

ONE WELL 30,000 TIMES: AUSTRALIA'S WORKFORCE TRANSITION TO A GAS FACTORY

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ABSTRACT

Australia's oil and gas resources are becoming ever more unconventional, and the workforce management approaches to exploiting these resources must also become more unconventional.

Australia's shift from conventional to unconventional resource plays, beginning with coal seam gas and now including shale resources, has had a major impact on every aspect of the upstream process. This shift entails the delivery of upstream gas capacity and on-going gas delivery for thousands of wells over several years, which is much more like a manufacturing process rather than one-off projects. Compare this to conventional gas where only a few wells are drilled per year.

Perfecting the "gas factory" concept is still in early days in Australia, with more focus remaining on the work than the workforce. However, just as equipment and infrastructure support the work to be delivered, culture and workforce structures (organisational structures, performance plans, people strategies, etc.) support the workforce that will execute the work. The ability to establish a "factory-like" culture will drive a workforce with a "manufacturing mindset" and, if supported by the right workforce structures, will encourage the behaviours required to be successful in the manufacturing environment. The companies and suppliers that are able to reinvent themselves as manufacturers both in what they do and how they think will realise the highest returns.

This paper will explore the changes needed in workforce structures through examples in oil and gas (shale developments, coal bed methane, etc.) and manufacturing, drawing lessons and insights for Australia's growing unconventional oil and gas sectors.

EXTENDED ABSTRACT

Although Australia's growing oil and gas sector continues to attract foreign investment, high operating costs in exploration and production—in conjunction with declining oil price—are compromising our competitiveness on the world stage. In 2013, Australian find and development costs ("F&DC") averaged \$4.16/GJ, 2.7 times the increase of 2004-2007 averages, with Queensland experiencing the greatest increase of \$5.37/GJ, 6.5 times the increase from 2011 to 2013. (ENERGY QUEST, 2014). In order to understand Queensland's above average increase in F&DC, an important distinction needs to be realised, that although mechanically drilling for oil and gas in conventional and unconventional plays are largely the same, the critical success factors that drive competitiveness to

the bottom line are very different. In March this year BP formally acknowledged this distinction in its strategic decision to form a separate business to manage its US Onshore oil and gas assets (BP, 2014). With unconventional plays subject to high decline rates, which have led to repeating the drilling cycle process thousands of times in order to maintain production levels, oil and gas companies operating in Queensland's Coal Seam Gas ("CSG") sector need to adopt a 'factory like' process which will require a greater emphasis on certain costs drivers, specifically human capital in order to ensure competitiveness.

Historically, Australia's oil and gas sector has been fundamentally conventional, resulting in the legacy of Human Capital Management Structures ("HCMS") being adopted for use in unconventional operations, in particular the Queensland CSG Sector. Although these structures have provided a preliminary blueprint for operational guidance, they are no longer fit for purpose and their continued use will only further restrict the untapped potential for improved productivity, operator cost savings and ultimately improved competitiveness abroad. In order to achieve this, oil and gas companies need to re-invent the legacy of the current conventional HCMS into a new unconventional HCMS tailored specially to the unconventional operational and business environment. This will require the careful consideration of the following critical success factors distinct to unconventional operations:

- Machinery mobility – Short drilling cycles means more frequent rig moves and smaller work packages for midstream operators which requires the use of smaller, swifter, fit for purpose and agile, machinery that can quickly manoeuvre from worksite to worksite without delay.
- Efficient personnel with broader skillsets – CSG activities feature short drilling cycles which lead to smaller work packages for midstream operators, as a result personnel are exposed to all stages of their operating activities more frequently which requires personnel to have a broader skill sets.
- Logistical requirements – Short drilling cycles and smaller work packages for midstream operators increases the frequency of machinery mobility, requiring the need for increased accuracy and timeliness in the planning and scheduling of operations.
- Communication and coordination skills – Ensuring the uninterrupted and continuous flow of operations require a greater emphasis on stakeholder management between multiple contractors carrying out various aspects within their scope of operations.
- Increased health and safety and regulatory requirements - Although health and safety and regulatory compliance are critical to ensure continued operations, health and safety measures must be as effective as it is cost effective because these costs increase overheads without any financial value add.
- Highest paying country for Oil and Gas - Australia is the highest paying country for positions in Oil and Gas which increases costs which must be substantiated to maintain a global competitive advantage.

Given that the workforce is one of the highest cost drivers, particularly in Australia, along with the fact that the management of the workforce in terms of coordination and logistics significantly erodes an already slim margin, the human capital structures that are put in place to support and manage the workforce is critical to the success of an unconventional operation.

Managing the Unconventional Workforce

There are six key elements that impact the effectiveness of any workforce, as highlighted by Deloitte's Workforce Management framework illustrated in Figure 1, below. The interdependencies amongst these elements are also illustrated by the framework, reinforcing the importance of alignment of human capital structures to agreed central business drivers. In the case of unconventional oil and gas, the central business driver is just-in-time product delivery which is dependent on timely sequencing of activities and little to no down time. Organisations must determine how to define, structure, and embed each of these elements into their business in order to most effectively manage their workforce to support the drivers that deliver business objectives.

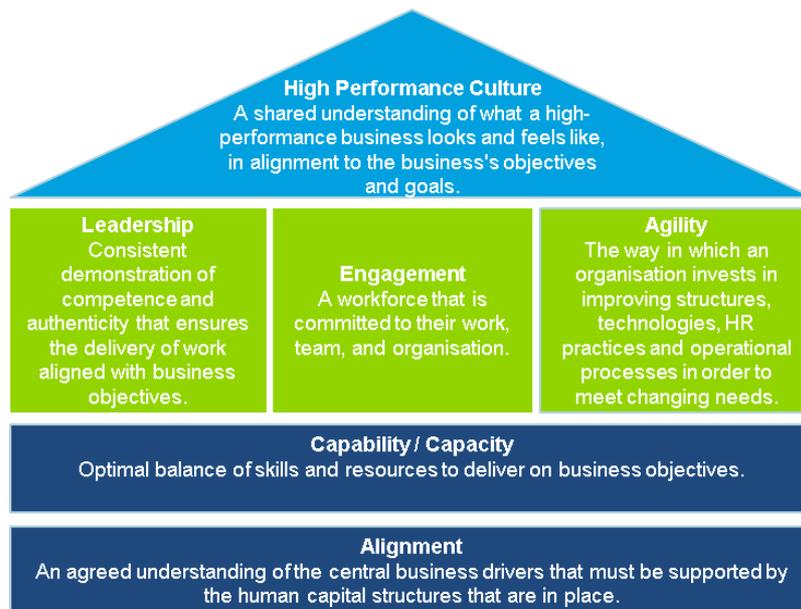


Figure 1. Deloitte's Workforce Management Framework

- High Performance Culture - A high performance organisation is one that has defined behaviours and key performance indicators that are aligned to the overall business objectives and strategy, therefore these should differ between conventional and unconventional operations. Behaviours that are aligned to unconventional operations include identification of process improvements, attention to detail, waste elimination, and speedy adaptability, and individual performance metrics focus more on cycle times, on-time delivery, continuous improvement, time per task, and work queues, as these are more aligned to the typical objectives and bottom-line of an unconventional operation. These types of performance behaviours and metrics are seen in organisations with similar cost drivers such as TOLL (L.Staples, Toll, pers.comm.,2014), Australia's largest supply chain company, and manufacturing organisations.
- Capability and Capacity - Ensuring the right capability and capacity is another critical element of managing a workforce. Unconventional oil and gas is centred on the ability to delivery on-time, therefore scheduling, logistics, and process engineering are some of the critical capabilities that should be most evident within an unconventional workforce. These were also the capabilities identified as critical by TOLL (L.Staples, Toll, pers.comm.,2014), and are the capabilities many manufacturing positions look for. Currently there is a resource shortage in Queensland for these in the oil and gas industry, which is unfortunate for the unconventional operations given that unconventional operations are more resource heavy, requiring more resources over longer periods of time.
- Leadership - As mentioned previously, unconventional operations are driven by just-in-time delivery and have slim margins; therefore any downtime is detrimental to profit generation. Unconventional operations also span over much larger geographies requiring more focus on relationships with governments and communities, requiring strong leadership capability in complex planning and logistics to account for all the moving variables. While logistics and scheduling remain critical, the importance of commercial expertise should also be highlighted here given the slim margins and numerous third party relationships that must be managed to ensure no downtime in delivery.
- Engagement - Strong and ongoing engagement is crucial for an unconventional operation, as continuous improvement is important for improving margins. Having a stable workforce, who know the processes inside and out will increase workforce productivity and minimise the likelihood of variance within the processes. Unconventional operations also require a longer tenure from their workforce; therefore, retaining permanent staff in roles that are not dependent on product demand will be a success factor for the operation. Additionally, having strong engagement will also improve retention which is especially critical with the shortage of critical skills in the labour market.

- Agility - An unconventional operation will benefit greatly from the identification and quick implementation of process improvements. Even the smallest increases in productivity will quickly add up with repetitive processes. However, the focus should be on continuous improvements, because frequent one-off changes will only go to slowing down the operation and will not have a lasting benefit.
- Alignment – As illustrated throughout the workforce management elements detailed above, the HCMS in place must align to the business's strategy and objectives. Unconventional operations are driven by on-time delivery of a consistent quality product, similar to manufacturing environments. Therefore all HCMS in place must align to the fact that the work being completed is process driven, where time-on-task, attention to detail, continuous improvement and zero downtime is of utmost importance.

CALL TO ACTION

The rising costs, especially the exuberant cost of the workforce in Australia which accounts for most of the spend, along with the subsequent slimming margins is a sign that better management of the workforce is required if the unconventional oil and gas industry is going to survive in Australia. The research we have conducted led us to provide the following recommendations:

- Renewed focus on supervisory capabilities – Determine what capabilities are really required by supervisors to meet business objectives. In Queensland many supervisors came from conventional operations. It must be questioned whether their capabilities match the “line manager” capabilities required by unconventional operations.
- Embed new skills at increased volumes – Review the current performance, reward, and capability frameworks that are in place, and determine if these support the skills needed by the workforce to meet business objectives. Look at the positions and organisational structures and assess whether they provide the capacity to support the scheduling, logistics and process management that is required.
- Increased retention – Investigate the reason people are leaving, and remedy the identified situations through targeted plans, ensuring focus is on critical positions. In a resource heavy industry, where labour is in short supply, and continuous improvement is important. Unconventional operations should be looking to maintain a stable workforce.
- Review sourcing models – Get innovative around where resources are sourced. Target industries with similar capabilities, such as manufacturing. Look to get consistent feeds into resourcing pipelines, such as through universities but look at different majors or fields of study. Lastly, ensure internal roles are not determined by product demand, as these are typically best filled by contingent workers

BIBLIOGRAPHY

- BP, 2014-BP to Form Separate Business to Manage US Lower 48 Onshore Oil and Gas Assets.
 Accessed 17 November 2014 <http://www.bp.com/en/global/corporate/press/press-releases/bp-to-form-separate-business-to-manage-us-lower-48-onshore-oil-a.html>.
- ENERGY QUEST, 2014- Oil and Gas Industry Cost Trends 3. Adelaide: Energy Quest
- STAPLES, L., 2014- Interview with Toll, unpublished.

BIOGRAPHIES

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Carrie is a Senior Consultant in Deloitte's Human Capital practice where she has experience across the Energy & Resources sector delivering work in the United States, Africa, and the Asia Pacific. Carrie has seven years of experience specialising in HR transformation, workforce planning, talent management, HR review and strategy, and workforce analytics. Carrie has a MA in Industrial/Organisational Psychology from George Mason University, and BAs in Psychology and Sociology from the University of Kentucky in the USA.

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