OPITO

Managing the Safety Chain

Research conducted by

ABERDEEN BUSINESS SCHOOL
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The Management of Workforce Safety and Competency in the Oil and Gas Industry

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Executive Summary

Aberdeen Business School, part of Robert Gordon University, have conducted multiple interviews in nine operating and contracting companies across the globe to gain insight into the management of workforce safety and competency, with a view of identifying best practices and innovations in the industry which can be shared with others. This report details the findings from the research, which was conducted between June and September 2012.

This report includes profiles of the companies who participated in the interviews, followed by discussions focused on strategy, management practices and influences or challenges to the effective management of safety and competency. In total 42 interviews were conducted, and participants were open and honest when speaking about safety and competency management in their companies.

Strategies amongst operators and contractors are varied; they are developed to suit individual organisational needs and goals, with a wide array of methods used to communicate these strategies to the workforce. These methods are focused on taking a clear and simple approach directed with constant staff engagement. Open communication between operators and contractors is essential during strategy setting and implementation. This implementation is then tracked through evaluations of company performance and regular reviews of annual plans compared against KPIs.

Competency management systems should not be too bureaucratic but also not too simple; particular attention should be paid to ensure the time and resources required for competency management do not become unmanageable. Effective assessment of workforce competence is achieved through the assessment process being recorded from planning to certification. Challenges were identified in ensuring workforce buy-in to competency management, which can be overcome through continuous communication with the workforce and supporting individuals through the process by using trained verifiers to aid the writing and evidence gathering process.

Operators effectively manage their contractor workforce through clearly defined contract arrangements, regular contractor auditing and by using internal assurance processes for the selection and management of contracting companies.

Instilling a culture of continuous improvement is required for the effective management of workforce safety and competency, with workforce involvement in this being paramount. The regulators' role in continuous improvement is to identify industry wide skill gaps and encourage continuous development. In regions where regulation is less developed companies seek international affiliations as they command stronger requirements for safety and competency issues.

Third party accreditations were held by the majority of companies interviewed, such as ISO, SQA, NVQ and OPITO. The value goals sought from holding these ranged from ensuring compliance to driving business, and to enhance reputation and credibility.

The companies interviewed were felt to be leading in their approach to the management of workforce safety and competency. The benefits of becoming a leader were identified as gaining increased improvement and sustainability of business performance and reputation, and increased motivation of the workforce as well as greater standardisation in a global industry. Being a leader not only encourages innovation in current staff but also attracts competent and motivated people to the company.

Interviewees were asked to rate the level of influence they felt geography, culture, nationality and religion could have on the development of a safe and competent workforce. Geography was felt to have some influence, as this could dictate what training would be required as well as what regulations should be followed. It was however felt that organisational culture and processes should override any geographic influences. All interviewees felt that culture would influence safety and competency development to some extent. However the creation of a strong learning culture though continuous workforce engagement teamed with the provision of training and a continuous display of management commitment help overcome cultural barriers. Nationality was perceived to have less of an impact than culture, although language barriers were cited as the most common impediment to achieving understanding amongst the workforce. The use of translators accustomed to local cultures and practices helps to overcome this. Religion was felt by some interviewees to have little influence on the development of a safe and competent workforce, whilst others felt it could influence people's belief in their ability to influence or control external factors. These barriers can be broken down though education, and providing evidence to the workforce of the benefits of being competent and acting in a safe manner.

In addressing the challenges and influences on safety and competency development, employees should be encouraged to have a positive attitude, be willing to learn, and given the confidence to point out when something or someone is unsafe. Employers should continually demonstrate their commitment to staff development to achieve the high standards required.

Finally all interview participants were asked about the future of safety and competency, and what they felt would help improve this globally. Suggestions centred on the development of common systems and globally recognised certifications and accreditations, the greater exchange of ideas across the industry, more involvement of people in the development of systems, greater emphasis on personal responsibility when it comes to being safe and competent, and a long term commitment from the industry as a whole to the training and development of people to meet future industry demands.

Safety and competency management is about going beyond compliance, investing in the creation and development of organisational cultures through continuous workforce engagement. Avoiding complacency through a continuous cycle of self-reflection, and consistently demonstrating management commitment are essential for ensuring a safe and competent workforce.

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Introduction

In its continuing drive to improve global safety and competency standards in the oil and gas industry, OPITO International have once again commissioned Aberdeen Business School at the Robert Gordon University to carry out research into the management of workforce safety and competency in the oil and gas industry.

Earlier research focused on the application of common industry standards in a global context and the relationship between compliance and competence, successfully identifying barriers and challenges; this year the research has a solutions orientated focus identifying best practice and innovations in the industry.

Significant themes from the previous research projects include:

- The importance of training provision, but recognition that this does not equate to competence. Greater understanding of competence and the ability to assess this was called for.

- The problem of localisation vs. standardisation of training when operating in a global context.

- The influence of senior management commitment on competency. Previous research has identified there can often be a lack of senior management commitment to competency programmes, and there can often be gaps between senior management rhetoric and operational reality.

- The creation of a common global standard, and the complexities involved due to many existing standards and requirements worldwide.

- The lack of ownership of competencies within companies and absence of employee buy-in.

The present research seeks to explore solutions currently in place to tackle these and other barriers to the enhancement of health, safety and competence strategies and implementation plans in a number of companies throughout the oil and gas supply chain globally.

Research Methodology

A case study approach was taken with the present research. This involved carrying out interviews with several individuals within participant organisations to gain an in-depth understanding of the tools and techniques they find most effective in managing workforce safety and competence. The research has been conducted in collaboration with Collins College of Business at the University of Tulsa to give the research international reach and focus.

Participating organisations were selected for inclusion in the research through OPITO, Aberdeen Business School and Collins College of Business contacts. It was seen as important to secure participation from a mixture of contractors and operators who had been identified as leading in areas of workforce safety and competence, and who had an international reach.

In total nine organisations were included in the research, with five operators and four contractors participating in the case studies. The research team spoke to 42 individuals in interviews carried out

between July and September 2012, each lasting around 40-80 minutes. There were a wide range of positions held by the interviewees, for example:

- Group Business Assurance Manager
- Group Health and Safety Manager
- Group Learning Manager
- Competence Manager
- Asset Manager
- OIM

- Senior Wire Line Engineer
- Learning and Development Advisor
- Competency Management System Co-ordinator
- Support Services Administrator
- Production Technician
- Electrical Maintenance Technician

All interviewees held some responsibility for safety and competency in their organisation, including having ultimate accountability for safety, being responsible for certain geographic locations or specific work sites and being responsible for the day to day administration of competency management systems. Research participants were of course also responsible for their own engagement with safety and competency programmes.

The interviews were qualitative in nature and followed a semi-structured interview schedule, which allowed the research team to explore fully the effective management of workforce safety and competence. All interviews were recorded, transcribed and subsequently analysed by the research team. Interviewees were guaranteed anonymity throughout the research process, with no organisation or individual employee being identifiable in this final report. The research team felt interviewees were open and honest, and were happy to discuss all aspects of the research where applicable. In general, it was felt that interviewees had positive attitudes to the topics discussed, suggesting a growing acceptance of competence management and its importance in ensuring employee safety and driving business.

The participating companies varied in size, were located in numerous geographic locations and had differing levels of international reach. This represents a broad industry spectrum, with the research team interviewing both employers and employees to effectively gauge strategy in the workplace. A summary sketch of each company involved in the research is included later in this report.

The Wider Research Context

The high risk nature of work carried out in the oil and gas industry has cultivated an intense focus on health and safety. Increasingly complex legal requirements, regulations, standards and business relationships paired with explorations moving into extreme locations to meet increasing demand means the effective management of workforce safety and competence, and that of contractors, is more important than ever.

Focus on contracting relationships has increased in both industrial and academic literature, due to the investigation of the disaster in the Gulf of Mexico in 2010 highlighting the complex nature of these relationships (National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling 2011). The International Regulators Forum held its first conference in 2011 as an opportunity to encourage frank dialogue between regulators and key industry players about safety matters following the Deepwater Horizon incident. In a summary of the conference conclusions, suggestions are given for both operators and contractors of priorities to encourage continuous safety developments and improvements in the global oil and gas industry (International Regulators Forum 2011). These priorities are centred on changes in management and leadership with a call for

effective and genuine engagement with the workforce, and creating a culture of openness. There was also a call for greater standardisation in training provision, competence requirements and better sharing of lessons learned and best practices.

The internationalisation of industry and the proliferation of a multinational workforce have led to an increase in discussion around cultural influences on safety and competency development. Mearns and Yule (2009 p. 777) suggest that "perceived management commitment to safety and the efficacy of safety measures exert more impact on workforce behaviour and subsequent accident rates than fundamental national values". Qabazard and Adivi (2012 p. 1) agree that "it has been widely accepted in the industry that a structured safety culture and its implementation coupled with visible leadership and commitment directly affects HSE performance".

Subsequently greater effort is now being placed on ensuring contracting companies align with operating companies' safety cultures. This is a unique task as operators often do not have direct supervision of the contracting workforce, and therefore must focus on their ability to influence and enforce their expectations for safety and competency. Contracting companies' safety performance is almost always proportional to the emphasis the operator has placed on safety either verbally or contractually (van de Reit 2010).

A recent publication from the International Institute for Environment and Development, 'Shared value, shared responsibility: A new approach to managing contracting chains in the oil and gas sector' (2011) identifies three major challenges in the management of contractors: a lack of shared responsibility throughout the contracting chain and across stakeholder groups, inadequate implementation of systems and procedures to enforce standards and incentivise good performance, and cultural and contextual challenges in widely differing regions of the world. The solutions presented focus on early and effective collaboration between operators and contractors, greater emphasis being placed on standards in the procurement process and ensuring contracts incentivise good practice as well as establishing excellent communication throughout the contracting chain. Whilst the thrust of this report is focused on social and environmental responsibility, the challenges and solutions it presents echo the sentiments of safety and competency challenges. This suggests that the effective management of workforce and contractor safety and competency makes good business sense, as benefits beyond ensuring the safety of employees and sustaining business performance will arise (such as greater social responsibility, developments in emerging markets and increased innovation and knowledge transfer).

There are numerous case studies available which focus on individual oil and gas companies and their attempts to implement competency management systems (for example, Ogle et al. 2012) and to introduce HSE requirements into contracts (for example, Espinosa et al. 2010). This research project has taken both operating and contracting companies perspectives, establishing exactly how oil and gas organisations are effectively addressing the challenges of safety and competency management in a complex operating environment.

Case Studies – The Operators

Operator A

With over 15 years in Exploration and Production, and with operations in Europe and Africa, workforce competence is addressed at a group level, setting a high level of expectation by defining the minimum requirements and acceptable standards. The headquarters are based in Aberdeen, Scotland and the organisation employs approximately 500 staff excluding contractors. A recent takeover and business expansion plans made for a unique case study of a company re-examining its procedures and processes, some of which are currently under development.

The organisation's primary goals related to addressing workforce safety and competence in terms of licence to operate requirements are firstly to ensure everyone understands their role and responsibility within the regime of the safety case, to ensure compliance with local legislation, industry standards and internal minimum standards, and to ensure competence of the workforce to allow for consistent delivery of high standards.

Contractors used by the organisation are ultimately responsible for their own safety and competence management. Clear requirements are defined at the group level, which are communicated at the contract tendering stage. A pre-job audit is carried out to ensure contractors have systems and standards in place, to effectively manage their workforce competence.

Operator B

A regional company which is part of a global corporation, with major operations in oil and gas production. The global corporation operates in Africa, Asia, Middle East, Australia, Europe and America. The regional company headquarters are based in Africa, and the corporate headquarters are based in Europe. The global corporation employs around 5000 staff and several thousand contractors in the region.

The organisation's primary goals related to addressing workforce safety and competence in terms of licence to operate requirements are firstly to ensure no significant injury comes to anyone, to ensure compliance with regulations, to have a safety case in place and a competency framework which *"tells you what we need, where we are, where we have to develop and what we aspire to get."*

Contractors used by the organisation are obliged to provide a safe and competent workforce, who should comply with the operator's safety systems. The operator will work with contractors to fill any safety and competency gaps and to ensure the contractor workforce is sufficiently motivated to deliver activities in a safe manner.

Operator C

A UK based company, part of a global corporation with operations in Europe, Middle East, America and Canada. The global corporation employs around 20,000 people, with around 400 employed in the UK.

The organisation's primary goals related to addressing workforce safety and competence in terms of licence to operate requirements are ensuring a robust system is in place, and that all workers are competent and fit to carry out the work required and communicating the safety case in the right way; going a step beyond by creating a philosophy to help get the vehicle of managing people, process and plant to everyone.

Contractors used by the company are managed through a contracts department, who work with contracting companies to ensure they manage their competency to meet the operator's minimum requirements. The operator is not prescriptive to the contractors; they actively encourage more than a 'tick-box' management system.

Operator D

A regional operator who is part of a larger global corporation. The regional headquarters are in Aberdeen, Scotland, and the global headquarters are in Europe. Major operations are oil and gas exploration and production, and the company employs around 800 people in the UK.

The organisation's primary goals related to addressing workforce safety and competence in terms of licence to operate requirements are the prevention of major accident hazards by focussing on plant, processes and measuring performance, and getting everyone home safely balanced with the effective management of the business.

Larger contractors used by the company are expected to have a competence management system in place, with specific terms and conditions prescribed in contracts; smaller contractors with few members of staff are incorporated into the operator's management systems. A contracts management committee use a rigorous contract evaluation process to work with the contractors rather than imposing a 'one size fits all' approach. Contractors are encouraged to instil a safety culture within their own organisations.

Operator E

A regional operation with headquarters based in Asia, part of a global corporation with operations worldwide. Its major operations are oil and gas exploration and production, and the company employs around 3000 staff and has around 10,000 contractors.

Primary goals related to addressing workforce safety and competency in terms of licence to operate requirements are the effective management of workforce safety to ensure operations remain incident free, with no harm coming to people or the environment. Legislation is less mature in this particular global region.

Contractors are expected to follow company standards, and go through a six month review which assures competency. Requirements are communicated through the contract tender.

Case Studies – The Contractors

Contractor A

An industrial service provider for Asia and the Middle East, specialising in providing services to the hydrocarbon products and processing industry. The company headquarters are based in Malaysia, and employs around 120 staff.

The primary obligations related to addressing workforce safety and competency issues in terms of contractual requirements to the contract holder are minimal: the contract holders do not insist on competency, and the contracting company have been a driver in raising competency expectations and systems in the region.

The company does not use subcontractors.

Contractor B

A contractor who provides a diverse range of support products and services to the oil and gas industry, with headquarters based in Malaysia. Interviewees were from the Oilfield Services Division. The company employs around 500 staff.

Primary obligations related to addressing workforce safety and competency issue in terms of contractual requirements to the contract holder are to provide competent personnel who work in a safe manner, in accordance with safe operating procedures, and to follow client instruction.

The company does not use subcontractors.

Contractor C

A multi-discipline service company who carry out a range of services onshore and predominantly offshore in the UK North Sea. Company headquarters are based in The Netherlands with global operations in Asia, Europe, Middle East and America. The organisation employs around 15000 people worldwide.

Primary obligations related to addressing workforce safety and competency issue in terms of contractual requirements to the contract holder are to ensure a workforce is provided who are safe and proven to be competent, with the ability to carry out high quality work. Minimum standards are written into contracts, which the company are expected to meet.

Sub-contractors are used and undergo a supplier evaluation process before engagement. This ensures the sub-contractor has the systems in place required to effectively manage their workforce safety and competency.

Contractor D

A brown field oil company who supply personnel to offshore production facilities globally. The corporate headquarters are based in the UK and employs around 34, 000 people worldwide.

Primary obligations related to addressing workforce safety and competency issues in terms of contractual requirements to the contract holder are to meet client requirements which are clearly dictated through contracts, and ensuring the safety of all employees.

Subcontractors fall either under the contracting company's procedures or the operators procedures, depending on contractual arrangements.

Strategy

The case studies show that both operators and contractors have well developed strategies for the development of workforce safety and competency. This is usually an overarching drive to ensure all staff work in a safe manner and are competent to carry out their work, combined with various approaches and initiatives to guide and enhance this.

Figure 1 (below) summarises examples of key strategies from **operators** for the development of a safe and competent workforce.

Policy and strategy are developed at a group level, with accountabilities and managerial responsibility defined clearly for each global region. A group competence model centred on compliance, delivery and development is used, and competency profiles are defined against job descriptions.	Principle guiding rules are cascaded from the group level, and regional strategy is developed in line with local legislation. Robust structures of procedures are in place which governs the business, and within this structure are basic rules and regulations for everything to do with safety and competence.
The development of a new 'philosophy', beginning with true engagement with senior management team, them being involved since its inception. Focus on taking a sensible approach to competence, ensuring everything in place is relevant and fit for purpose, and developing people with the right attitudes, behaviours and personal awareness.	A three stranded approach to strategy, with installation safety cases for assets, a competency management system for the company and competency development programmes for staff. Training and competence is managed using skill gap analyses to focus training programmes. A spotlight on effective team communication and continuous review of documentation to assure applicability and role allocation to competencies.

Figure 1 – *Examples of operator strategies*

There were several innovations identified from the case studies in the development of strategies for the development of a safe and competent workforce, for example taking a proactive approach by absorbing systems which have been developed elsewhere but tailoring them to meet specific company or regional needs:

"That provides flexibility to the regions because they will have specific legal requirements, specific industrial requirements, probably constraints in terms of how they manage their third parties, or their own specific challenges…I'm convinced it will help with compliance because the regions will have flexibility to meet those requirements instead of "you have to do it in this strict way." They will have some room to adjust to the requirements."

Continually checking management systems and applying best practice from the wider organisation was identified by one interviewee as being an innovative approach to strategy. Competency systems are increasingly becoming focused on the individual and how they use the tools provided, with an emphasis being placed on involving the workforce in the competency process, getting them to *think* about hazards and safety, and not just *blindly following procedures*.

Streamlining competency processes by creating a structure of vocational qualifications tied to area processes allows individual competency profiles to be compiled more easily.

An example of exemplary application of strategy within an operating organisation was being the first to implement a competency management system in a specific geographic location. Accident records were unsatisfactory, so existing rules were reviewed with input from all staff and contractors involved over a 6 month period. The new rules were enforced in combination with a competency management system, and there were measurable improvements observed with a sharp drop in recorded accidents.

A good example of strategy application was in the prioritising of training requirements. When someone new was assigned to a post there were various training requirements which had to be completed; however it was often the case that certain critical training was not being carried out in an appropriate time frame. Therefore the operating company introduced a system of prioritising training allocating categories such as *'should be completed before taking up post'*, *'should be completed within 3 months of being in post'* and *'should be completed within 6 months of being in post'*. This allows safety critical training to be prioritised over less safety critical training in a systematic manner, ensuring the competency of individuals in specific roles.

Figure 2 (below) summarises examples of key strategies from **contractors** for the development of a safe and competent workforce.

A competency based recruitment strategy; ensuring people coming into the company meet the minimum standards. Done by structuring recruitment into disciplines, and categories within those disciplines. Entry points within each discipline depending on experience and qualification, and everyone being screened to ensure entry into the organisation at the right level, identifying gaps along the way and therefore being in a better position to operate safely.	A continuous improvement strategy looking at what is being done and where it can be improved. Each year a plan is made with objectives to improve programmes. For example, the introduction of a competency group to aid the creation of competency standards internally, as there were none dictated in the global region.

Figure 2 – *Examples of contractor strategies*

Innovation in the strategy setting process within contracting companies included the introduction of competency management systems accredited by third parties such as OPITO to allow benchmarking against industry standards. One contracting company spoke of their collaboration with an industry third party to establish a new standard for competency measurement in a particular trade, as none existed previously. This has now become integral for developing a safe and competent workforce as all new staff are skill screened before being given a contract of employment, and existing staff are being screened to the same standards.

An exemplary application of strategy was identified by one interviewee in the use of internal assessors. Within the contracting company internal assessors also have a primary role, for example as a senior technician or team leader. This reduces logistical issues such as finding time for assessments, and allows for better observation of candidate progress as assessors are familiar with working practices and individual team members. These assessors are also assigned realistic targets for how many assessments should be completed each month, which is reviewed as part of their individual performance appraisal.

Strategy Setting and Implementation

With operators' strategy often set at a group level, the involvement of contractors at this stage of the process is a challenge, due to the wide number of and differing sizes of contractors used. Their involvement in the strategy setting process comes later, as strategies are translated from a group to a regional level. There is then often cooperation over strategy translation and implementation, with regular meetings between management of both sides to clear the path for collaboration. Recognition of individual system and expectations is integral to working together to identify common ground and in ensuring the strategies of operators and contractors are aligned.

At the regional level little distinction appears to be made between staff and contractor employees, with one example given of a sub-sea project which needed particular skills and expertise; this was found in a contractor senior production technician, who was then absorbed into the project team.

Contractors similarly described their involvement of operators in the strategy setting process; operators share strategies and contractors develop theirs in line with them through regular meetings and objective setting. As contracting companies can hold contracts with many operators, this collaborative but flexible approach was described as essential to ensuring contractors can effectively manage their workforce safety and competency, whilst meeting their clients requirements.

Contractors based in regions such as Asia and the Middle East involve operators in their strategy setting process, but this was often described as a way to drive the development of competency management in these global regions. Competency management in these areas is often not dictated by operators through contracts, and contracting companies who have adopted international standards or guidelines to enhance their management of workforce safety and competency work closely with local operators throughout this process. This helps to raise awareness and highlights the value of such programmes.

The communication of strategies from operators to contractors and visa versa is similar, with a focus on targeted and continuous communication through all levels of the business being the main objective for both. The first communication of strategy is most commonly at the contract tendering stage. At a high level plans are set and communicated yearly, with monthly meetings, bulletins and reports to reiterate this throughout the year. Employee and contractor forums were common, being used to communicate key strategies and discuss issues or barriers to achieving them. Other techniques included the presentation of policies clearly at each site, messages on pay slips reiterating certain strategies or initiatives and the use of tool box talks to cascade any strategic information which would impact day to day operations.

Several operating companies used a named contract representative or contractor focal point to ensure contractors were kept up to date with strategies, holding regular face to face meetings to discuss these.

Communicating Strategy to the Workforce

A wide array of methods to ensure employees understand and embrace strategies were identified by both operators and contractors, but fundamentally they were focused on a clear and simple approach, directed at the users' perspective with constant staff engagement. Communication is most certainly the key, with regular engagement sessions with staff occurring in all the companies interviewed. Ensuring high worksite presence of senior and middle management was highlighted as significantly important in ensuring buy-in from the workforce. This theme was amplified in discussions around leadership visibility, highlighting the importance of this presence being meaningful; the leadership team should not merely engage with the workforce and contractors, they should listen and set good examples. Management commitment to safety should be continuously demonstrated.

Examples of methods used to communicate with the workforce are physical and electronic newsletters, employee forums, yearly safety events, poster campaigns, safety awards, and the use of social media such as Twitter or Facebook. The emphasis was in using a variety of tools, covering all angles, to ensure messages are successfully conveyed and received by the workforce.

An innovative method of ensuring that strategic information from the corporate level is cascaded throughout the wider organisation was the use of a 'Meeting in a Box'. This is a physical box which contains all materials from board meetings with senior management (e.g. copies of presentations, details of discussions), which is distributed throughout the workforce. A few weeks after the box has 'done the rounds' a survey is carried out in the workforce to ensure all have seen this information, and remember the key messages. Following up on the communication of strategic information is rare, yet helps to ensure that the workforce truly understands and is engaged with strategies and programmes.

One contracting company had a comprehensive cascade procedure in place, which details who should receive certain information and when they should receive it by. This leaves a clear auditable trail to ensure strategies are being communicated effectively, and most importantly that nobody is missed in the cascading of important information.

> *"[it's] trying to get some real participation overall. Some people, it's down to individual character strengths, are quite happy to speak up and say "this is great, this isn't"; others will never say a word. So it's just trying to find different ways that work for different people."*

How is strategy tracked?

Strategy implementation and effectiveness is tracked similarly in both operating and contracting organisations, with annual plans being tracked regularly against KPIs in review meetings, and evaluations of overall company performance. Particularly innovative was the use of detailed top to bottom delegation by one operating company, with senior members of staff holding responsibility for pieces of the strategy and delegating this to various functions below them. A complex reporting chain is in place to ensure objectives within each function are tracked as they roll down to every level of the business. Finally individual performance monitoring is linked to strategy objectives, which is regularly reviewed.

Innovations within contracting companies included having designated competency management administrators and HSE coordinators to ensure strategy is tracked, and linking the yearly management review of objectives to a quality management system. This ensures plans are working and are driving improvements, using the CMS database to track individual candidate progress monitored against client feedback.

Management

Interviewees from each **operating** company were asked how they would demonstrate to the regulator that they are an exemplar organisation in managing several key areas; effective management of a contractor workforce, workforce training and development and workforce assessment of competence.

Operators would show the regulator they effectively manage their contractor workforce by sharing details of contract arrangements, audit programmes for contractors, and the use of an internal assurance process for the selection and management of contractors, which itself highlights internal best practice to drive improvements. One operating company spoke of the management of change within contractors, requiring a proposal to be submitted when there is a changeover in personnel demonstrating the new employees are competent to carry out the required work.

Operators effectively manage their workforce training and development by having teams within their organisations to manage this, using training matrices and skills gap analysis combined with competency profiles for roles to establish training needs. A cyclical review process of competences required for a role, skills held by an individual, the training required and training available was common amongst all operators.

Assessment of workforce competence is supported by a solid internal structure, combining on the job assessments, self assessments, qualifications and certifications. The auditing of CMS and assessment processes ensures relevancy and completion, and the use of verified internal and external assessors assures competency in the workforce.

Interviewees from each **contracting** company were asked how they would demonstrate to their operators that they are an exemplar organisation in managing several key areas; workforce recruitment, workforce training and development and workforce assessment of competence.

Recruiting with experience or qualifications, and carrying out skills gap analysis during recruitment were common practices. In-house induction programmes, graduate training schemes and

participation in apprenticeships were used to enhance the recruitment process. Looking to other industries and global regions with emerging oil and gas industries (such as UAE) to address problems of ageing workforce and lack of skills in certain disciplines was indentified as an approach to workforce recruitment.

Training and development is effectively managed by close monitoring in contracting companies by using databases, training matrices, and the employee appraisal process. The development of in house training modules and centres in some organisations allowed greater control over the training and development of the workforce, especially in locations where local training providers are insufficient. One organisation asks its own employees to provide certain training themselves to build confidence. Audits of systems and matrices were common in the management of workforce training and development.

Assessment of workforce competence is achieved through the whole assessment process being recorded from planning to certification. Standardisation meetings for assessors are held, to ensure internal consistency in the assessment process. The use of both internal and external assessors and verifiers helps bring an element of benchmarking into the assessment of workforce competence. All companies had either a competency team or a competency matrix. Verification of competence was done using a combination of internal and external processes, with in house assessors and verifiers and third parties such as OPITO being used to carry out audits.

Continuous Improvement in Operators

All interviewees were asked about the continuous improvement of their workforces' skills and competence. Operators placed importance on understanding that individual learning styles differ and that options for training delivery should reflect this. Involvement of the workforce, OIMs and supervisors to identify training needs is integral to ensuring the workforce is developed effectively, as well as the use of offshore mentors to aid in this continuous improvement. One technique to ensure both staff and contractor employees are developed together is bringing trainers and assessors onto installations and worksites to deliver programmes to both groups, ensuring consistency.

Particularly innovative was the development of an installation operating manual, usually a large cumbersome folder full of paperwork, into an interactive electronic tool. Developed due to a need expressed by the workforce, it was created by them from the ground up, and is available to all through the intranet. The manual provides a high level summary of the most important things the workforce needs to be aware of, and is further divided into modules which individuals can work through, explore and complete a self assessment at the end of. The electronic tool is tailored to the specific installation on which it is used, enhanced with pictures and diagrams of specific items from the platform.

Operators from geographic regions of high regulation such as the UK and Europe felt the regulator played some role in the continuous improvement of workforce skills and competence, but as an identifier of industry wide skill gaps as opposed to dictating developments needed in specific companies. In regions such as the Middle East and Asia it was felt by interviewees that internationally held affiliations (such as OPITO accreditation or compliance with ISO standards) overrode local regulations as they usually command stronger requirements for things such as competence management. In these regions it was felt by interviewees that the regulators main role was to check compliance, not to facilitate development or innovation.

Continuous Improvement in Contractors

Contractors are required by their operators to have improvement processes in place for their staff, as well as training plans and competency assessments. These requirements are set out by operators in contracts, and monitored throughout. More informally contractors on site are often viewed as part of the team, with few distinctions made. In some cases contracting staff are absorbed into the operator's competency management systems. The use of offshore coaches by one operator helped ensure both operator and contractor employees attitudes and behaviours were aligned, and instigated cross learning and feedback across both groups.

The workforce themselves are of course expected to participate in training programmes, appraisals and competence assessments as well as being responsible for the production and collation of evidence of this. Above and beyond that the workforce were described by most companies as being vocal in expressing their developmental needs, as well as identifying gaps in their skills and competency.

Contracting companies spoke of the use of offshore assessors to identify individuals who would benefit from particular development, possibly to aid promotion, due to their demonstrated skills and attitude. The use of "technical authorities" or experts in certain areas to continually seek new ideas and innovations was identified, with a particular example given of a scaffolding manager who is continually looking of new materials, ways of working, increasing efficiency and saving money, and who communicates these with the workforce on a face to face basis. Involving the workforce in the identification of innovations and new ideas, and equipping them with the autonomy to do so, empowers the workforce and stimulates buy-in.

Contractors felt operators played some role in the development of workforce skills and competency, communicating their requirements for the contract. However as each operator has a different set of requirements, it was felt favourable to work towards industry standards to ensure contracting companies satisfy all operator requirements. Some operators require contracting staff to attend specific safety inductions before being allowed on-site, whilst others had funded training to aid the development of contractors' competencies. The contractors workforce play a similar role to that of operators workforce in continually developing; participating in training and appraisals, and showing a commitment to learning new skills and developing personal competence.

Challenges in the Management of Workforce Safety and Competency

Operators identified challenges in creating a competency management system which is balanced, not being too bureaucratic but also not too simple. One operator attempted to overcome this challenge by placing boundaries on the length competency profiles should be, using subject matter experts to develop concise and applicable competencies ensuring the time and resources needed for each does not become unmanageable.

There was a significant challenge, identified by nearly all operating companies who participated in the research, in combating resistance to proving competency especially by those who have worked in the industry for many years. There were numerous strategies employed to overcome this such as the use of trained verifiers to aid in the writing and evidence gathering process, ensuring the process is well laid out and easy to follow, and by continually communicating the importance of competency verification. In regions such as Africa and Asia where competency verification is a relatively new process, this continuous communication of the importance of competency verification was

invaluable to securing workforce buy-in. By showing the workforce that operations are safer when people are competent, and that competency development goes hand in hand with career development, operating companies saw an increase in employees participating in competency programmes.

In global regions such as Africa there were issues with a lack of adequate local training provision, and operators have worked with local authorities and regulators to develop in-country training and competency standards. There was also difficulty in managing some smaller contractors and encouraging them to invest in their staff to ensure compliance and competence. It could be argued this reluctance was due to limited awareness of the long term benefits to the business of being not only compliant but fully competent. This was successfully overcome by giving some initial financial assistance for training provision, allowing the contracting company to view the benefits for themselves.

The retention of competent employees was also identified as a significant problem in regions such as Africa and Asia due to a lack of local competent staff. Once investment has been made to develop someone's competency, individuals would leave to work for another company. This has been overcome by establishing inter-company agreements, and attempting to widen the pool of local competent staff by working with local education providers to increase their capacity. One operator based in Asia had to comply with a local management policy, which is dictated by the local government, to ensure local talent is employed.

One barrier identified by contracting companies to the effective management of their workforce safety and competency was actually engaging and communicating with their employee population in a regular, meaningful way. The nature of contracting work means there is often limited day to day contact with geographically dispersed teams, and therefore maintaining dialogue and receiving consistent feedback can be difficult. Several methods were employed to overcome this, including the implementation of pre-mobilisation and de-mobilisation briefings, supervisor forums to gain feedback, and the proliferation of communication briefs and the use of websites to send information out on a regular basis.

Third Party Accreditations

The majority of organisations studied in this research held third party accreditations for various business processes or units, such as ISO, SQA, NVQ and OPITO. The value goals sought from having such accreditations are:

Value goals for operators	Value goals for contractors
To drive business	To aid continuous improvement
Enhance reputation and credibility	Good for business
Unbiased regulation and independent challenge to ensure objective approach to competency and safety management	Shows commitment to safety and staff development
Ensure compliance	Operating to internationally recognised competency standards
To benchmark against industry	

It was common amongst companies operating in regions such as Asia, Africa and the Middle East to seek international accreditations and standards as they were perceived to exceed local requirements and regulations.

Becoming a Leading Company in Safety and Competency Management

The majority of companies included in the research characterised themselves as leading in the development of workforce safety and competency, with a few suggesting that they are well on the way to becoming a leader but feel it would be premature to declare this currently.

The drivers for becoming a leader were similar in both operating and contracting companies, primarily being:

- To show commitment to safety
- To increase and enhance reputation
- To increase the ability to develop local talent and share best practice with industry
- To drive and secure future business
- Managerial commitment
- To comply with client and regulator requirements
- To ensure environmental protection

The benefits of becoming a leader again were similar across both contracting and operating companies, primarily being:

- Improvement and sustainability in business performance and reputation
- Motivation of the workforce and greater standardisation in a global industry
- Encouraging innovation
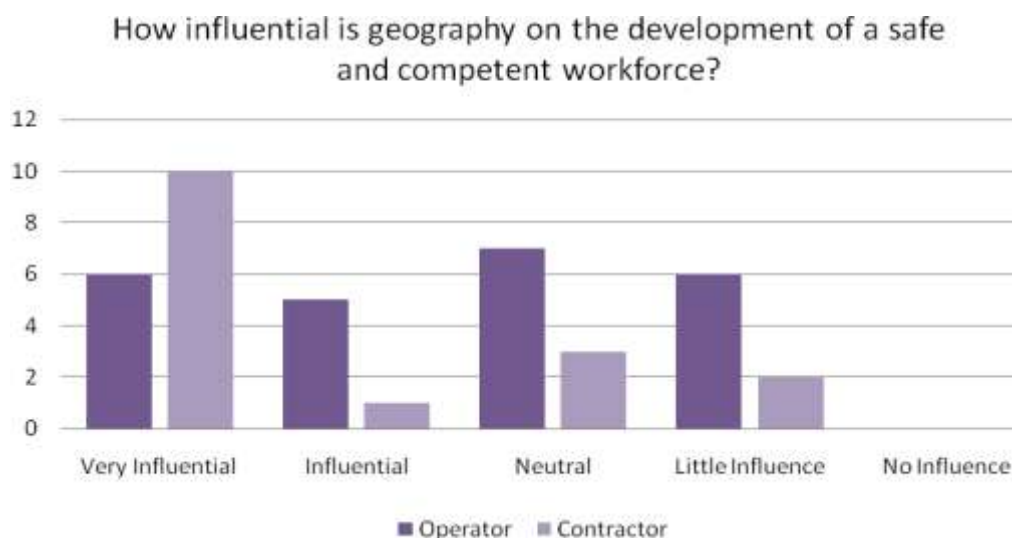- Attracting competent and motivated people

Influences on Safety and Competency Development

Research participants were asked how influential they felt certain factors were on the development of a safe and competent workforce in a global context. Factors covered were geography, culture, nationality and religion.

In general there were differing perceptions of the influence these factors can have on the development of a safe and competent workforce. There were differences within individual organisations, which highlight the significance of personal experience and circumstance on judging the influence of these factors.

Geography

A significant proportion of the contractors interviewed felt that geography was '*very influential*' on the development of a safe and competent workforce. This could be due to the nature of contracting work, with individuals working in more geographically dispersed locations and therefore having more exposure to perceive the influence geography can have. The operators interviewed broadly scored geography equally from '*very influential*' to '*little influence*', which could reflect the variance in geographical regions the participating companies operated in.

How influential is geography on the development of a safe and competent workforce?

|	Very Influential	Influential	Neutral	Little Influence	No Influence
Operator	6	5	7	6	0
Contractor	10	1	3	2	0

Some interviewees felt that geography was influential on the development of a safe and competent workforce as geographic conditions would influence what training and competencies were required and were available, and which local legislations should be followed.

Others felt that geography would not influence the development of a safe and competent workforce, with claims that organisational culture and processes should address any influence geography could have.

> *"some of the safer operations were in some of the areas you might consider to be geographically not a very safe place to work, but they actually proved the opposite... And that can quite sometimes surprise you geographically."*

Culture

It was felt by all interviewees that culture has some influence on the development of a safe and competent workforce, whether it is the culture which people are from or the culture in which companies are operating.
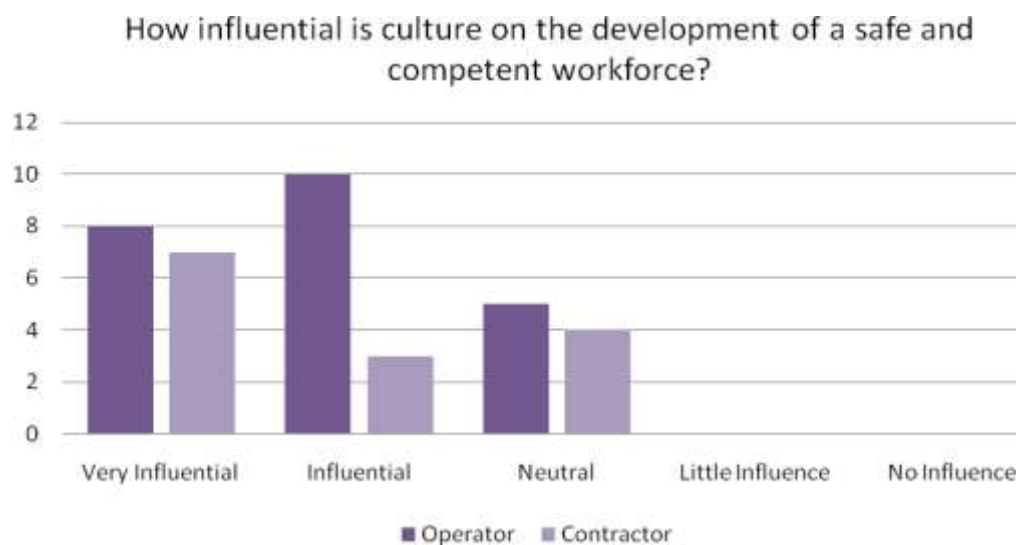
Other cultural barriers were identified as adherence to a caste system and respect for elders, influencing the ability of individuals to challenge unsafe behaviours or attitudes.
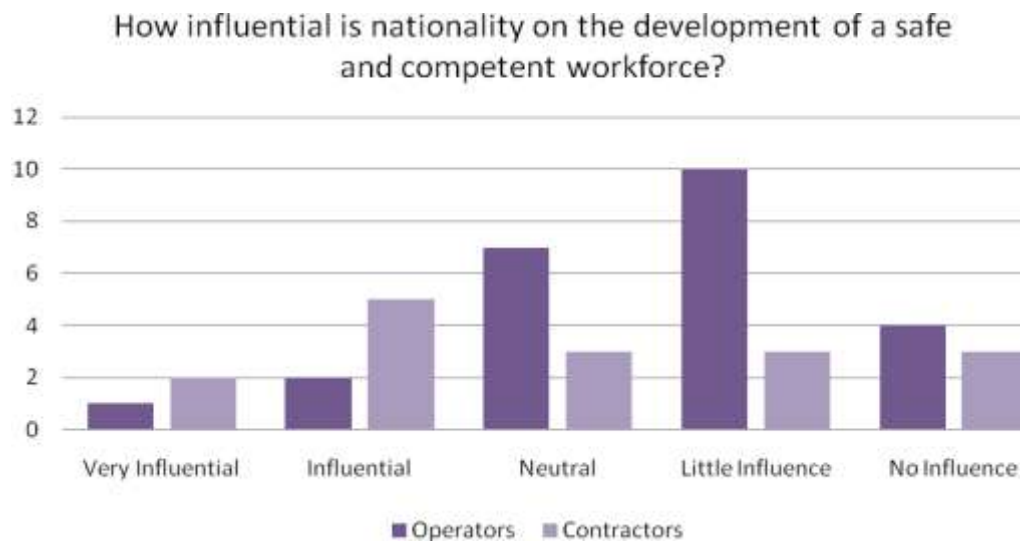
> *"...the workforce were very caste oriented. If you were in a lower caste then it wasn't right for you to speak out about somebody who was in a higher caste. That meant that for the likes of stop systems where you're wanting people to intervene when they see an unsafe condition, in those kind of cultures it makes it very difficult because it's not right for them to be criticising somebody who is superior to them. It makes it very difficult for an open relationship and communication."*

Interviewees identified the creation of a strong learning culture through repeated communications of policies and procedures, the provision of training and reiteration that safety is top priority, to overcome these issues. Continuous display of management commitment and engagement was identified as key to instilling a positive safety culture.

One contracting company based in Asia spoke of an on-boarding programme for people who are coming to work in the area from various geographic locations. This allows locals to gain an understanding of the different cultures people are coming from, and allows the new arrivals to be given insight into the culture they will be working in.

Nationality

The majority of operators felt that nationality would not have much influence on the development of a safe and competent workforce. Opinions from the contracting companies were more diverse, with a relatively equal spread across the degrees of influence.

How influential is nationality on the development of a safe and competent workforce?

	Very Influential	Influential	Neutral	Little Influence	No Influence
Operators	1	2	7	10	4
Contractors	2	5	3	3	3

The main influence of nationality or race on the development of a safe and competent workforce was the language barriers this brings. Otherwise research participants felt that culture was more of an influencing factor than nationality, or that the two can often be indistinguishable.

> *"I would say it's more culture of the country. Just because you happen to be [X] doesn't make you a bad or a good person, but the local environment will change the way you think."*

Language barriers could lead to misunderstandings in the workforce regarding safety and competency, and combined with some cultural nuances which would prevent individuals from declaring a lack of understanding, can prove to be problematic.

Companies have overcome this by using translators who are also area experts, with fluency in both languages to ensure no meaning is lost in translation. Using translators who are accustomed to local cultures also aids in understanding as they are able to provide advice on the best way to display and communicate information. The use of pictures and videos to communicate with the workforce was also common.

Religion

In general religion was not seen to be a hugely influential factor on the development of a safe and competent workforce. There was little distinction between the operating and contracting companies' perception of this influence.

How influential is religion on the development of a safe and competent workforce?
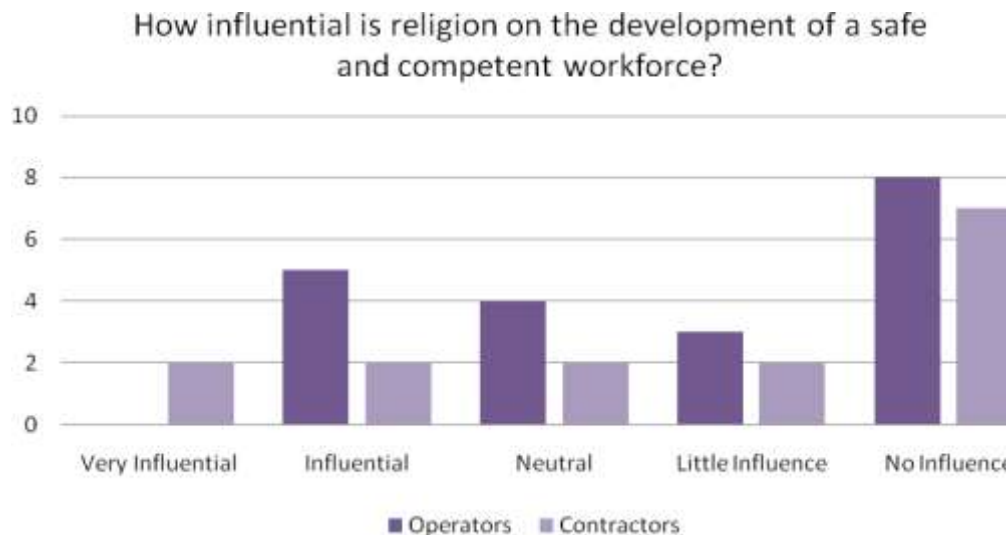
Interviewees who felt that they had witnessed no influence of religion on safety and competency recognised this could be due to working primarily in regions where religion is not so prevalent. Others felt that religion or faith does influence safety and competency, especially in regions where faith plays a significant role in day to day life and is a foundation of the local culture.

"… you do see their different faiths will have a different perspective on individual's control over their destiny…Then that may have an impact …I wouldn't say it's hugely defining. You can't define any one faith and say "this faith always does this.""

Religion was noted by some interviewees to have a positive influence on safety and competence in the workforce, as it teaches good moral values and encourages personal development. Others such as the interviewee quoted above, felt that religion could sometimes have a less positive impact on safety and competency due to beliefs that external factors cannot be influenced.

"I don't think faith or religion makes any difference, however, education makes a big difference."

Education is the key to overcoming the issues outlined. Showing the workforce the difference intervening can make, such as displaying statistics when new procedures have been implemented, and reiterating the personal benefits of developing competencies can all help overcome these issues.

Addressing Influences and Challenges to Safety and Competency

Behaviours and attitudes were felt to play an important role in the development of a safe and competent workforce, and there were certain attributes which were seen as being advantageous to ensuring personal safety and competency. These were mainly focused around having a positive attitude, being willing to learn and having the confidence to point out when something isn't safe. There was little differentiation made between behaviours which would influence safety or competency; they're viewed as been integral to one another.

Ensuring employees understand the values of a company, and the high quality they require was identified as a challenge. This was overcome by ensuring employees understand that companies were willing to invest in their staff to drive and develop their competencies and that this will in turn drive business and set examples to the wider industry.

In companies who had recently introduced competency management systems or programmes, especially in geographic areas such as Asia, Africa and the Middle East, a significant challenge was ensuring the workforce have a sufficient understanding of safety, competency and the systems which would be used to implement and measure this. Communicating these new concepts in bite size chunks to the workforce aids understanding, and avoids creating reluctance and overwhelm in the workforce. Making forms easy to complete by using check lists, and encouraging individuals to speak out when they don't understand something were also seen to help.

Similarly, although not unique to companies who have recently implemented competency management systems or programmes, is achieving the right level of buy-in from the workforce. This is a common problem experienced across the industry by both contractors and operators. Integral to ensuring workforce buy-in is having clear leadership, sending a consistent message by continually displaying commitment to safety and competency. Senior and middle management are essential drivers in this, and should have the right attitudes and behaviours in place to inspire their workforce. There should be lots of advocacy work to encourage participation as once the value in demonstrating competency becomes clearer to the workforce, research participants felt that uptake increased.

> *"I think if we motivate people then it encourages people come here, to stay here, to want to be here. Really, our challenge is to try to create a culture where people want to be here. In whatever job they're doing, wherever they're working. I think the more other people or we collectively can motivate people then in whatever form or shape that takes, then that will be a benefit to everybody. I'm not really talking about financial motivation, it's more the "is this a place that people want to work in?" because that will then give us stability of workforce, cuts down the turnover, it means we can really develop people and build on their strengths and skill and we have stability on which to be able to build and grow what we're doing. I think that individual motivation is absolutely key to it."*

The Future

All interviewees were asked to describe what they felt would significantly improve safety and competency globally in the oil and gas industry. Responses were centralised around four themes:

The development of common systems, globally recognised certifications and accreditations, and the development of a global assurance process.

"I think it would be amazing if we had a more streamlined approach to competence. Rather than having "this company has this framework, this company has that framework". When people are moving around it becomes more difficult and that's when the whole defensive attitude comes in again, because they think "oh Jesus, I've done this before""

Greater exchange of ideas in the industry, for example through larger industry forums, to facilitate the sharing of best practice and innovations, working towards a global model of competence, whilst also looking to other industries for examples of innovation and best practice.

"There are a lot of lessons from aviation safety which are only now starting to find their way into the oil and gas industry, such as human factors and crew cooperation. So the oil and gas industry could look outside of its own environment more and look to the nuclear industry and the aviation industry and start bringing in some of the good practices they have as high reliability organisations."

Involvement of people in the development of systems, and a greater emphasis placed on personal responsibility throughout industry.

"…involve people. Whatever the processes or systems are, make sure you involve people in the development of your approach, from senior management, get them bought in first of all…then involve everyone else as you're evolving all the systems that you're putting in place."

"I think there are a lot of people who expect an organisation to look after them which amazes me. I can't understand why anybody relies on an organisation or a system to do that. I think if we can get people to be really thinking for themselves and taking much more responsibilities for their own actions and behaviours then that's an area that will bring great benefit and improvement."

Long term commitment to the training and development of people for future industry demands:

"I don't think yet there's enough of a common approach to say, all the oil companies sit down together and say "have we got the right level of training centre? Are we looking ahead at the industry trends for the next five, ten, twenty years? Where are the people going to come from? Do we need to train more?" We maybe look a few years ahead but I don't think we look far enough ahead."

Interviewees were also asked to identify what changes they would like to see in their own organisations to improve safety and competency. The responses were focused on going beyond compliance, building upon good work already done and seeking even more collaboration between operators, contractors and industry bodies. There was an emphasis placed on the importance of continually building and developing organisational culture through continuous workforce engagement. What was encouraging to the research team was that all of the internal improvements called for were about continuing good work done, improving practices and widening the scope of initiatives and systems. The majority of the respondents spoke about avoiding becoming complacent through the continuous cycle of self-reflection, which is key to ensuring a safe and competent workforce.

Conclusion

The main conclusion drawn from this research is that there is no single solution or method for the effective management of workforce safety and competence. A variety of mechanisms have been identified, all of which have proven impactful and successful in our case companies.
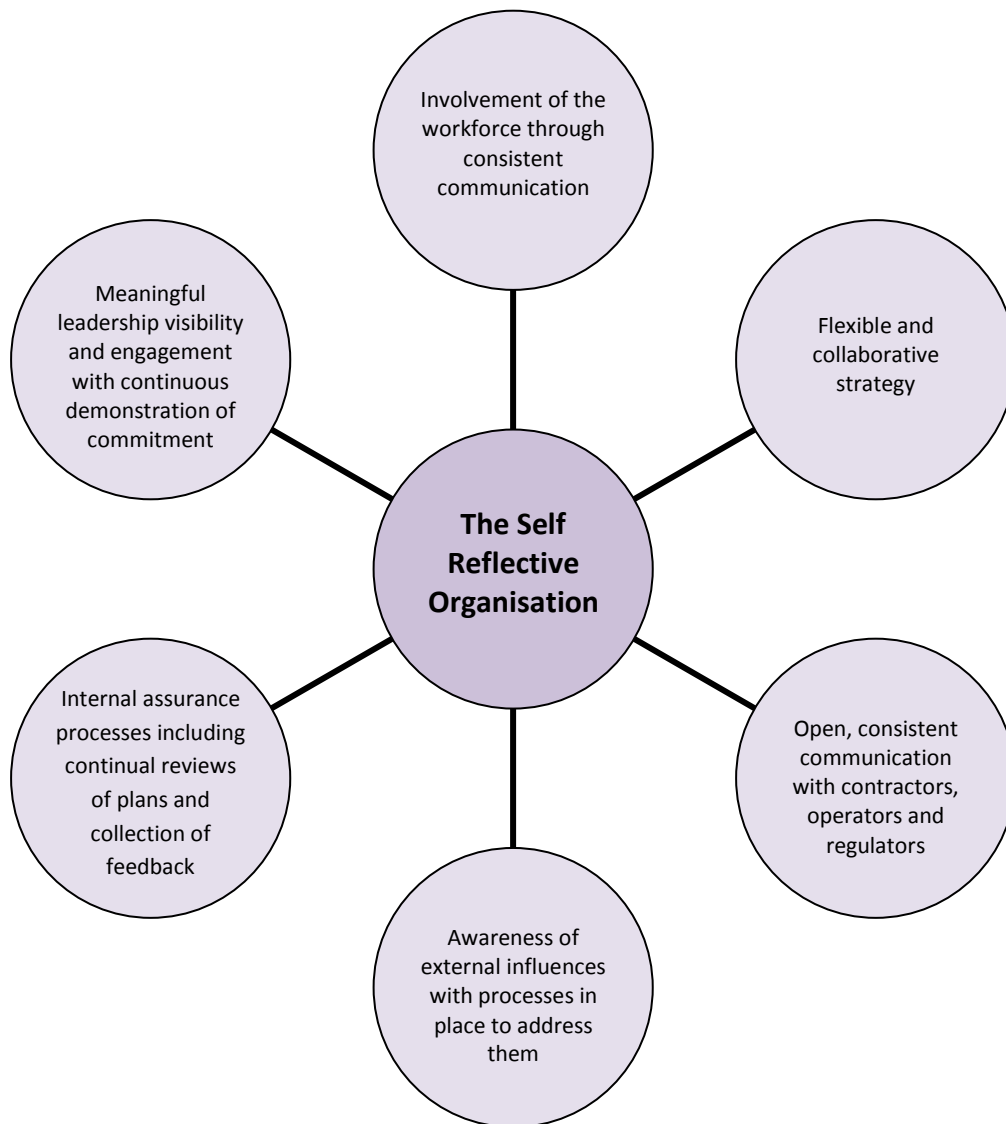
To truly achieve workforce safety and competency, a portfolio approach must be adopted, implementing a range of strategies and processes. These relate to strategy setting and design, conveying leadership commitment, direct and open communication and, perhaps most importantly, *listening* strategies, for the communication, if only one way, will fail to overcome the rhetoric/reality gap. Also integral to achieving workforce safety and competency is having an adaptive and flexible approach to learning provision, and understanding the influence cultural and behavioural barriers can have on this. Having clear lines of communication between operators/contractors/regulators through regular interaction, and seeking third party accreditations to benchmark internal practices against industry all aid in the success of achieving workforce safety and competency.

This research has uncovered an array of successes, some of which may be more innovative than others, but the point is less about the innovation and more about its impact. Innovation cannot be sought in all areas of business, but one must be open to and welcome innovation, continually seeking enhancement by being self-critical. This visible demonstration of commitment to innovation sends a clear message about the company and its culture.

Each company will choose to utilise tools which fit with their objectives, their organisational structure, culture and values, as well as their aspirations to be seen to be leaders in the health and safety arena. However, the important aspect in terms of this research is that there is wide awareness of the full spectrum of tools from which others can select those innovations and approaches best suited to their needs. Safety and competency are more than 'activities' they are integral to and should be embedded in all aspects of an organisation.

A central requirement of those seeking to be at the forefront of health, safety and competency is that the company is focused on the quest for continuous improvement and enhancement, a quest that is all about being self-critical and reflective, constantly asking 'are we good enough?'. A company who leads in the development of workforce safety and competency will have this philosophy instilled deep in the company of never being complacent and always seeking critical input – whether from regulators, third party accrediting bodies and, most importantly, their workforce.

However, one could argue there are three categories of organisations in the oil and gas industry; those who are terrified of non-compliance and defensive in approach: those who are compliant but take a 'just good enough' approach; and those who are truly self-reflective and take a philosophical approach to safety and competency. The research team believe all organisations included in the research fall into the third category, or are on the cusp of falling into this category.

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