



**WORLD PETROLEUM COUNCIL**  
Addressing Global Energy Challenges

80

**80th Anniversary Edition 1933-2013**

# Never a better time to be a petrotechnical professional



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From the mid-1980s onwards, the industry's slow growth and relatively low crude oil prices led oil and gas companies to introduce strict cost control measures. This was an era when recruitment levels were low and interaction with university campuses was limited. The workforce had started to age to the extent that, by the end of 2004, more than 60 per cent of the industry's core technical people were over 40 years old. Moreover, the pace of workplace promotions was slower than in the past.

When the industry started to boom in 2004, human resources (HR) departments needed to reinvent themselves to deal both with the ramp-up of activity and the crew change that was reshaping the exploration and production (E&P) industry. Human resources departments within E&P companies had to learn new ways of recruiting, training and promoting people, and also how to retain them.

In light of these industry HR challenges, Schlumberger Business Consulting (SBC) decided to investigate these issues through an annual Oil & Gas HR Benchmark study. SBC focused its analysis on trends involving petrotechnical professionals (PTPs), a workforce category at the foundation of the oil and gas business, made up of geoscientists and petroleum engineers employed by operators. Over the years, the

benchmark has become a reference point for E&P executives seeking to understand industry trends and develop HR strategies. The study continues to highlight best practices and gives insights into the changing environment for recruiting and retaining human talent.

This article highlights the principal HR challenges experienced by the oil and gas industry since 2004, identified and brought to light through SBC's HR benchmark analyses.

## 2004-2008: Finding the manpower to cope with industry growth

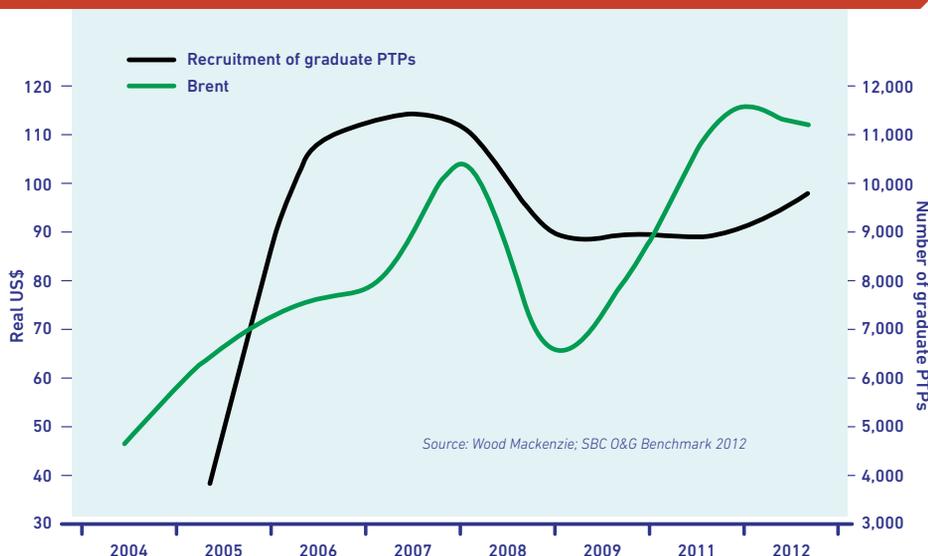
Rising oil prices from 2004 through 2008 drove up the industry's activity levels, increasing demand for technical talent (Figure 1).

Companies resorted to a mix of graduate and mid-career hiring, putting pressure on universities while driving mid-career attrition to unprecedented levels. Consequently, compensation and benefits increased substantially.

It was in this context that the SBC HR Benchmarks in 2005 and 2006 sought to quantify the so-called "big crew change." This was the first time a study was conducted using information from both universities and companies to assess the supply and demand of petrotechnical professionals. The analyses indicated that the number of graduates worldwide was sufficient to meet global

industry demand, even though some imbalances appeared in specific regions, such as the Middle East and the US.

Figure 1: Oil price evolution and recruitments of graduate PTPs



## Implementing Supply Chain of Talent

In parallel to the supply-demand assessment, SBC developed the Supply Chain of Talent™ concept, which aims to design/create/develop an integrated approach towards HR practices. It involves forecasting manpower requirements based on expected oil and gas indicators such as production,



while forging the right recruitment strategy, competency development approaches and career management plans. The comprehensive method taken by SBC's Supply Chain of Talent has been proven to have a more favourable impact than a piecemeal approach where, for example, recruitment does not support production growth ambitions; or where training policies do not address required long-term strategic capabilities or technological advances.

### Understanding Time to Autonomy

Due to the high recruiting levels during this period, it was pertinent for companies to understand how long it took an engineer to become technically proficient under minimal supervision. Time to Autonomy™ describes the time needed to develop an entry-level geoscientist or petroleum engineer to the point where he or she can take "non-standard original decisions" in the field. This concept also implies a better understanding of the pace at which these professionals should be promoted.

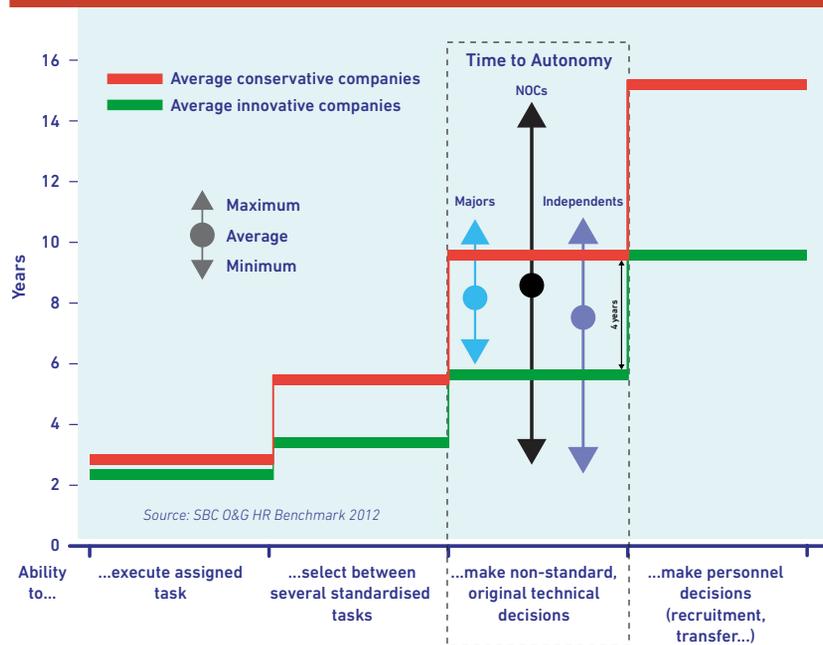
It has a direct and measurable impact on a company's ability to deliver projects, as will be explained further in the article when we talk about economies of scale related to petrotechnical professionals. Accordingly, companies have acknowledged Time to Autonomy to be an important benchmark in determining the success of competency development.

Accelerating autonomy is principally achieved by introducing well-structured training, which is independent of company size, maturity or geography (Figure 2). The benchmark studies revealed that both international oil companies (IOCs) and national oil companies (NOCs) can either develop people quickly or slowly.

### 2008-2009: The crisis in the wake of growth tensions

Following a favourable period for the oil and gas industry, the global recession in 2008 led to more

Figure 2: Time to Autonomy for PTP



volatile and lower oil prices. During this period, the HR Benchmark revealed that NOCs and IOCs were not reacting to the crisis in the same way. Privately owned companies reduced their recruitment targets by 30 per cent between 2008 and 2010, whereas state-owned companies reduced theirs by only 10 per cent over the same period. This was a dismal period for most majors and independents, but less so for the NOCs. Most companies were reluctant to expand their human resources and manage new talent until they saw a recovery ahead.

### 2010-2012: Recovery in the midst of generational change

In 2010, the oil and gas industry started to emerge from economic recession, exhibiting strong growth (Figure 1). Exploration and production companies were now faced with a high number of vacancies amidst the generational shift from baby boomers to young petrotechnical professionals. Looking at the estimated vacancies for 2016, we see a deficit of 15,300, or about 19 per cent of experienced petrotechnical professionals. Such a shortage prompted SBC to take a deeper look into the productivity of technical talent.



### Matching technical resources with growth...

This productivity challenge was at the forefront of the 2011 and 2012 SBC Oil & Gas HR Benchmark analyses. These particular benchmark studies explored the notion of PTP Intensity™, which is the ratio between the number of petrotechnical professionals and the number of barrels of operated production. The analyses revealed a solid correlation between operated production and

the number of petrotechnical professionals. Producing more barrels means more technical staff needed to be hired. The statistics showed that economies of scale do not exist in the oil and gas business with technical professionals. To double production, an upstream company needs at least to double its technical staff. In this sense, the oil and gas industry acts more like a professional services industry, such as healthcare,

where an increase in patients requires an equivalent increase in physicians. Another important insight that surfaced was that faster-growing companies (high growth) tend to have a higher PTP Intensity than those with slower growth (low growth).

The PTP Intensity concept has important implications for the industry. By proving the close relationship between operated production and technical staff, the SBC HR Benchmark has sent a clear message to the industry – that is, companies need to maintain recruitment levels of petrotechnical professionals to secure stable hydrocarbon production growth.

Figure 3: PTP Intensity – Total number of PTPs vs operated production

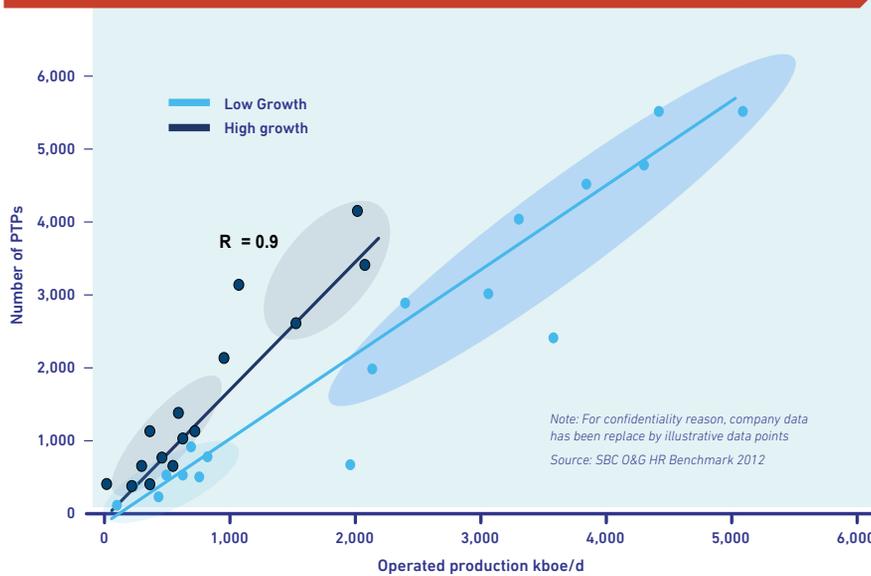
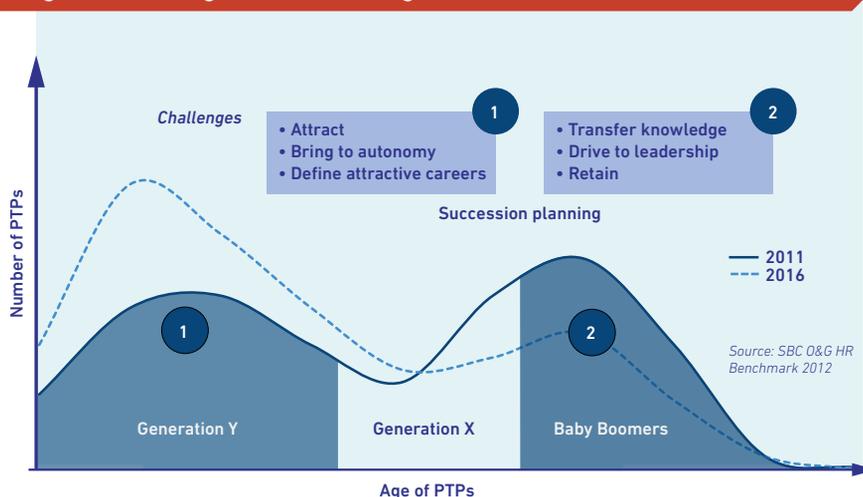


Figure 4: Per age bracket on a global basis



### ...and anticipating the challenges from the generational reshuffle

The issue of growing oil and gas production becomes more complicated with the ongoing generational change, which is affecting the industry's workforce demographics. Companies need to anticipate and prepare for the upcoming challenges, which the most recent SBC HR Benchmarks have addressed thoroughly. More than 25 per cent of petrotechnical professionals now working for



E&P companies are over 50 years of age, and a significant majority will retire by 2016. As shown in Figure 4, typical majors or independents would have moved from a demographic profile dominated by baby boomers, where seniority prevailed, to one in which young petrotechnical professionals become the majority by 2016.

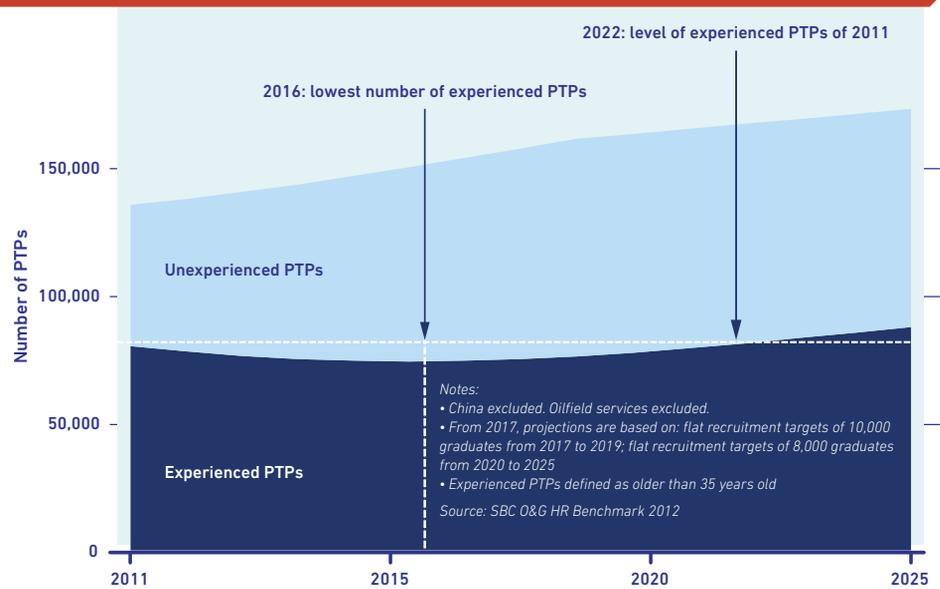
Some of the crucial areas that companies will need to address due to challenges caused by the generational shift are industry attractiveness, knowledge transfer, as well as succession planning and leadership development.

The first challenge comes from the difference between the new generation and its predecessor. For newcomers, career prospects, industry image, and lifestyle considerations are as important as monetary compensation and benefit packages. Companies that aim to attract younger-generation professionals will have a competitive advantage over their peers if they can create a more comprehensive employee value proposition.

Secondly, since the number of experienced petrotechnical professionals will decrease in absolute numbers until 2016, the industry will need to produce more oil and gas with less experienced technical talent, while pushing for the successful transfer of knowledge from experienced technical professionals to the younger generation.

The next challenge will arise from the impact that the generational shift has on leadership management and succession planning. First, companies must help younger employees to reach top positions traditionally reserved for older higher-seniority executives. Second, it is crucial that companies prepare detailed succession plans in good time, especially in view of the generational change. Companies need to anticipate the consequences of quicker internal promotions within an organisation, or

Figure 5: Number of PTPs on a global basis 2011-2025



the risk of failing to integrate experienced hires smoothly into the existing company culture.

### Conclusion

The SBC HR Benchmark has consistently sought to provide insights, useful analysis and unique perspectives on how the oil and gas industry may tackle human capital challenges. Its most important message is that investments in recruiting and training should not be based on the latest oil-price fluctuations but on an organisation's expected long-term needs.

Most experienced petrotechnical professionals active today will have left the industry by 2020. As a result, E&P companies face considerable challenges in terms of succession planning and the development of competencies. The good news is that after 2016, predicted tensions on poaching will start to ease and pressure on salaries will soften, as shown by Figure 5.

From a young petrotechnical professional's perspective, today's oil and gas industry offers unique possibilities: the previous generation is leaving while activity is strong. Those capable of tackling the concerns facing the sector will have a chance to play a genuine role in collectively solving the energy challenges of the 21st century. ■

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