

Using Case Method as a Cross-Disciplinary Approach to Business-Technical Collaboration for Oil and Gas Industry

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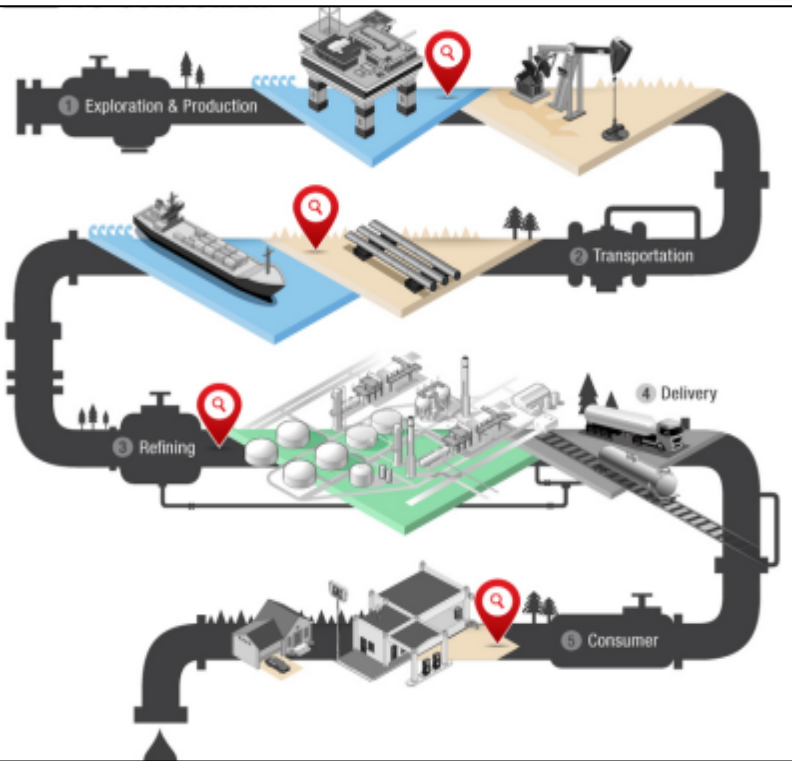
Abstract

In the upstream oil industry, technical terminologies such as *correlation, formation, logging and modeling* are quite familiar to geologist and petroleum engineers. In the same industry, the statisticians, accountants and corporate planners, to name a few, have entirely different interpretations of the same words. Such is the dramatic nature of language gap between the ‘technical’ and ‘non-technical’ professionals in the same industry or even in the same organisation. This paper proposes systematic incorporation of case base teaching method as a collaborative approach that both business and science/engineering educators can adopt to give cross-disciplinary sufficiency to their respective graduates.

By its nature, the case teaching method allows scholars to review and analyze data, consider relevant theories, draw conclusions, and present different perspectives of solutions for a thought-provoking real-life problem. Although the method accommodates different interpretations and different ways of framing problems for complex real business situations which offer valuable learning experience, it may also potentially create costly complexity and diversity. Therefore, finding relevant cases is a key step towards achieving learning objective.

One of the fundamental principles underpinning the case method is that many decision making skills that require experiential judgement cannot be taught theoretically but must be learned through practice. For the oil and gas sector, learning through practice could involve attending expensive simulation courses or gaining experience through internship or a job. However, such opportunities are often limited; hence, real-life cases that bring relevance to the application of abstract concepts may provide invaluable alternatives for such industries.

Overview: Oil and Gas Sector



Upstream : Exploration, field development and production

Midstream: Crude transportation by pipeline, rail, barge, etc.

Downstream: Refining, processing, sale and marketing

A vast, traditional Industry characterised by:

- Large initial capital outlay and periodic investments
- Potential for huge return on investment
- High operational risk and profit uncertainty
- Long payback period
- High HSE standard and operational integrity
- Complex projects and multiple decision points
- Diverse multidisciplinary workforce

Traditional Learning Practices in Oil and Gas Industry



- ❑ Entry level and career pathway dependent on background discipline
- ❑ Formal trainings structured along current job functions and future responsibilities
- ❑ Most courses are specialised and mono-functional with availability of few cross-disciplinary courses
- ❑ Notion is that experiential judgement cannot be taught theoretically but through practice.
- ❑ Practical simulation courses are expensive
- ❑ Few well-developed generalizable case studies
- ❑ Exposure to business-technical garnered only through on-the-job experience.

- ❑ **Consequences:**
 - ❑ Exposure to Technical – Business collaboration occur at mid-to-late career stages
 - ❑ Silo effect with many specialist but little cross-disciplinary skillset
 - ❑ Little proactive career behaviour and career not attaining full success potential

Characteristics of Case-based Learning Method

Summary of Characteristics

“...the students strive to resolve questions that have no single right answer. Their differing views and approaches produce a creative tension that fuels the enterprise and a synergistic outcome that both recognizes and exceeds their individual contributions. In their effort to find solutions and reach decisions through discussion, they sort out factual data, apply analytical tools, articulate issues, reflect on their relevant experience, and draw conclusions they can carry forward to new situations”.

Boehrer, J. and M. Linsky. “Teaching with Cases: Learning to Question.” In M.D. Svinicki (ed.), *The Changing Face of College*

Advantages & Disadvantages

- + Learning by doing, beyond rote memorization
- + Development of analytical and decision making skills
- + Deepen learning & promotes retention rates
- + Internalization of learning
- + Development of collaborative skills

- Limited and constrained information coverage
- Could be challenging to manage discussions
- Requires rigorous preparation time
- Could take time for new students to adjust to case study learning method

Traditional to Contemporary: Case for Action

Dimensions of Career Success



- ❑ 2010 survey of a small group of oil and gas professional (sample size=50) indicates evolving views of career success
- ❑ Wide gap exists between traditional academic output and industry expectations.
 - ❑ E.g. Reservoir Engineers for Petroleum Engineers, Facilities Engineer for Mechanical Engineers, Financial Analyst for Accountants
- ❑ Contemporary career requires different skill-set beyond what traditional education offers
- ❑ Entrepreneurial and “Intrapreneurial” leadership a key success dimension in contemporary workforce

Educating Entrepreneurial Leaders

Example #1: SITP

- ❑ Acronym for **Shell Intensive Training Program** (Shell Petroleum Company)
- ❑ Competitive entry for recent graduates from science, engineering and Information Technology background
- ❑ Intensive 1 year classroom courses designed by a leading UK University and taught by industry practitioners,
- ❑ Accommodation, feeding and stipends provided for trainees for the 1 –year duration
- ❑ Courses include case studies drawn from Shell operations worldwide
- ❑ End-of-programme / Employment interview (called Assessment Centre) involve analysis of cases with business and technical dimensions
- ❑ **Result:**
 - ❑ Most candidates do well in the end-of-programme interview
 - ❑ Other employers often drawn to select from these trained pool of candidates
 - ❑ Early exposure to cross-functional aspect of oil and gas industry enhance potential for career success
 - ❑ Proactive and entrepreneurial career behaviour and propensity to drive systemic changes in the organisation / industry

Educating Entrepreneurial Leaders

Example #2: NHDP

- ❑ Acronym for **New Hire Development Program** (ExxonMobil Corporation)
 - ❑ Initial entry typically along background discipline
 - ❑ Focused, purposeful and well-designed 2-3 years on-the-job training rotations for New Hires
 - ❑ Employees are involved in life projects across different basins, geographies, phases, and aspects of the oil and gas business
 - ❑ Rotations through life projects include case studies drawn from ExxonMobil operations worldwide
- ❑ Early exposure to Business – Technical cross functionalities
 - ❑ **Result:**
 - ❑ Early attainment of depth and breadth within the organization
 - ❑ Graduates from the NHDP comparatively climb the career ladder faster than those that did not go through the program
 - ❑ Early exposure to cross-functional aspect of oil and gas industry enhance potential for career success
 - ❑ Proactive and entrepreneurial career behaviour and propensity to drive systemic changes in the organisation / industry

Educating Entrepreneurial Leaders

Example #3: LBS E-MBA

- ❑ Executive MBA Program of Lagos Business School, Nigeria
- ❑ Enrolment of graduates from different disciplines and academic background
- ❑ Experienced, mid-to-senior career level
- ❑ Typical MBA courses with significant case studies component
- ❑ Class purposely syndicated into smaller groups composed of participants from different academic background /industry
- ❑ Cases drawn from various industrial sectors

- ❑ Cases involving business and technical dimensions are routinely , actively and collaboratively discussed at the group level
- ❑ **Result:**
 - ❑ Enrichment of participants experience via business-technical collaborative discussions and engagements
 - ❑ Positive impact noticeable by employers hence many support/sponsor employees into the program
 - ❑ Higher propensity for career transition and capacity to drive systemic changes in the organisation

Conclusions

- ❑ The quest to transform traditional sectors, such as oil and gas, through educating entrepreneurial leaders would require effort from a lot of stakeholders:

- ❑ Academic:
 - ❑ Continuous review of course contents to meet industry expectation
 - ❑ Deliberate promotion of collaborative environment where faculties across different fields co-develop courses

- ❑ Industry:
 - ❑ Creation of innovative program that would purposively engender business-technical collaborations
 - ❑ Integration of workflows that will link traditionally siloed people, to create a balanced, fit-for-purpose solutions
 - ❑ Deliberate promotion of sabbatical opportunities for academics to co-generate and incubate ideas

Research Roundtables Switch

Please choose another research roundtable session to attend.

Responsible Leadership in High Intensity Contexts: The Case of American University of Beirut Medical Center

Location: Co-Operative Bank Room

Integrating Innovation into the Mining and Oil Industry through Partnerships Between Industry and Academia

Location: Oak Room

Contingency Factors of Corporate Entrepreneurship in Traditional and Modern Sectors

Location: Tanzanite Room