Parallel Roundtable 4:
Attracting talent to a vibrant industry, integrating new generations and technologies

Background Paper
Disclaimer

The observations presented herein are meant as background for the dialogue at the 16th International Energy Forum. They have been prepared in collaboration with The Boston Consulting Group and should not be interpreted as the opinion of the International Energy Forum or The Boston Consulting Group on any given subject.
Introduction

Market Context

• The oil and gas industry faces an acute labor crises; Human Resources management is key to address these challenges
• Experience drought from workforce getting younger requires investment in Training & Retention
• Proactive and targeted Recruitment are required to capture high-potential candidates with robust skill sets
• Technical and Project skills seen as having the greatest shortage for both IOCs and NOCs

Session Objectives

• To discuss the key steps that the Energy industry can take to address the acute labor crises
• To understand the key capability building steps that the Energy industry needs to take
• To discuss ways to increase woman participation in the Energy workforce
• To understand the implications of energy transition and digitization on HR in Energy

Key Question: How does the industry attract and retain diverse talent in a more competitive, and advanced energy market?
The oil and gas industry faces an acute labor crisis

90
Percent of oil and gas executives who believe that talent shortage is an issue

50
Percent of the industry workforce that will retire in the next five years

2:1
Ratio of retirees to new employees who will enter the industry workforce

49
Percent of 16-35 year olds who found a career in the oil sector "very" or "somewhat" unappealing
Human Resources management key to address these challenges

Generational Gap

Expertise management

Digital mindset irruption

Industry attractiveness

Gender diversity
Experience drought from workforce getting younger requires investment in Training & Retention

**Situation**
- O&G workforce becoming increasingly younger

**Problem**
- Lower efficiency
  - Efficiency gains which come as the result of cumulative experience may be lost as workforce becomes younger
- Managerial shortfalls
  - Lack of seasoned professions may result in shortage of talent to fill manager level positions, or under-prepared employees filling manager roles

**Solution**
- Increase training
  - New hires will require training to supplement on-the-job experience in order to maximize efficiency potential
  - Pro-active management training needed to develop greater pool of manager candidates
- Improve retention in order to maintain expertise
  - Supplemented compensation packages, flexible schedules, etc. may be required to keep more experienced employees
  - "Post-retirement" positions (fewer hours/responsibilities) could keep experienced employees in workforce during transition period

Source: BCG analysis, SBC O&G HR Benchmark
### Situation

Post-graduate new hires are reporting to work lacking necessary skills
- According to a training manager at a major: "For the first time we’re seeing failures of basic introductory course pre-assessment tests"

On-the-job skills require years to develop
- 3 years to develop basic industry operating competence
- 10 years to develop proficiency in many profession disciplines

### Problem

Training costs rising
- Shell and Exxon have set up additional training centers to train employees on key skills they lack

Greater risk assumed
- New hires not receiving supplemental training represent a potential hazard on job sites if requisite skills not possessed

### Solution

Improve recruiting efforts to garner larger share of top recruits
- Strategic recruiting and staffing plan must be developed with same rigor as financial plan
- Recruiting plan must include
  - Pro-active vs reactive efforts
  - Strategic targeting of graduate programs
  - Clear articulation of factors which differentiate company from competitors

Source: BCG analysis, Booz & Co.'s Labour and Skills Crisis Could Stall Oil and Gas Boom

### Generation gap

Proactive and targeted Recruitment is required to capture high-potential candidates with robust skill sets.
Technical and Project skills seen as having the greatest shortage for both IOCs and NOCs

International Oil Companies

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<thead>
<tr>
<th>Skill Category</th>
<th>Scale</th>
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<tr>
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<td>Projects</td>
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<td>Commercial/marketing</td>
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<td>Enabling skills (HR, com, team)</td>
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<td>Projects</td>
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<td>Enabling skills (HR, com, team)</td>
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</tbody>
</table>

Scale: 0 = no shortage; 5 = highest shortage

Source: BCG analysis; Triennium Work Report
### Experiential programs and job rotations
- Job rotations
- Stretch roles
- Career paths
- Action learning
- Task forces
- Time in field

### Incorporating into flow of daily work
- Manager routines
- Daily huddles
- Integrated strategy and talent sessions
- Checklists, tip sheets
- Pulse checks

### Coaching and mentoring
- Peer groups
- Individual workgroups
- Mentors
- Subject matter experts

### Feedback and assessment
- Informal feedback
- 1:1 check in after major deliverables
- Awards, rewards
- Formal reviews
- Performance consequences

### Formal learning
- On-demand targeted e-learning
- Workshops
- Defined role-based learning paths
- Conferences
- External visits
Adoption of digital technologies will impact the labor skills required in the oil and gas industry

- **Analytics and machine learning**
- **Integrated modeling**
- **Automated planning prior to spud**
- **Internet of Things**
- **Real time feedstock characterization**
- **Connected refinery**
- **Prediction of performance variations**
- **Drones and advanced robotics for inspection**

**Subsurface**
- Structure recognition automatically finds analogues
- Visual analytics and machine learning automate elements of interpretation

**Development**
- Integrated modeling automatically optimizes field architecture based on historical designs

**Rig**
- Autonomous closed loop drilling
- Predictive maintenance analytics

**Field**
- Advanced analytics to prioritize interventions

**Maintenance Center**
- Sensors and wearables to monitor in real-time operator status and asset integrity

**HSE Monitoring Room**
- Augmented reality displaying plant performance while working in the field
- Smart portable devices displaying procedures, checklists, part specifications, etc.
- Real-time video communication with experts

**Engineering**
- Information shared amongst owner and contractors, updated in real-time
- Designs stored for re-use on future projects mitigating engineering hours

**Remote Support**
- Remote expert support to drilling and production
- Big data analyses to improve knowledge of optimal plant settings

**Spare parts warehouse**
- Integration with spare part suppliers
- Automated re-ordering of spare parts from the field

**Augmented technician**
- Wearable safety sensors monitoring vital functions
- Management of work permits through mobile devices

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Digital technologies also bring great opportunities to improve HR processes

Step 1
The use of anecdotal evidence

Before HR-specific information mgt. systems¹ were available

Human capital and hiring decisions are based on past experiences, opinions and hunches

Computing tools and data-gathering technology advancement

Simple “data dumps” were conducted so as to bolster talent-related decision making

Decision-making quality further improved by looking at company’s own operational data (internal sourcing and hiring KPI’s)

Modern talent mgt. capability

Note: 1. Market leaders include Oracle (OBIA) and SAP (Workforce Intelligence)
Source: Desktop research, BCG analysis

Step 4
Application of descriptive analytics

Real analytics comes into play - looking at critical information and analyzing past events (e.g., attrition) for useful insights

Step 5
Application of predictive analytics

Utilize capability rendered by big data technology to determine probable future outcomes with respect to human capital decisions

Big data enables evidence-based decision making for HR to a new level by factoring in a wide array of source data

Digital mindset irruption
Oil & gas sector is becoming less attractive to join

Only 43% of O&G young professionals plan to remain in the industry (vs. 70% in 2008)

"Is your intent to remain in O&G industry?"

41% of O&G young professionals believe that industry is well perceived from outside

"Do you think that the oil and gas industry has appropriate messages in the media?"

Source: Survey carried out by World Petroleum Council Young Professionals
Young professionals value mentoring programs and business trust as key retention drivers

"What needs to be done to retail your talent in the energy industry?"

- Provide mentor programs and more support from senior leaders: 18%
- Give more responsibility in driving projects and initiatives: 16%
- Provide competitive remuneration: 14%
- Improve worklife balance: 13%
- Improve working atmosphere: 11%
- Provide opportunity to travel abroad: 10%
- Develop diversity and inclusion: 10%
- Increase work dynamism: 9%

It’s no longer about the money... Young Professionals mindset is changing, towards recognition and learning

Source: Survey carried out by World Petroleum Council Young Professionals / BCG
Woman are underrepresented in the oil and gas sector compared to other major industries.
Women's underrepresentation worsens as seniority rises

On the business career track, women's percentage is roughly equal with men's in early career, but falls off significantly at mid-career levels.

On the technical career track, the percentage of women is much lower, in part because the pool of candidates is smaller.

Source: WPC & BCG; company data
Leading players have set and achieved ambitious targets

- Has 2 women leadership development programs
  - Women’s Career Development Program (WCDP)
  - Senior Women Connect (SWC), designed for women in leadership positions
- Women represent 19% of senior leadership

- Target to have over 30% female graduate hires through continued efforts to highlight the depth and breadth of careers at BP
- Has an Women’s International Network and local women’s networks at many of their sites around the world

- Has a high representation of women on their Corporate Executive Committee and in senior management
- 33% of workforce are women across all groups and businesses

- 10 initiatives in Women Development Program incl. Woman in Leadership, mentoring and peer learning
- Appointed first women leader as executive director in 2015
Key Questions

1. How will the energy transition impact HR management?

2. How will companies confront the loss of senior resources?

3. How does HR strategy gets shaped after the digital overflow? What are the key challenges of going digital?

4. Which are the key motivating factors for women to join and remain?
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