

Let us speak about HR in oil & gas industry

To meet the increasing demand for energy and replace retiring workers, major O&G industry players will need to recruit 100,000 people over the next 10 years in the upstream sector. More specifically, there will be a need for mechanical, maintenance, electrical, chemical and petroleum engineers¹. Such a tight market, where skills become unbalanced with respect to demand, has two major consequences. First of all, the value of expertise and experience drastically increases as all companies try to attract the best employees. The same applies to turnover, insofar as the best experts look for companies that will give them the highest salaries. Secondly, to supply the demand and fill the gap, inexperienced people attracted by "easy money" are recruited massively for the more basic jobs. A dual vicious circle has been set up inducing at the same time a general increase in salary associated with a worrying decrease in skills, which jeopardizes both production and safety performance. This tight market could become a structured, lasting situation worsened by endogenous (peak old) and exogenous (local content) factors.

"Peak old" in Oil & Gas

More than any other industry, the Oil & Gas sector suffers from its "peak old". Half of the population now working in the oil industry was recruited at the beginning of the eighties. In 1985, the peak of the age pyramid was below 30, with graduates continuously back-filling retirees. After 1986 (the counter oil shock), the back-filling sharply declined and in 2003, the peak of the age pyramid shifted to 50 (Figure 1). In 2010, the peak was between 55 and 60. This highlights the very weak situation in which the oil & gas industry now finds itself with respect to its human resources. Even if there is a political will in developed countries to delay retirement age, within ten years, baby boomers will have retired. This situation induces a number of different challenges: covering the development of new and complex reserves requiring high-level expertise and experience (deep water, heavy oil, arctic areas, LNG, shale oil & gas), and training the younger generations in parallel.

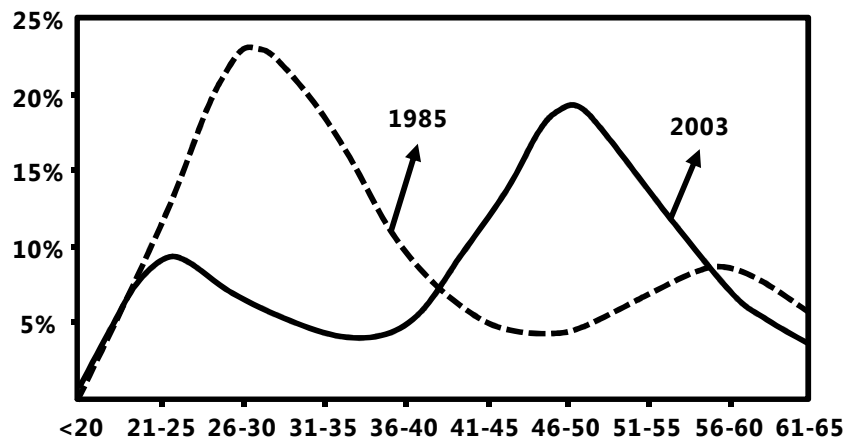


Figure 1 – Evolution of the age pyramid in Oil & Gas between 1985 and 2003 (after ATCE 2004²)

The aging population in developed countries will not solve the problem of peak old. Only a much younger population from emerging countries (and especially producing countries) can, in the medium term, properly address this lack of resources which is severely felt in core business areas such as

¹ Deloitte O&G survey (2010)

² C. Sbiti (2004) "Developing human Resources for the Future Oil & Gas Industry" SPE-101622

geology, drilling, production or reservoir engineering. For the Oil & Gas industry, contrary to popular belief, the local content issue is not just a societal issue. It is also a major demographic challenge.

Negative image in public opinion

Compared with other sectors (information technologies, automotive, banking), Oil & Gas suffers from a general negative image in public opinion. Though this perception can be partly explained by the fact that O&G activities are perceived as dangerous and environmentally unfriendly,³ other key influences also need to be looked at in further detail.

The first important point is the cyclic activity (**Figure 2**) accompanying the barrel price and resulting either in massive recruitment (activity increases with barrel price) or in sudden cuts wiping out thousands of jobs (activity decreases with barrel price) particularly in the service companies (drilling, well activities, engineering companies). The 1986 crisis was perceived in a particularly negative light and most of those dismissed refused to return when activity later restarted - a fact clearly demonstrated by the curve of the US Petroleum Science Bachelor which completely collapsed during the second half of the eighties (from 1,600 graduates in 1985 to less than 400 at the end of the nineties) and never managed to get off the ground again. In 2015, following the collapse of the barrel, large service companies such as Halliburton or Schlumberger fired in a few months thousands of people. As **Figure 2** clearly demonstrates, the sharp increase in the barrel and the strong regain in activity after 2000 did not motivate people at all to come back.

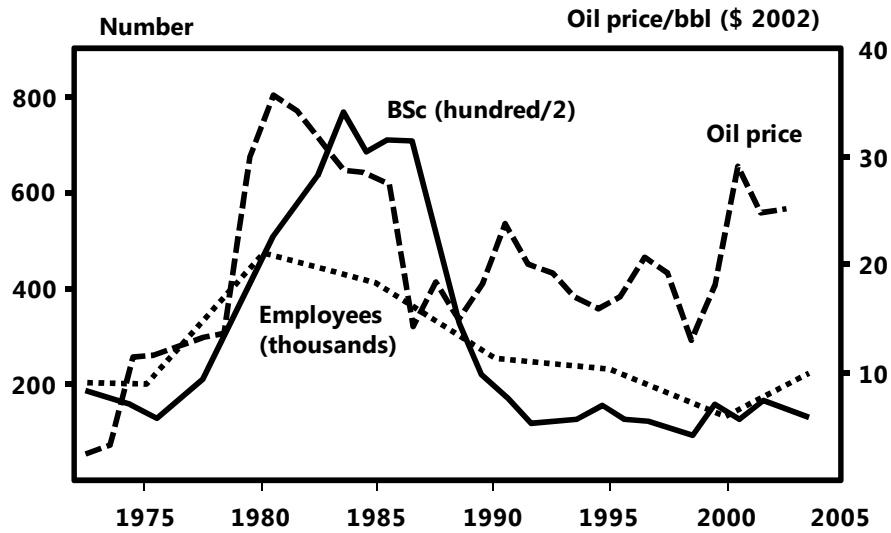


Figure 2 - Relationship between oil prices and O&G workforce
 (Source: SPE, U.S. Bureau of Labor Statistics and WTRG Economics - 2005).

A second point is the Compensation & Benefit (salary + bonuses) package. Aware that C&B is one of the top three factors considered by employees, major Oil & Gas players have benchmarked their C&B against competitors and consistently improved their package to attract and retain the workforce. On average, there has been a 40% increase on average between 2005 and 2009. In spite of these efforts, the C&B in O&G is still considered as middle-of-the-road compared to other industries.

³ This feeling has been compounded over the last three years in the wake of the Deepwater Horizon accident in the GOM on April 2010

A third key factor and probably the most important is the **specificity of the upstream professional disciplines**. By comparison with more transverse and tertiary disciplines (finance, human resources and information technologies), the very specific E&P skills (drilling, geology, reservoir engineering) require extensive experience (several years are needed to train a geologist, a driller or a reservoir engineer properly) but are practically impossible to export outside the oil industry. Consequently, technical training and enhancement of technical skills remains the main leverage of self-development.

The lack of diversity⁴ particularly in relation to gender is a fourth key factor. Diversity is recognized as a component that improves the productivity, creativity, and loyalty of employees. However, 3/4 of the O&G sector's leading workforce comprises (a third will retire in 2012) male employees approaching retirement age.

Finally, most of the surveys show that the "promise of adventure in the O&G industry" is not as attractive as in the past, particularly for young families where the female partner has a high job level which is always very difficult to export to African, Asian or Middle Eastern countries. Compared with other industries, O&G is not perceived as an industry that promotes the work-life balance, especially for women.

For many people the combination of "cycling and specificity" is seen as a very discouraging factor, representing a contradiction between the necessities for long-term efforts in an unpredictable market.

Giving the oil & gas industry a diversified "high-tech" image

Compared to e-technologies or car industries, Oil & Gas vehicles a "fusty" image of using outdated technologies from the last century. When looking strictly at the relation between R&D investment and turnover, Oil & Gas comes in only in 12th place far behind the pharmaceutical and software (between 10% and 20% of R&D) and car industries (around 5% of R&D)⁵.

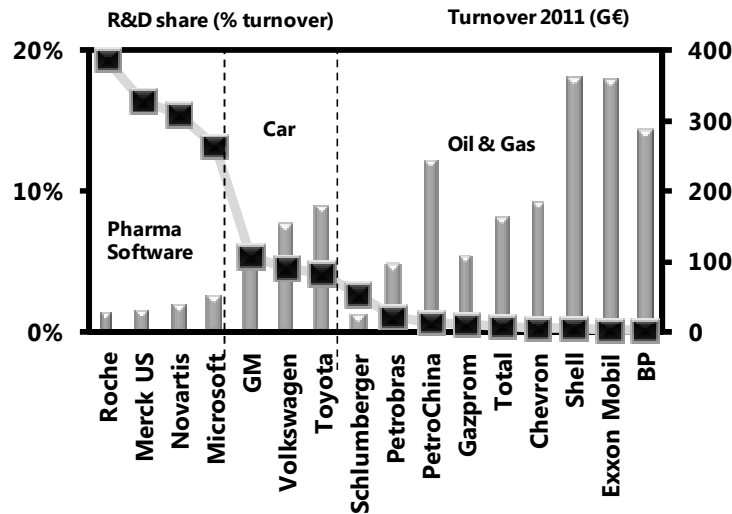


Figure 3 – R&D share in various industries (2012 EU Industrial R&D investment scoreboard⁶)

⁴ As some examples (ratio male/female): car (85/15), O&G (75/25), IT (55/45), bank (45/55)

⁵ O&G industry should also focus on stepping-up the number of publications which remain poor with 1,500 in 2009 compared to 4,000 in pharmaceuticals

⁶ <http://iri.jrc.ec.europa.eu/scoreboard12.html>

Even services companies like Schlumberger though they have a high-tech reputation, invest less than 3% of their turnover in R&D whereas most NOC or IOC are below 0.5% (**Figure 3**).

Though it must be acknowledged that R&D is not a comparable competitive advantage (the marketed product –oil & gas- itself has no competitive value) for IOC, these figures should not hide the fact that over the last 30 years, the Oil & Gas industry has made tremendous technical progress to develop increasingly deep resources in ever more challenging environments⁷. Whereas at the end of the sixties only easy on-shore fields were technically accessible, in less than 20 years all the barriers to developing deep and ultra-deep water fields have been broken through. Although the technical revolution involved all the professional disciplines, the most spectacular breakthroughs have been in seismic imaging (3D and 4D seismic), geological modeling and drilling technologies. In tackling more and more challenging environments, the Oil & Gas industry has also pushed back the limits of a number of technologies such as new alloys to produce sulfur effluents, nano-filtration to improve the quality of discharged water, advanced laboratory methods to assess fluids and rocks.

The Oil & Gas industry therefore needs to better promote its wide range of high-tech activities as well as its very spectacular results in terms of safety and environment performance often overshadowed by incidents relayed in a sensational and scandal mongering way by the media.

⁷ See Chapter II for further details