

## Labour and skills crisis could stall oil and gas boom



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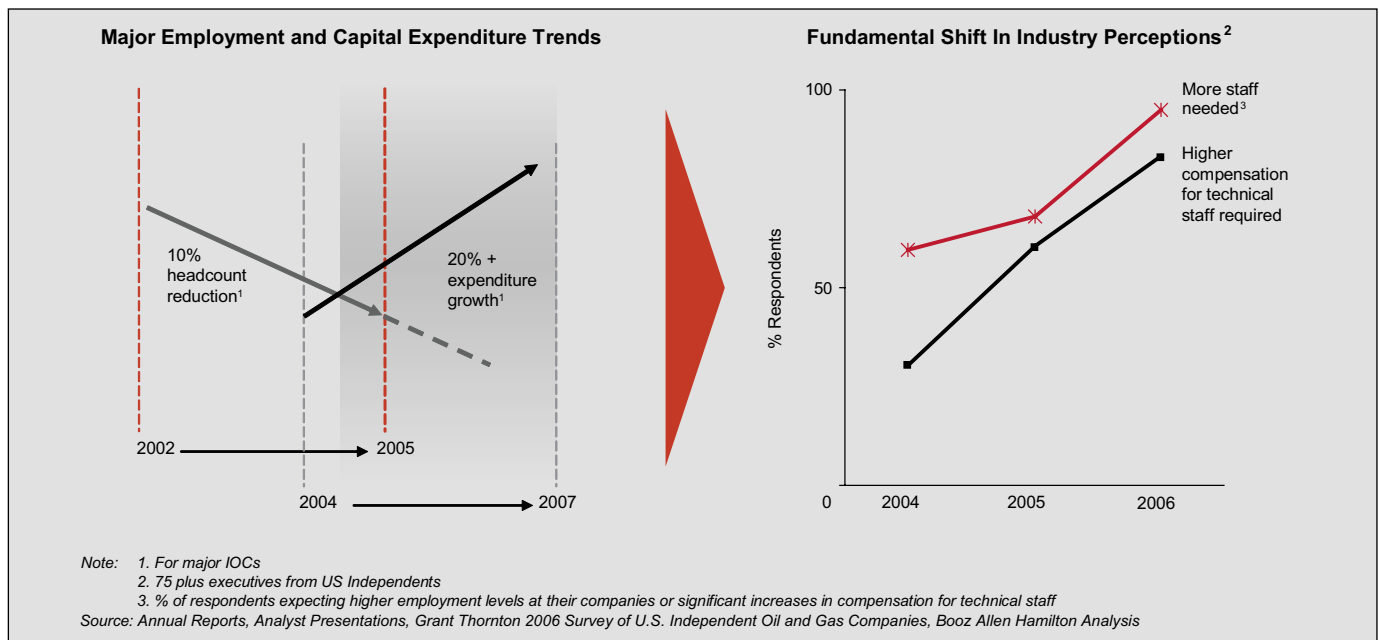
## The industry has stretched its resources to breaking point with the real potential of stalling the oil and gas boom says Varya Davidson, a Principal in Booz Allen Hamilton's Global Energy Practice. Immediate intervention is required.

From the industrial platforms of oil rigs to air-conditioned design offices, the oil and gas industry is confronted with a shortage of brawn and brains so severe that it threatens to stall exploration and production growth around the world. In recent years while investment levels have been growing by 10 percent per annum, the industry has shrunk its direct labour force and diluted the quality of skills available (see figure A).

Other heads of oil majors share these concerns. "We need to convince young people that a technical career in this industry is both stimulating and worthwhile – meeting challenges that matter to the world," said Jeroen van der Veer, Chief Executive of Royal Dutch Shell.

Out in the field the same views are expressed; a line manager in the Middle East noted: "We're really stretched, it's not sustainable, we've just lost a high caliber operations

**Figure A** Labour and skills challenge



The talent challenge is not new. At the end of the eighties, skills shortages in the North Sea oil and gas industry hit the headlines, the close of the nineties saw major lay-offs particularly in the US, but it is over the last 12 to 18 months that a confluence of events, including oil prices, planned investments and industry demographics have stretched industry resources globally to breaking point.

The seriousness of today's situation is highlighted by industry insiders such as Exxon Mobil's CEO, Rex Tillerson. "There has never been a time when our industry so needs outstanding talent. Older professionals will need to be replaced in a few years. At the same time, we have seen a drop in the number of students taking science-based programs in the United States."

supervisor and a senior inspection engineer position has been vacant for over a year."

### Old hands and new hires – the demographic challenge

At present, the average employee working for a major operator or service company is 46 to 49 years old, according to the Interstate Oil and Gas Compact Commission (IOGCC) in the United States.

"With the average retirement age for the industry being 55 years, it is obvious that the industry faces a crisis in the next 7 to 10 years as more than half of the employee base leaves the work force," said the commission's Blue Ribbon Task Force.

Further, Douglas C. Nester, CEO of F-W Oil Exploration, notes: “Our ability to increase the workforce and replenish the experience base is very limited. Twenty years of contraction, including the loss of more than 500,000 employees, has deterred a new generation of potential workers from entering our business.”<sup>1</sup>

Oil price weakness, such as the fall in 1998, prompted many companies to reduce or abandon drilling and lay off or retire early thousands of workers, particularly “old hands” that were no longer needed. The industry is now paying heavily for this short-sightedness, treating human resources like a tap that can be turned on and off at will.

Those let go are gone for ever and short-term consulting or rehires are never quite the same. It takes a minimum of 3 years to develop basic industry operating competence and 10 years plus in many professional disciplines. There is little hope of reinforcements in the near future from traditional sources. Today, there are some 1,700 people studying petroleum engineering in 17 US universities compared with over 11,000 in 34 universities in 1993.

Industry participants and watchers look east for new hire solutions, citing, for example, the Moscow Institute of the Petrochemical and Gas Industry, which has an enrolment of 8,000 students and is adding 1,500 each year. But this might only provide local solutions, with western-based IOCs struggling to attract and integrate large numbers of foreign nationals.

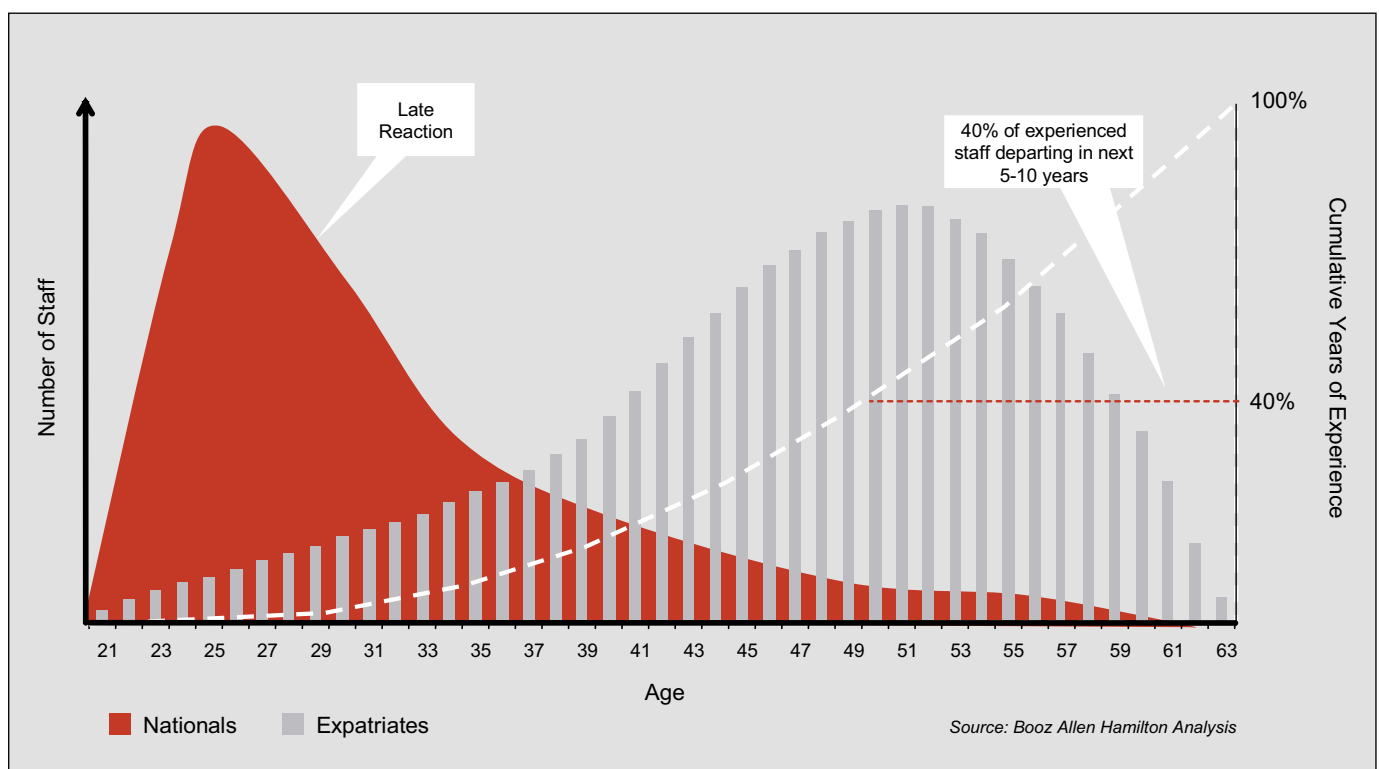
The problem of falling graduate numbers is compounded by the lack of job-ready skills among undergraduate recruits. As a training manager at one of the majors explained, “for the first time we’re seeing failures of basic introductory course preassessment tests...we have to rethink our on-boarding programs to bridge this gap.”

## Challenges are evident both with new recruits and mature staff... and there is a gap in the middle!

The talent crisis is global. In the Middle East and Asia the challenge of an ageing workforce is compounded by the large influx of new hires as strategies to nationalise the workforce have been implemented. The good news is that the resources are being secured for the long-term future. However, today it skews the workforce in opposite directions and places tension on organizations that must make large volumes of new recruits “job-ready” (see figure B).

While training new recruits, these companies must deliver new projects and today’s production targets with seniors approaching retirement who often lack the motivation to adapt and “raise their game”. The cultural differences arising from the generation gap are also becoming more pronounced.

**Figure B** Staff profile in a typical Middle East/Asian national oil and gas operating company



1 World Oil, December 2004

Until now, companies have been able to work around the growing talent gap with increasing automation, process efficiencies and by turning to universities and outside service companies for incremental operating and project delivery capacity. But these adjustments alone are increasingly inadequate to make up for the growing shortage of skills and knowledge as activity levels rise and senior employees leave the industry. In many companies the 2007 planning cycle will likely show growing staffing and skills gaps opening up over the next 5 years.

### Fix or faux-pas?

In new investment hot-spots, such as Canada and Qatar, some companies are looking to buy their way out of the crisis, notably poaching qualified staff from other firms. For example, a national oil company recently lured seven experienced petroleum engineers from a joint venture in the Middle East simply by doubling their salaries and other benefits. Similarly, the president of an international oil company in Beijing was lamenting his need to fight off individuals within his own company trying to lure his best people away; and a talent manager in a fast-growing UK-based oil and gas independent commented: "it's ridiculous, we're campaigning as hard internally for people as externally."

"There needs to be a collaborative approach," Cheryl Knight, Executive Director of the Petroleum Human Resources Council of Canada said. "There's simply no point driving the costs up for each other, shooting each other in the foot."<sup>2</sup>

Canada is home to the largest collection of integrated oil construction projects in the world as it seeks to unlock heavy oil reserves that are potentially almost as large as Saudi Arabia's from the region's vast tar and sand deposits. Workers are being flown in on six-hour commuter jet flights from the Eastern Seaboard, while engineers from South America, workers from Mexico and pipe welders from as far away as China have joined the labour pool. The Canadian government has even offered citizenship to foreigners working on the project as an incentive to attract good staff.

But this represents a big industry problem, effecting both international and national oil companies, as low-cost labour migrates to higher salary regions.

**Everything is suddenly a resource problem; short-term fixes simply drive up costs and don't provide a structural solution.**

Some companies have attempted to stem the flow of departing senior workers by limiting early retirement, delaying retirement dates and contracting back retired employees. But such policies clearly have a limited shelf life. Some firms have adopted programs aimed at luring graduates and mature hires, but they face fierce competition from other industries and service-sector companies.

To make up for the lack of educated and skilled recruits, while also being perceived as intent on developing their people, Shell and Exxon have both decided to set up their own training centres. Shell has opened its Learning@EPICentre in Rijswijk, with the capacity to train 270 students per day (5000 per annum) and facilities including a Smart field control room for hands-on experience. This new resource complements its global network of training centres in countries such as Nigeria, Malaysia and Oman.

Exxon Mobil's Upstream Technical Training Center in Houston will train more than 4,000 students annually and other training centres will be established at overseas locations like Abu Dhabi in what is intended to be a selling point to attract bright young scientists and engineers.

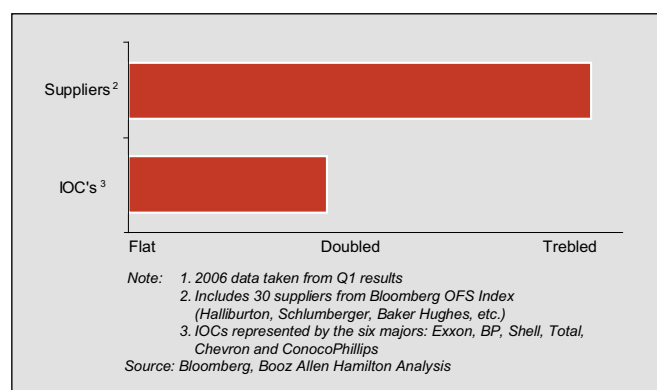
BP has established its Projects Academy in collaboration with MIT. But progress in targeted staff development will inevitably be slow and there is a danger of developing an elite, with knowledge transfer down the organization restricted unless planned for and encouraged by incentives.

### Attract, Develop and Retain – can it be done?

Continuing overheating across many areas of the oil and gas industry indicate that the labour shortages are here to stay. Meanwhile, suppliers, particularly in the fields of exploration and production are enjoying a boom in activity and profitability. Schlumberger doubled its profits in the fourth quarter of 2005 relative to the same period in 2004. The overall market capitalization in the service sector has more than trebled over the last few years (see figure C). Interestingly, this service supply side squeeze is most evident when operator and supplier performance is compared as the service sector is growing faster than the oil and gas companies themselves.

Both international oil majors and national oil companies such as Saudi Aramco, Petrobras of Brazil and Petr lios de Venezuela SA forecast unprecedented spend levels in 2006. Overall in 2006 industry-wide spending is expected to grow by 15 to 20 percent and the majors alone collectively plan to increase capital spending by USD 21 billion from 2004.

There are too few experienced people across the industry to support operations, growth and the execution of all major projects planned. It's not merely a lack of hands but a capability shortage. With little slack in the system, senior

**Figure C** Market cap growth comparison (2002-2006)<sup>1</sup>

employees are driven to deliver through to retirement, with ever less time to transfer their knowledge. As overstretched companies are forced to do more with less, on-the-job training, mentoring and coaching have become virtually things of the past - the traditional apprentice model is breaking down. In a major's operating company based in Africa, one of the managers explained the challenge of giving staff development the appropriate time and attention when "permanently in operational crisis mode."

For all the appearance of boom times as oil prices climb to record heights, the industry is not sufficiently attractive to pull in the required number of new entrants. Partly, as noted, this is due to its perceived instability because of massive lay-offs in the past. But it is also due to a woeful public image, according to some observers, like Mark Baxter of the Maguire Energy Institute, who says that people are deterred from joining the industry by "the fear that long-term job security is probably not in their future ... the fear of becoming a part of that which gets associated with monopolies, environmental pollution, explosions, price fixing and draining life-long pension funds."<sup>3</sup>

## When the supply sector is growing faster than industry for 3 straight years, the resourcing problem is far from solved.

Michael Williams, Chairman of the Railroad Commission of Texas, shares the same view noting that the oil and gas industry lacks an appealing image and that most young people with a scientific bent prefer to study computer science, solar or wind power rather than petroleum engineering and geology.<sup>3</sup>

It is not just the engineering and managerial staff that are lacking. With oil and natural gas prices soaring, expansions

and reactivations are everywhere, companies are confronted with a shortage of skilled workers who can man and service the installations.

Peter Parry, Head of the Global Upstream Business for Booz Allen Hamilton, thinks the talent issue is so significant that it has the potential to reshape the industry, noting:

"This will take the industry a decade to sort out. Some players who set strategies and really find the key to develop and retain talent will build significant competitive advantage and this may even drive consolidation if companies with projects and capital simply can't find the skills to develop and operate them."

## Intervention required

It is incumbent on management teams to think carefully about the business implications of skills shortages and how best to react. This is no longer an isolated 'people issue', but presents a strategic business challenge requiring joint ownership between technical, operating, and HR leaders. Gone are the days when oil companies could buy their way out of short-term trouble. Instead, companies need to take a fresh look at resourcing over a longer time horizon than they have previously cared to use.

## If HR was ever a strategic issue for the oil sector it's now.

This will also mean taking a new look at human resource functions, the separation of strategic and transactional roles is a must, creating a real voice on leadership teams from the board down to individual operating company level. These functions need to operate to clearly defined objectives linked to overall operating targets. In BP's case the revamping and repositioning of human resources has resulted in an executive-suite redesign and the replacement of more than 60 percent of senior HR staff.

The real facts about the situation of the workforce, including capabilities, vacancies and attrition, need to be put on the table. As an example of practical action, a major oil and gas government/IOC joint venture operating company in the Far East has modelled the impact of the "big crew change" on the organization for the next 10 years, giving an overview of current staff, expected recruits, expatriate workers and short- or long-term contractors. This exercise put facts into the management teams' hands around critical skills and numbers gaps, moved the conversation on from rumour and conjecture, and provided a catalyst for action. Plans to close gaps are now in place against prioritised disciplines and a new capability building process has been launched.

<sup>3</sup> Environmental Insider News, Dec 10, 2002

## Only when companies know how to recruit, resource, develop and retain will they have mastered this labour and skills crisis.

Crucially, management teams need to recognise and acknowledge the inter-dependence of the methods used to build human resources capability. Companies must recruit against business needs, resource individuals to balance personal and business needs, develop individual skills, and retain valuable workers, as shown in figure D. Pursuing one or two of these levers in isolation of the others will at best provide short-term respite. A company excelling in recruiting and staff development but unable to retain their best and brightest is only building capability for their competition. Leaders must step up and role model desired behaviours, actively demonstrating ownership of the capability building agenda.

There is no one-off answer to a crisis that requires concerted effort dealing with the issue as a whole. Industry leaders need to ask themselves a number of questions (see figure E).

### Conclusion

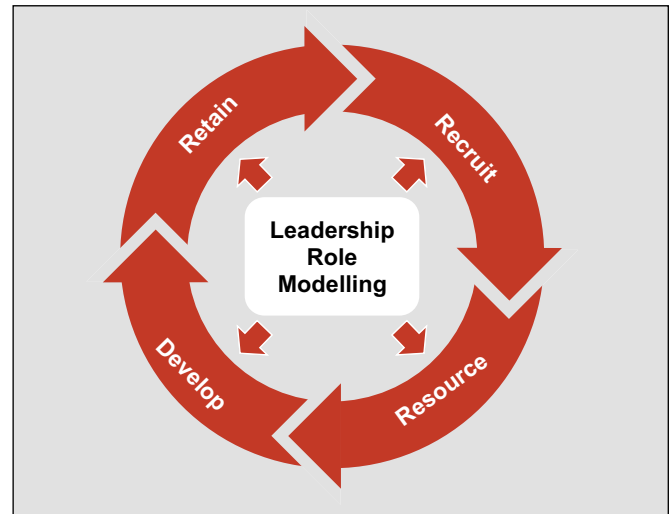
Faced with one of the biggest periods of expansion in its history, the global oil and gas industry is already being held back by its failure to attract, recruit and retain highly skilled staff. This is true from rig workers to senior scientists and engineers. Through short-term thinking and a belief that required staff can be bought, the oil and gas industry has stretched its resource base to breaking point.

Some companies have attempted to get around the crisis by poaching talent from other firms or leaning heavily on the “old hands”, but these are at best stop-gap measures.

Targeted interventions are required and management needs to make time to carefully assess the business impact of skills shortages and consider the options available to build capability. Companies need to determine how best to recruit, resource, develop and retain their staff, with HR, Technical and Operations functions owning and working the problem together.

There is no option but to see this strategic challenge as a top three priority to ensure a company’s health and in some cases its survival.

**Figure D** Capability Building Framework – interdependent and reinforcing elements



**Figure E** Questions for industry leaders

Capability Building Pulse-Check	Yes	No
• Do we frequently win when competing in major recruitment efforts?	<input type="checkbox"/>	<input type="checkbox"/>
• Are we able to retain good staff?	<input type="checkbox"/>	<input type="checkbox"/>
• Are we seen as employers of choice?	<input type="checkbox"/>	<input type="checkbox"/>
• Do we know which disciplines have critical capability gaps (labour/skills) today?	<input type="checkbox"/>	<input type="checkbox"/>
• Do we have a view of capability needs (labour/skills) in 5-10 years time?	<input type="checkbox"/>	<input type="checkbox"/>
• Are we tracking the closure of skills gaps?	<input type="checkbox"/>	<input type="checkbox"/>
• Are line managers and team leaders encouraged to actively develop staff?	<input type="checkbox"/>	<input type="checkbox"/>
• Do all staff have clear objectives and get frequent performance feedback?	<input type="checkbox"/>	<input type="checkbox"/>
• Are our succession and resourcing plans robust?	<input type="checkbox"/>	<input type="checkbox"/>
• Do HR, Technical and Operations functions work effectively together?	<input type="checkbox"/>	<input type="checkbox"/>



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