge transfer programs. These programs come and go as it depends if there are sponsors for the programs or if budget is available. Over the period of time

programs disappear if people are not interested or don't see any value in it, and at times, they may be resurrected again later but it is not consistent”.

According to interviewee 4,

"KM is owned by HR persons, they have exit interviews, knowledge transfer process and whole series of knowledge templates but I have not seen a lot of it used. It is much more with the individual function and the manager who is seeing people leaving the organization and how they want to handle that”.

Same idea was opined by interviewee 1 stating that:

"Although every company has a KM manager, closest they get to execution of knowledge management in a good way is communities of practice but they don't take this step further to individual knowledge”.

Regarding knowledge retention processes, some super majors have worth mentioning programs.

Company E has a process called retention of critical knowledge. They keep track of retiring employees through a “trigger 55” policy i.e. when an employee turns 55, the knowledge retention process should start. It involves a range of various sessions called debriefing sessions, where junior persons are invited to attend the sessions from the leaving expert person. The topics to be discussed are brainstormed with the audience to select the right topic. Accordingly, the topics are prioritized. Based on the number of topics, required numbers of debriefing sessions are assigned. In these sessions, also a mind map of the expert's knowledge is built and later on discussed with the expert and amended accordingly. All the sessions are recorded and later made available in the form of videos and reports on internal sharing portals of company. In case, debriefing sessions are not possible, the concerned team works with the department and colleagues of the departing expert to build up the knowledge of departed person by inquiring questions about employees’ proficiency areas, working approaches etc. Also, when organizational restructuring is taking place, the team helps line managers to identify critical areas to be safeguarded and areas which can be job cut in case of budget shortfalls. The company also publishes a yearly book called “Stories from the Edge” which is a set of case studies for projects in which knowledge from past success and failures was successfully applied to a new project to make it more effective, safer, and less expensive. Company P also adopts a similar approach of identifying retirees but instead of debriefing sessions, interviews are carried out and after

analyzing and extracting useful knowledge, a knowledge book is developed to be published on the portal of the company.

Company D has a well-structured mentoring process which is on hold at the moment because of so much workforce transition/layoffs going on. Although there is no formal alumni reunion program, however, sometimes people come back as consultants. There is one program called "Horizon and graduate" in which new graduates are attached with an expert. Career development planning is a formal process in company D and learning on job (through people) is essential part of it. Company C has a special program for retirees to become lecturers. Moreover 2 years ago, they officially introduced an expert career path as an alternative to managerial post. For this, knowledge transfer and professional networking are extremely important to become expert. It also contributes towards annual performance appraisal report. Company O also adopts same approach.

The other methods as revealed during the interviews include communities of practices, lesson learned databases, share point, portals, peer reviews, lunch and learn session etc. The use of communities of practices is very strong in oil and gas sectors. There are initiatives to bring back the retirees as consultant but it is again not a formal program. In company D, they have introduced a 2 year gap before a retiree could return as partially to offer an opportunity for the next generation to move up to the posts and maintain the hierarchical flow of the organizations. Companies from developing countries had a different scenario. Company F started the knowledge management initiatives last year whereas company H and company M don't have any knowledge management programs and no initiatives are being taken in this regard. Rests of the companies have some knowledge management programs in progress.

***b) Mentoring and Communities of Practices programs by far the best way of transferring knowledge***

Mentoring was considered as best way by most of the participants. Participants also supported the use of communities of practices. Interviewee 2 stated,

*"Mentoring is the best way if companies have time to do so".*

He worked on a project called "In Touch" with company O. They moved all their experts to a network of 15 centers around the world and their job was to be a mentor and point of contact for knowledge sharing. Thus, when field persons encounter a problem, they can contact these

experts for advice and guidance. This program is running successfully. Other companies tried to adopt this but couldn't succeed due to inconsistency. According to interviewee 1, the best thing is to do a virtual peer assist, leveraging the knowledge of subject matter expert (SME) to the office and doing a review of the operation and field virtually with all the different subject matter experts to get input before a major decision is made. He argued that some experts on communities of practices receive naive questions from first hires, thus, companies need to focus on top 20 % of the expert elements to be transferred one level down. According to interviewee 3, best way is to use social networks and online communities for connecting with best people around the world. Interviewee 9 opined,

*"I think those who reach 60, they should be moved to training and advisory departments so that they continue to train. For example, in an oil company, you might have 7-8 fields, people working in each field work differently and separately. So, if you have these experienced people and you let them move around the fields, then they will have better idea to transfer knowledge and then they also might have better idea of the problems".*

Interviewee 4 added that they have a "high potential category" where high potential and promising young employees are identified and attached with senior experts. Interviewees from company L and N in UK supported lunch and learn sessions as the best way where junior employees can engage with experts and put them in a situation where they have a context to solve the problem.

### **iii) Barriers and Challenges in Oil and Gas sector regarding knowledge retention**

This section has been divided into various categories based on the inputs from the interviewees as there were commonalities as well as differences because of the varied geographical locations as well as the difference in the organizational structure of the companies and their way of working.

#### ***a. Geo-sensitive Environments***

One particulate issue that caught researchers' attention was pertaining to geo sensitive environments such as Middle East which is the largest oil producing region. Interviewees argued that in Middle East, oil and gas industry hasn't modernized in past 30-40 years because companies were making good profits due to high oil prices and they were not much concerned about the improvements. Other reasons include organizational change management and changing

the culture to embrace new way of working. Then there are regional tensions between all the big producers in politically charged environments. Due to regional tensions and political issues, companies sometime fire employees without any notice and without considering the impact in terms of knowledge loss. Thus, in such scenarios, knowledge retention and transfer becomes a far more challenging problem.

### ***b. Multicultural Environments and Language are Small Barriers***

Language barrier and multicultural environments are not seen as big barriers by the companies. According to interviewee 2, when he used to work with Iraqis, Arabs, Chinese, and Egyptians they tended to be generally on the same page. Interviewee 4 mentioned,

*"We are a global organization and we definitely would have challenges but we do seem to deal with those quite well, employees moving heavily across the globe and thus this is unique to this industry, because of exposure to multiple places, there are not such barriers".*

According to interviewee 6, oil and gas is a different kind of world. Companies have people from different countries working together. The culture and working style isn't much different when it comes to rig side. Language barriers do come in on certain occasions but employees have developed ways to interact with each other.

### ***c. Multiperspectivity of knowledge hoarding***

Multiple perspectives regarding knowledge hoarding have been observed. During crisis, when employees are terminated without prior notice, employees don't share their knowledge. In case some agree, organizations can't do anything in such short time. From the other perspective, older generations think knowledge is power rather than knowledge needs to be shared. Trust element for older generations is different from younger generation. Because of social media, younger generation gets to know and trust each other faster whereas older generation tends to prefer face to face communication and getting to know each other first. In Middle East, most of the experienced employees are expatriates. Their knowledge is kind of job security for them and they think if they share knowledge, they can be replaced by local people but this is not true in all cases. Participants from Australia, Russia, US, Netherlands, and UK stated that in their companies, knowledge sharing culture prevails and people are quite open except few cases. Another challenge is, people who are very smart and highly qualified are least social on earth.



They don't use any social networks; they are not social in general. To retain their knowledge, companies need to use structured interviews and other methods. According to participants from Pakistan, India, Nigeria and Indonesia, in case of aged workers, it is same for all groups generally but when it comes to culture, people from developed countries are more open in sharing knowledge than people in developing countries. According to interviewee 5, it is a bit of mix of culture but in particular they had hard time working with Japanese colleagues.

*“Japanese don't feel like asking questions because they are supposed to know everything and it is a generic issue within the Japanese culture”*

So, company managed ghost writers for them to share the questions from their side on the forums. Another interesting point was that nature of discipline effects the amount of knowledge you share with colleagues for example in drilling operations, employees trust a lot more on each other and consequently share more than any other discipline.

#### ***d. Not one -one mapping when retaining critical knowledge***

For an employee in oil and gas sector, it is quite common to have 4-5 different expert areas. Thus, companies need to break up those skill sets of the employee and find a person who could learn the most from that skill set. Unfortunately, there is no one-one knowledge mapping. Companies match the skill set of what employee is doing now but fail to capture the expertise of the jobs that he did before in his 30 years of service. For example, somebody has worked in Siberia and understands how the working environment is in Siberia but during knowledge retention, this aspect might be ignored. According to interviewee 5,

*“It is very hard to write everything down when a person is departing. Also, what type of questions to ask and what are the critical areas i.e. understanding what knowledge will be critical in future because the fast pace at which things change, not all the expertise of employees be valid in future”.*

#### ***e. Opportunities to Learn***

There isn't always enough time for the people in the field to do knowledge transfer. It is all about the amount of time to interact, context and ability to have conversation. Interviewee 6 stated *“The nature of these old experts is that they don't share knowledge on their own”.*

It depends on the interpersonal skills of the people to take the knowledge from them. If you involve them in stories, they try to open up but of course it is an art to gain knowledge. Moreover, it also depends on desire of younger employees to learn and ask questions. According to interviewee 4, generally tapping into advice from baby boomers who are senior people in the organization can be pretty challenging and culture fully doesn't support this in hierarchical organizations. Incentives do play a role and recognition is the best incentive that fosters knowledge sharing. Old employees are more than happy to share knowledge if their efforts are acknowledged, for example in company E, knowledge sharing efforts of an employee are recognized through a personal letter from senior manager 2-3 levels higher than employee's boss, which is more valuable to employee's career than any other thing. Some companies also include knowledge sharing as performance indicator in performance reports and an important incentive for employee's promotion.

#### *f. Coping with faster pace of technology*

Technology is changing at a faster pace. Sometimes it is challenging to use new technology. Companies need to wisely use the digital technology and allow senior people to take advantage of it, for example exchange communities and use of social media. In a team, it is better to have combination of different people, age groups and ethnicities. Some companies require retiring workers when they leave, to write down "everything that they know". All participants agreed that the next generation is technology savvy and not really interested in reading through big volumes of documents. They may not have a context to understand what they are reading either. According to interviewee 11, companies nowadays get petabytes of data in minutes providing information about a lot of parameters allowing workers to make more informed decisions about the different processes. Challenge is to skillfully combine the experience of old employees with new technology. Also with the layoffs and shortage of experienced employees, technologies like big data and analytics could be an alternative for valuable knowledge generation.

#### **iv) Larger impact of knowledge loss on upstream sector as compared to downstream and midstream sectors**

All the participants agreed that upstream is the sector explicitly losing people. According to interviewee 9, many companies which are working in downstream or midstream have their old

workers. The downstream sector doesn't have much effect from low oil prices. Apart from oil prices, in general, although all the sectors are facing the retirement issue of old age workers. According to interviewee 4,

“Key areas where the companies don't want to lose knowledge are explorations, drilling and earth sciences especially reservoir management predominantly as this is the core business”.

Thus, upstream is favored because there are more financial benefits for the organization. Interviewee 1 states that there are certain downstream activities that are very challenging and knowledge intensive but they are operating fine right now. Margins are very small in downstream. It is only upstream sector which is suffering and losing billions of dollars. It is to be noted that most companies combine both midstream and downstream and call it as downstream. According to interviewee 5, cheap oil and gas has already been found. Any oil and gas found now will be challenging and expensive to dig out. Going together, low oil prices and new oil explorations to be expensive, makes upstream more vulnerable to knowledge loss.

#### **v) Dynamics of Different Geographical Locations**

Understanding of oil and gas business doesn't exist in Middle East and they are buying knowledge from West. There are a lot of expats working in the companies in Middle East. The reason is now Middle East companies want to cut the money being paid to Western companies which is not acceptable for Western companies. They are shifting away from West and joining with Eastern companies. So, changing the shareholders from West to East in Japan, Korea and China is on the way now. Companies also want local workers to get into job and thus localization is the main focus in Middle East. As oil prices dropped significantly, they can't afford expatriates and want local workforce to jump in. According to interviewee 2,

*“With the upheaval in the Middle East, that may make it more difficult for expatriates as the education of local workforces has greatly improved in most oil producing areas, so there will likely be the local companies exercising more authority over projects”.*

All these factors pose challenges to the knowledge retention activities. In developing countries like Pakistan, India and Indonesia, there is not much problem with the aging workforce, however there is issue of knowledge gap between the employees in government organizations because of strict recruitment policies for example when senior managers retire, the employees to replace them are in very young age and far less experienced. Knowledge management is also at a very

early stage and only few private companies are taking initiatives. On the contrary, in developed countries, the processes are almost streamlined and proper knowledge management practices exist; however, shrinking workforce due to retirements and not many young people available to replace the old age retiring workers is causing a knowledge gap for companies. According to interviewee 5 from company E, due to retirements and compounded by the fact that less people get enrolled in oil and gas programs in colleges, company built its centers in China and India because of more manpower and talent availability. Company has a big technology center in India and has shifted the recruitment historically away from West. At the moment, the company has focused on 100 universities around the world for attracting talent. There is a mix of people and a lot more Chinese, Indian, Far Eastern people are joining oil and gas these days. All consultant companies, they are also behind the bright students. So, it is very competitive. Because of the oil crisis, some companies doing a little bit of recruitment while most companies have stopped recruitment. Younger people don't like to come in this sector because of layoffs due to budget shortfalls and thus they have apprehensions about their future. Thus, it gives a clear idea of the shrinking workforce in the developed countries. Same was agreed by interviewees from companies in UK, Russia, Australia and USA that they are experiencing a workforce shortage because of contract based jobs and cyclic nature of oil and gas business.

## **6. Discussion and Analysis**

Results provide evidence that knowledge loss due to retirements is more acute with companies in developed countries as compared to companies in developing countries (Beechler and Woodward, 2009). Because of financial crisis, organizations are focusing on short term benefits and knowledge loss is probably more accelerated (Ball, 2011) in these last 2 years. In these situations, firing the employees all of a sudden minimizes the chances of retaining the knowledge and employees are also not willing to share knowledge (Daghfous et al., 2013). It is also evident that knowledge of the employees is of least importance for the companies when it comes to reducing the costs and budget of the organizations. Thus it makes the things work temporarily but has devastating effects in the long run (Calo, 2008). Oil and gas industry is considered the pioneers in KM yet factors like costs and budgets make companies do their business in traditional way and put aside the knowledge management initiatives. In developing countries, there are enough young people to replace the old age workers and in most cases, there are young

people working at all the positions thus eliminating the knowledge retention and aging workforce issue. However, government owned organizations tend to be influenced by politics and budget constraints due to which not enough recruitment is done creating an aging gap in the workforce. This can cause problems when junior people take over the responsibility after a senior employee retires. Because of lack of experience and expertise; they are not able to perform the tasks well causing delays in the operations. Based on this it can be proposed that:

P1: Financial constraints accelerate the knowledge loss in oil and gas companies and can cause devastating effects on companies in the long run.

Regarding knowledge retention strategies, companies have traditional ways of knowledge transfer like portals, lessons learned databases, communities of practices (DeLong, 2004) but these methods focus on long term knowledge transfer (Levy, 2011) and thus there is negligence regarding knowledge retention methods from departing employees as from the results it appears that some super majors have well-structured programs such as "retention of critical knowledge" program, bringing retirees as lectures thus showing the concern of these companies for retaining the knowledge of employees, however, these programs are not consistent across the board. As far as other companies are concerned, they don't have formal programs and knowledge retention is performed on adhoc basis (Leibowitz, 2009).

P2: Although oil and gas companies have traditional ways of knowledge transfer, there is negligence on part of companies with well established and structured knowledge retention programs for departing employees.

If knowledge retention processes are embedded with HR exit process (Calo, 2008), then it could be much more beneficial for the organization. In normal circumstances, when the employees are not being laid off, the best way is assigning experienced people the role of coaches, mentors or experts (Karkouljian et al., 2008) who are able to solve the problems of young employees but it is always hard because of too much mobility of the workforce (Inkpen and Moffett, 2011) in oil and gas sector and also because of time availability. Mentoring could only work if people are specifically assigned these roles and they are solely dedicated on training the younger generation. Practically communities of practices (Cops) seem a more reasonable solution. The experienced employees need to be very active in communities of practices (Wenger et al., 2002) for these to work effectively. Moreover, this is also supported by the fact that oil and gas companies have their work spread out across different geographical locations and thus they need some common

forum for communicating with people dispersed across the globe. As people progress through their careers, they move to positions where they will be less in field and more in office. Either they will become managers or senior executives, thus interaction is primarily virtual, therefore, usage of Cops under such scenarios is best way (Scarso et al., 2009). Communities of practices could pose a challenge as sometimes experts are asked naive questions, but it is hard to define criteria for posting the questions, thus companies need to make sure employees are provided the basic knowledge through training sessions. Bringing retirees as consultants is a formal procedure only in few companies and thus not heavily exercised by most of the companies. It might be partially to give room to next generation to get the positions and keep on the flow of the organizations. Although this might not be true in all the cases because oil and gas companies when they are doing well, they can expand their workforce and hire more people (Inkpen and Moffett, 2011) and rehire or bring important persons back as consultants.

P3: Cops and mentoring, if executed properly, seem to be the best way of knowledge retention in oil and gas sector.

Findings of the study regarding knowledge sharing are in line with previous studies that it is a characteristic thing, some people enjoy sharing while some don't (Martins and Meyer, 2012). It all comes down to fear factor or confidence of the employees. People who are comfortable with their ability to know more and execute faster and do things better have no problem in sharing than the people who think that sharing is the only thing that is between them and being laid off will never share (Seidler-de Alwis and Hartmann, 2008). Moreover, some people have natural ability and desire to be mentor (Martins and Meyer, 2012) and they are probably 1 percent of the work force but companies need to identify those people and give them chance to share knowledge. The fear factor and job security is bigger barrier for companies in developing countries than developed countries as there are not much jobs available and also if you lose your job, there is not much support from government. Old age workers from developed countries tend to be more open and friendly when it comes to knowledge sharing than the people in developing countries because of the culture of trust, fairness and openness. In areas of exploration and drilling, employees rely on each other for performing different tasks, and if they don't trust, things can go horribly wrong, thus companies need to pay more attention to these areas for knowledge retention. Due to different job assignments during their career, employees possess unique subject matter expertise knowledge, contextual knowledge of working in different

environments and also have a stronger network of relationships (Joe et al., 2013); thus it is important to consider all the different types of knowledge during knowledge retention process however; results revealed that there are no such measures in oil and gas companies apart from one super major. In other words companies need to have proper knowledge risk assessment procedures (Jennex, 2014) for departing employees.

P4: For better knowledge retention, oil and gas companies need to break down the skill set of the departing employees according to jobs they have performed over the years.

Language initially thought to be a big barrier in oil and gas sector is not a big barrier mainly because people work at different locations across the globe and get used to of different cultures. Especially on site; they are working on the same projects and have standard ways of working and interacting. As argued in previous studies, incentives need to be maintained for knowledge sharing (Bock et al., 2005). If you ask people to do it as part of their regular jobs or after hours, they won't do it effectively. Geographical location of the companies also affects the knowledge retention (Du Plessis, 2005) and ways old age employees are handled. Political factors greatly influence the companies in Middle East and developing countries especially if the companies are government owned companies. Developed countries on the other hand don't seem to have such issues because of less political influence. Upstream sector is the one having major problems especially due to current oil slump as all the exploration and production is carried out in upstream sector. These operations are very expensive and thus in case of low oil prices, it is not profitable to go for such operations. Moreover the main workforce of any company working in all the three sectors resides mainly in the upstream sector (Gould et al., 2007). Thus, special attention needs to be paid to upstream sector to avoid knowledge losses. In most of the developed countries, oil and gas companies are having a workforce crisis, some super majors as mentioned in results are working on recruiting more people from China, India and Far Eastern countries but other companies don't seem to have plans to handle this. This shrinking workforce on one hand is due to low fertility rates (Beechler and Woodward, 2009) and on the other hand because of contract based jobs, no future stability and harsh working environments (Inkpen and Moffett, 2011). Thus companies need to realize this and take timely and active measures in terms of offering more job stability to the workers (Beechler and Woodward, 2009). The shrinking workforce indirectly puts more pressure on the companies to retain and preserve the departing employees and their knowledge. Similarly, for hiring new graduates, there is need of

collaboration with universities and conducting sessions or seminars to attract the new talent in this sector.

P5: Knowledge retention issue due to aging workforce and talent crisis is more acute in developed countries as compared to developing countries and it is the upstream sector which is suffering the most.

## **7. Conclusion and Future Work**

Success to innovation and competitive advantage depends on the skilled human capital of the organizations. This study is one of the few empirical studies conducted on the topics of knowledge retention from old age employees and probably one of the first ones in oil and gas sector covering companies across different geographical locations and taking into account all the three sectors namely upstream, downstream and midstream. Oil and gas is a unique industry in terms of operations and geographical boundaries. This study provides managers and researchers an in-depth insight of the various challenges related to knowledge retention of old age retiring workers and how companies are handling these.

### *a. Understanding the work force crisis*

Oil and gas industry is facing workforce crisis as well as knowledge retention issue in all the three sectors, however, companies in developing countries don't have workforce crisis but they lag in knowledge management practices, on the other hand, companies in developed countries have shrinking workforce issue whereas the knowledge management practices are much better and mature in these companies.

### *b. Insights on knowledge retention challenges*

Nevertheless, these knowledge management practices tend to be inconsistent and major factors behind this are budget shortfalls, fluctuating oil prices and lack of interest from top management. The political situations and geographical locations of the country also affect the knowledge retention activities. The oil prices turn out to be a decisive factor in oil and gas industry regarding workforce and knowledge retention activities.



### c. *Motivation for taking proactive steps*

The study finally calls for attention of managers and executives to take proactive measures for knowledge retention of departing workforce as the consequences are quite evident in case the knowledge is not retained.

There are also limitations as the study lacks generalisability because of just focusing on 1 sector i.e. oil and gas. Further research can be conducted to compare the service provider companies and operator companies in terms of knowledge retention strategies and handling the aging workforce. Further study can also be performed on how companies assess the knowledge loss risk of the departing employees to better decide on knowledge retention strategies.

### **References:**

- BALL, K. 2011. *Surviving the Baby Boomer Exodus: Capturing Knowledge for Gen X & Y Employees*, Cengage Learning.
- BEAZLEY, H., BOENISCH, J. & HARDEN, D. 2002. *Continuity management: preserving corporate knowledge and productivity when employees leave*, John Wiley & Sons.
- BEECHLER, S. & WOODWARD, I. C. 2009. The global "war for talent". *Journal of international management*, 15, 273-285.
- BOCK, G.-W., ZMUD, R. W., KIM, Y.-G. & LEE, J.-N. 2005. Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. *MIS quarterly*, 87-111.
- BRUCE, B. & BERG, M. 2001. *Qualitative research methods for the social sciences*. Needham Heights, MA: Allyn and Bacon.
- CALO, T. J. 2008. Talent management in the era of the aging workforce: The critical role of knowledge transfer. *Public Personnel Management*, 37, 403-416.
- CHARMAZ, K. 2006. *Constructing grounded theory*, Sage Publications, Thousand Oaks, CA.
- CONSTANTIN BRATIANU, S. P. E. B., PROFESSOR, DURST, S., AGGESTAM, L. & FERENHOF, H. A. 2015. Understanding knowledge leakage: a review of previous studies. *VINE*, 45, 568-586.
- COWLEY-DURST, B. 1999. Gathering knowledge for your knowledge management system. *Performance Improvement*, 38, 23-27.
- DAGHFOUS, A., BELKHODJA, O. & C. ANGELL, L. 2013. Understanding and managing knowledge loss. *Journal of Knowledge Management*, 17, 639-660.
- DE GEUS, A. 2002. *The living company: Habits for survival in a turbulent business*. Boston, MA: Harvard Business Review Press.
- DE MASSIS, A., FRATTINI, F., KOTLAR, J., PETRUZZELLI, A. M. & WRIGHT, M. 2016. Innovation Through Tradition: Lessons From Innovative Family Businesses and Directions for Future Research. *The Academy of Management Perspectives*, 30, 93-116.
- DELONG, D. W. 2004. *Lost knowledge: Confronting the threat of an aging workforce*, Oxford University Press.
- DU PLESSIS, M. 2005. Drivers of knowledge management in the corporate environment. *International Journal of Information Management*, 25, 193-202.

- EBRAHIMI, M., SAIVES, A.-L. & HOLFORD, W. D. 2008. Qualified ageing workers in the knowledge management process of high-tech businesses. *Journal of Knowledge Management*, 12, 124-140.
- GILL, P., STEWART, K., TREASURE, E. & CHADWICK, B. 2008. Methods of data collection in qualitative research: interviews and focus groups. *British dental journal*, 204, 291-295.
- GOULD, L., NAHA, M., CHILDS, R., NYATI, P., REW, I., FOSTER, R., ROMERO, R. & RESLER, C. 2007. The workforce crisis in the upstream oil and gas sector. *University of Houston, Global Energy Management Institute (April 2007)*.
- GRANT, R. M. 1996. Toward a knowledge-based theory of the firm. *Strategic management journal*, 17, 109-122.
- HARVEY, J.-F. 2012. Managing organizational memory with intergenerational knowledge transfer. *Journal of Knowledge Management*, 16, 400-417.
- HOFER-ALFEIS, J. 2008. Knowledge management solutions for the leaving expert issue. *Journal of Knowledge Management*, 12, 44-54.
- HUBER, G. 1999. Facilitating project team learning and contributions to organizational knowledge. *Creativity and Innovation Management*, 8, 70-76.
- INKPEN, A. C. & MOFFETT, M. H. 2011. *The Global Oil & Gas Industry: Management, Strategy & Finance*, PennWell Books.
- JENNEX, M. 2014. A proposed method for assessing knowledge loss risk with departing personnel. *VINE: The journal of information and knowledge management systems*, 44, 185-209.
- JOE, C., YOONG, P. & PATEL, K. 2013. Knowledge loss when older experts leave knowledge-intensive organisations. *Journal of Knowledge Management*, 17, 913-927.
- JOHNSON, R. W. 2011. Phased retirement and workplace flexibility for older adults opportunities and challenges. *The ANNALS of the American Academy of Political and Social Science*, 638, 68-85.
- KARKOULIAN, S., HALAWI, L. A. & MCCARTHY, R. V. 2008. Knowledge management formal and informal mentoring. *The Learning Organization*, 15, 409-420.
- LEIBOWITZ, J. 2009. *Knowledge Retention: Strategies and Solutions*. Boca Raton, FL: Taylor & Francis/CRC Press.
- LESSER, E. & RIVERA, R. 2006. Closing the generational divide: Shifting workforce demographics and the learning function.
- LEVY, M. 2011. Knowledge retention: minimizing organizational business loss. *Journal of Knowledge Management*, 15, 582-600.
- MARSHALL, C. & ROSSMAN, G. B. 2011. *Designing qualitative research*, Sage.
- MARTINS, E. & MEYER, H. W. 2012. Organizational and behavioral factors that influence knowledge retention. *Journal of Knowledge Management*, 16, 77-96.
- MCKENNA, M. G., WILCZYNSKI, H. & VANDERSCHIEE, D. 2006. Capital project execution in the oil and gas industry. *Booz Allen Hamilton, Houston*.
- NERKAR, A. 2003. Old is gold? The value of temporal exploration in the creation of new knowledge. *Management Science*, 49, 211-229.
- NONAKA, I. & TAKEUCHI, H. 1995. *The knowledge-creating company: How Japanese companies create the dynamics of innovation*, Oxford university press.
- PETRUZZELLI, A. M. & SAVINO, T. 2014. Search, recombination, and innovation: Lessons from haute cuisine. *Long Range Planning*, 47, 224-238.
- ROPES, D. 2013. Intergenerational learning in organizations. *European Journal of Training and Development*, 37, 713-727.
- SCARSO, E., BOLISANI, E. & SALVADOR, L. 2009. A systematic framework for analysing the critical success factors of communities of practice. *Journal of knowledge management*, 13, 431-447.

- SEIDLER-DE ALWIS, R. & HARTMANN, E. 2008. The use of tacit knowledge within innovative companies: knowledge management in innovative enterprises. *Journal of knowledge Management*, 12, 133-147.
- SNOWDEN, D. 2002. Narrative patterns: uses of story in the third age of knowledge management. *Journal of Information & Knowledge Management*, 1, 1-6.
- STEVENS, R. H. 2010. Managing human capital: How to use knowledge management to transfer knowledge in today's multi-generational workforce. *International Business Research*, 3, p77.
- STRACK, R., BAIER, J. & FAHLANDER, A. 2008. Managing demographic risk. *Harvard Business Review*, 86, 119-128.
- STRAUSS, A. & CORBIN, J. 1998. *Basics of qualitative research: Techniques and procedures for developing grounded theory*, Sage Publications, Inc.
- TSUI, E., ISKE, P. & BOERSMA, W. 2005. Connected brains: Question and answer systems for knowledge sharing: concepts, implementation and return on investment. *Journal of knowledge management*, 9, 126-145.
- WENGER, E., MCDERMOTT, R. A. & SNYDER, W. 2002. *Cultivating communities of practice: A guide to managing knowledge*, Harvard Business Press.
- YU, H.-C. & MILLER, P. 2005. Leadership style: The X Generation and Baby Boomers compared in different cultural contexts. *Leadership & Organization Development Journal*, 26, 35-50.