

The Aging Warriors: A Study on the Retiring Oil and Gas Professionals

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Abstract: *International Oil and Gas organizations face the gruelling task of juggling the right talent for the job, or risk cost over-run due to inefficient talent management while executing multiple projects simultaneously. The cost, time and quality of the project are governed by evolving demand and supply in this industry. There is a shift in the current approach in resource management to cushion the ageing workforce constraints in the Oil and Gas industry. It is a fact that the crucial knowledge is diluted as these seniors leave the industry without proper handover and documented lessons learned. This study was conducted in a Malaysian Oil and Gas company context. The rich meaning was extracted from semi-structured interviews, which derived the key causes of skill shortage in Oil and Gas. The objective was to find a governance matrix easily adaptable for senior expert workers and retirees in a post-COVID environment. Qualitative findings highlight five key elements in effective knowledge downloading; namely experience, knowledge, manpower, tools and skills. This is intertwined with the issue of an ageing workforce. This paper will deliberate challenges faced in project management and suggests the best method in adapting the ageing workforce dilemma. Findings in the study indicate that there is an equal correlation of the gaps studied in producing optimal results; with the strong importance of optimizing experiences of the senior workforce. Project management systems demand continuity as the old is replaced with the new generational workers. The catalyst to dynamic resource management is governance; it reflects increased efficiency in the organization as a whole. The interpretations and conclusions are suited for Oil and Gas skill group enhancement, but generalized to suit other knowledge-dependent industries.*

Keywords: Oil and Gas, experience, retire, skill group, governance, knowledge download

1. Introduction

Three generations of Oil and Gas workers have passed since the emergence of this industry, and the way things have been done has evolved over the years. By analysing what has happened within the Baby Boomers- Generation X- Generation Y time frame, the industry will give a helicopter view of the trends and unavoidable gaps. The qualitative analysis gave a rich interpretation and meaning to the chronology of events surrounding industry operations. It also gave light to the process of gap creation by studying the previous 30 years.

In the studied company, the organization chart approach has evolved significantly. The findings highlighted the loopholes of lagging resources. Social and psychological aspects derived from respondents were documented and compared to the themes. The matrix approach has long replaced the conventional project team organisation chart. In this case, a matrix with dual or

multiple managerial accountability and responsibility. This kind of matrix employs two chains of command: one along the functional line and the other along with the project, product, or client lines. Other chains of command such as geographic location are also possible. The evolution of organizational structure caters to a definite real-world requirement for an organization capable of managing big-scale and complex programs, projects, and problems, with very limited resources. This could also stem from having good governance. Thus, the organisation chart may be adjusted repeatedly to ensure optimum productivity.

As the older workers move towards retirement, knowledge sharing must be actively encouraged and documented. This tacit knowledge is something that can only be acquired after years of practical experience. This study will reveal the effectiveness of current practices to document some of this knowledge. It may just be a documented story, but it could become a useful guideline for future use. Wilson and Campbell (2016) mentioned that to have a smooth transfer of knowledge, all Oil and Gas companies have to align their business knowledge according to the International Organisation for Standardisation (ISO) 9001: 2015. This is standard practice not just Oil and Gas establishments but in all industries. Once a business process has been aligned, the business knowledge will become common knowledge that will be developed further into best practices. COVID-19 has shifted the previous business processes; hence the process of documenting and sharing knowledge must also be realigned.

The Oil and Gas industry is facing skills shortages and an ageing workforce is in the top-five of barriers to industry growth (Alhanshi & Albraiki, 2015). After the outbreak of the Coronavirus, pandemic, seasoned talents are needed even more. The younger generation workers would not have had the physical experience of being on-site therefore lack the skillset to make an accurate judgement or troubleshoot a problem in situ.

2. Literature Review

Yu and Miller (2005) suggested that having worked all three phases of the economy, the Baby boomers have become more experienced than their younger peers despite being currently in the process of retiring. This makes their skillset scarce in terms of maturity and experience. The following illustrates the length of work each generation has gone through.

Table 1: Changing Nature of the Workforce

Generation	Industry of Economy (until 1980)	Service Economy (1981- 2000)	Knowledge-Economy (2001 onwards)
Baby Boomers	★	★	★
Generation- X		★	★
Generation - Y			★
	Industrial Workers	Service Workers	Knowledge Workers

Note: ★ Indicates the era each generation has worked.

Demand for skilled workers, especially across knowledge-intensive industries will increase tremendously within the next 10 years. However, the ripple effect of talent shortage will be felt in every industry. Jean-Marc Laouchez, president of the Korn Ferry Institute, mentions that

“Constant learning which is driven by both employees and their organizations will be central to the future of work, extending far beyond the traditional definition of learning and development. (McLaren, 2018).

During and after the outbreak of the Coronavirus pandemic, these seasoned talents are needed even more in the upstream Oil and Gas scene. The younger workers have not acquired physical experience of being on-site therefore lack the skillset to make an accurate judgement or troubleshoot a problem in situ.

No	Literature Review:	Theoretical contribution
1.	The ageing workforce is one of the main challenges in productivity. Oil and Gas producers are trying many ways to find the next generation of workers. (Čiutienė & Railaitė, 2014, p. 70)	The current approach to resource management needs to be streamlined to cushion the ageing workforce constraints in the Oil and Gas industry. Increasing the employment of retirees up to 10 years would speed up the transition process
2.	Tacit knowledge is attained from on-the-job experience and context. This kind of information would be the most difficult to write down, document, or present in a tangible form. The current method of managing knowledge is by handing it down thoughts, views, impressions, expertise, knowledge, concepts, beliefs and judgments, which are parts or instances of tacit knowledge, have equivalent parts or instances in opinions and ideas. (El-Den & Sriratanaviriyakul, 2019, p. 28)	Knowledge Management has to be documented and digitized, especially from the Baby Boomers generation. To collect more rich content, more IWG sessions should be conducted, as it is an informal free-flow method of passing knowledge.

A major problem for all companies is knowledge loss when employees retire or leave the company. This is causing a greater shortage of talent, with a significantly smaller younger generation after them. Silverstein (2008) mentioned the Baby Bust of 1965- 1976, due to that the older workforce was asked to remain on the job to fill a skills gap or mentor the young colleagues.

The ageing workforce is a crucial issue that Oil and Gas project management and construction team have to consider. A three-year survey answered by 2,500 HR Managers in the United States of America revealed that older workers are among the most skilled and productive, due to greater work experience, knowledge and skills, greater maturity and professionalism, stronger work ethic, more reliable and loyal, and less turnover (SHRM, 2015). The survey also indicated that 21- 24% of HR practitioners find it extremely easy to employ older generation workers. These seniors need encouragement to remain productive, only that their motivational “hot buttons” are different. The older workers value the recognition of a job well done, but their younger juniors vie for career advancement (John Reh, 2019).

Exxon Mobil management took steps to cushion the impact of the ageing workforce, turnover and lost institutional knowledge due to retirement (Grant, 2013). According to the study done to this international organization, technology-driven access to information is given critical attention in addressing their ageing workforce. More roles that were traditionally done by humans are slowly replaced by computer software and machinery. There is an increasing concern as Oil and Gas fields become global, hence economics makes the price per barrel

fluctuate and drop due to many factors. The environment has evolved; hence innovation is crucial to keep up with the rising costs of manpower.

With the growing concern towards loss of knowledge, more importance must be given to increase collaboration with the older workforce. According to a survey done by PennEnergy in 2011, only 10% of Oil and Gas personnel in Canada collaborate, suggesting that 90% work in a separate entity. Meaning they have a separate set of the workforce regardless of idle time. This is evident in present situations as project managers prefer their own set of manpower regardless of workload; resulting in many having idle times which is a major loss to the organisation. As a result, another project team resorts to contract staffing to meet the role requirement. This is deemed to be a waste of resources since many experienced senior employees can be utilised. De Massis et. al.,(2016) mentions that senior employees possess years of organisational knowledge, knowledge of governance and knowledge of networks and relationships developed over a period within the organisation, and this knowledge is the key in enhancing and sustaining a firm’s performance. This study also suggests that similar fields need to communicate to have more shared resources to cushion the lagging manpower., as summarized below:

Table 2: Teams Rating In a Collaboration Exercise

The last time Oil and Gas teams have a collaboration exercise	Percentage (%)
Collaborate more than one year ago	34
Collaborate one year ago	56
Collaborate less than one year ago	10

Note. Respondents are 205 subscribers to PennWell publications, from the Oil and Gas industry professionals including engineers, mid-level and executive management, business unit heads and staff, project managers and geoscientists from a cross-segment of the industry. This suggests organisations collaborate more within the organisation as it can lower the overheads and optimise the use of each personnel. (Mohd. & Sh A Rahim, 2021)

3. Findings

As the Baby Boomer workers retire, the new generation managers from the Generation X and X-Boomers need to lead and create an environment that motivates their older colleagues to keep at pace. No one should assume the older worker knows what is expected of them (John Reh, 2019). They come from different background, hence the communication has to be clear and concise. As the talent pool becomes more mature, the organization will experience less flexibility and variability (Kukreja, 2018).

With regards to the current approach to resource management, *experience* seems to be the most quoted by the study respondents, as follows:

No	Sub-codes	Quote
1	Years on the job	“... Because these people have a lot of experience you can't get from just hiring any guy from the streets because they do not know the system and how it works within the company. Especially when these guys have done a few cycles of EPCC, EPCIC and been through DPSC. This is the key.”
2	Ample exposure	“That's why we required that the experienced employees who have done EPC, EPCC AND EPCIC to come on-site and share their experience with the younger

		engineers. So this gives exposure and knowledge to the newer generation employees.”
3	Problem-solving	“What can you learn from experience employees is how to handle things when things go south, things don't happen as plan, what do you do? This doesn't come from manuals. This only comes from hands-on experience.”
4	Hands-on	“...You cannot blame the younger generation if they do not know how to do the task. Experience only comes from hands-on. “

Demand for skilled workers, especially across knowledge-intensive industries will increase tremendously within the next ten years. However, the ripple effect of talent shortage will be felt in every industry. With the challenges faced in acquiring the right talent for the job, proper governance plays a crucial role towards:

- Safe and secure resource management
- Environmentally friendly
- Sustainable Output
- Competitive throughout the lifespan of the field/ built facility

Experience can only be collected with years of practice (Mohd. & Sh A Rahim, 2021). In this case, the answers refer to the Baby Boomers generation workers:

No	Sub-codes	Quote
1	“Been there, done that”	“The older guys (employees) have been there, they have failed before, and they know how to make things work”
2	International exposure	“For my project, we still hire retirees for the position of contract specialist because we require the experience that this person has. And the knowledge of handling especially DPSC contracts amongst the international contractors”
3	Better quality	“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. “

The data derived from participants suggests that by having older employees and retirees, the project will benefit from their knowledge throughout the years. Every project team must have a mixture of skilled, semi-skilled and newly working to have an optimum level of knowledge being shared during the project execution. As mentioned by the participants:

No	Sub-codes	Quote
1	Strategic troubleshooting	“every senior has their own experiences and strengths. They have a lot of knowledge on strategic matters and conflict resolution. You must take the initiative to know what is their knowledge of things. You can learn a lot from them. The seniors also have earned enough respect to be able to communicate to levels that are above us.”
2	Lessons learned	“We can learn how to manage problems from their past problem solved. Thus the problem becomes simplified so that we can quickly close the issue.”
3	Direction for moving forward	“The reason is we want to tap into their knowledge, to provide the direction and know-how. How to manage the project, to execute the project properly, the process and steps to meet the project objectives”

4. Discussion and Conclusion

According to the research findings, the utilization of experienced professionals could be explored further, especially in the technical field. In this case, it is employees with a minimum of 15 years' experience. This range of employees must have reached the skillset level of Technical Professionals (TP) or Custodians. Research findings suggests that the range falls under the early Generation X until the early Baby Boomers age group. For discussion purpose, the study will call this age group the X-Boomers hybrid. They currently fall under the age range of 45-65 years. The characteristics of these X-Boomers are very similar to the Generation X age group but only of older range; and yet too young to be categorized as Baby Boomers. This age group has the maturity to manage the younger workforce which is Generation Y and Z.

Referring to the figure below, the Baby Boomers are at the parental age range for Generation Y. Hence by default, the latter has an innate inclination to listen to individuals as old as their parents. Hence the pattern shall emerge as the Generation X being suitable coaches to Millennials, and Generation Y being suitable coaches to the Centennials.

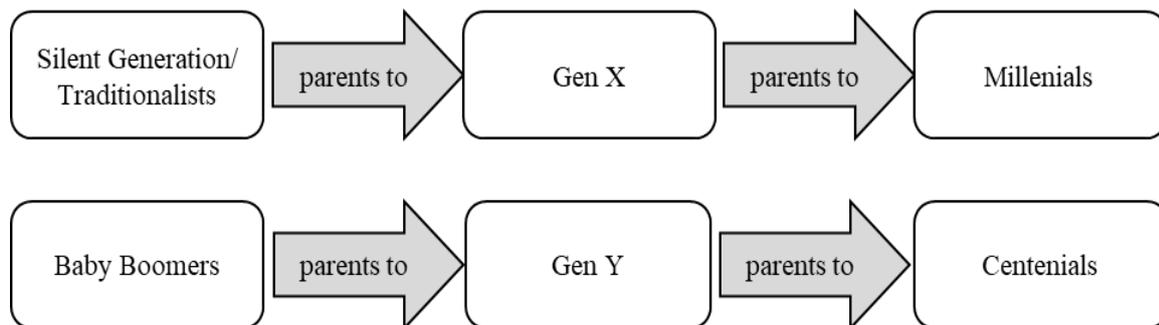


Figure 1: Parent-child Correlation to Each Generation

This suggests that the X-Boomer employees are most suitable as mentors; be it for pairing method of learning and as a pulling force for new talent to have an interest in joining their establishment even before completing studies. Such as reported by APQC (2012), whereby Schlumberger organizes one-week internships called field camps. This way, high school students are exposed to the working culture, whereas the company can evaluate the student's potential.

When an organisation has interim moments of activities, employees may be subjected to lull periods and feel like their career is dormant. The organisation has to inject motivation into the culture. Some of the participants may fear a lack of opportunities to climb up the career ladder while their superiors are still in service, especially when some of them are re-employed after the retirement age limit. Large organisations such as Lockheed Martin SSC custom-made a matrix governance structure to manage all critical technical skills. (APQC, 2012). Managers of each business units and main functional operations teams collaborate to:

- 1) Provide inter-company technical and non-technical skills program
- 2) Identify skillsets expertise.
- 3) Develop experts and protégés
- 4) Grouping of employees to their skillsets

Hence, they have a low reliance on the Human Resources Department; when they require any resource, it is already groomed from within. This indirectly saves costs on hiring temporary staffing for projects.

A major problem for all companies is knowledge loss when employees retire or leave the company. The Oil and Gas project management and construction team must consider the continuity of the project. To optimize the experience of senior workers, organizations can employ them as trainers and mentors. Older workers have a wealth of knowledge and experience that they would love to pass on (John Reh, 2019). With the use of tools, adapted communication platforms reduce the need for the physical and strenuous movement to enable a flexible schedule.

5. Recommendation

Due to the loyal nature of these age group workers, most Oil and Gas organizations find that these senior professionals are easily/ highly easy to retain in the organisation. To ensure comfortable employment for the older workers, here are several suggestions:

- meet their security needs; this includes better medical coverage, eye care, and financial planning assistance
- use the senior workers as trainers and mentors; older workers have a wealth of knowledge and experience that they would love to pass on
- accessible parking spaces; to reduce the distance of walking
- adapted working tools such as screen magnification software; some may have weaker eyesight
- flexible scheduling; due to stamina issues or the effects of medications
- periodic rest breaks away from the workstation; this enables naps
- adapted communication tools such as text messaging; to reduce the need for physical and strenuous movement
- part-time work schedules; some older workers may want to spend more time with family
- a sit-stand desk; some older workers may suffer from arthritis
- time off for medical treatment

Experience cannot be purchase nor fabricated. With the current loss of valuable knowledge through retirement, organisations must increase the initiative of digitalising tacit knowledge from this generation workforce. It is the only source available in the future for the new generation to learn from. Developing a sustainable culture starts with the senior employees, who are supportive of knowledge digitalisation. One way is to offer monetary remuneration for the effort. Tacit knowledge is shared by trust and motivation. In aligning knowledge management to a company's business strategy, the tacit knowledge and value chains should be incorporated to contribute towards enhancing profitability. Otherwise, the knowledge management systems will become a garbage pool (Grant, 2013), and turn into a problem of knowledge overload. As highlighted by one of the study participants, "The challenge now is basically to make available useful information into the system and make it easy enough for everybody to assess it. So that the younger generation can easily search and find information while doing the project".

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