

Digital Awareness Education

Why This Course is Important

The **biggest challenge** oil and gas companies face in addressing digital changes in the industry is equipping their people with a **common** base of **understanding of digital**. Without a common base of definitions, terminology, and frameworks, organizations run the risk that their digital agenda will be defined by specific vendors which can have unintended consequences. Suppliers of technology, IT professionals, universities and consultants all use variants of their own proprietary approaches to digital that, well intentioned, can create poor transparency, bias and prejudice. Without a common base, teams drift into silos, management blocks innovation and Boards cannot execute their oversight role.

Leveraging the book, '**Bits, Bytes, and Barrels: The Digital Transformation of Oil and Gas**', this corporate course is a one-day digital awareness education program specific to the oil and gas industry. Suitable for supervisors, managers, leaders and digital delivery teams, this course is applicable to a broad range of the oil and gas industry and the nature of digital innovations that are most important. The course includes key delivery topics like the nature of digital impacts and timing, risks that must be managed, the business case for change, the role of new methods like agile in driving success, organizing a digital team, the impacts on people, and how to set roadmaps.

Why Digital Technologies are Key to Oil and Gas

Digital innovations are expected to impact the oil and gas along four vectors: Growing supplies, lowering costs, raising productivity and altering demand.

- Digital innovations applied to resource evaluations and reserves analysis are expected to grow global reserves by 5% or 500b boe, worth \$22 trillion.
- Digital innovations will reduce costs by 20% across the entire supply chain.
- Digital innovations will improve productivity of assets by 20%.
- Digital innovations may erode demand for transportation fuels by 50% by 2040.

The Course Design

The course is laid out around a **fictitious oil and gas services company** that sells a traditional but valuable solution to the oil and gas industry. The company and its products are **not very digital**, and the company is under **competitive threat** to its market. Attendees are presented the basic concepts of digital technology, and learn to apply them to the case company. **Your actual company** can be **substituted** for the fictitious company to make the course **highly personalized** to your situation.

The course is **interactive** and **engaging**, with lots of **teamwork, collaboration** and **quizzes**. Participants are **actively engaged** using quizzes, mini lectures, round robins, large group discussions, individual and team work, work sheet completion, and short presentations.

The Course Curriculum

This course is designed to help oil and gas industry professionals raise their digital acumen to help unlock the demand for digital innovation. The course is one and 1/2 days in length.

Module 1 – what is Digital?

- Digital definitions, terminology and illustrations
- Key drivers of digital innovation
- A framework for structuring digital innovations in context
- The leading digital technologies and their emerging oil and gas use cases
- Case examples of specific combinatorial digital innovations and impacts

Module 2 – The Impacts of Digital on industry segments

- Key orthodoxies of the industry that digital transforms
- Reviews of the impacts of digital innovation on segments of the industry

Module 3 – Management Challenges

- Organising a team to tackle digital transformation
- Digital risks to be managed
- Talent management and skills required
- Addressing the challenges of change management

Module 4 – Moving Forward

- The business case for digital innovation
- Strategic planning methods for approaching digital innovations

Who Should Consider Taking This Course

This course is designed for two audiences:

1. oil and gas industry professionals aiming to raise their digital acumen about the opportunities and the threats posed by digital innovations
2. technology industry professionals seeking to understand the oil and gas industry and the potential opportunities for digital innovation

Companies who will find the course of value include:

- Oil and gas companies, particularly integrated companies
- Companies in the upstream, midstream, and downstream
- Field services companies that provide services to the industry
- Managers and supervisors in oil and gas
- Teams of workers tasked with addressing digital innovations
- Consultants to the industry
- Software providers to the industry (cloud, engineering, ERP)
- Suppliers to the industry (telecoms, IoT, SCADA, EPC)
- Investors, financiers, government agencies
- Regulators, policy makers

Detailed Course Content

Digital definitions

- ✓ International Energy Agency, Cisco, IBM
- ✓ The growth of data
- ✓ Power of analytics
- ✓ Expanding telecommunications
- ✓ Moore's law

- ✓ Metcalfe's law
- ✓ Market capitalization of digital companies
- ✓ Framework for digital innovation

Data

- ✓ Importance of data to digital
- ✓ Data types
- ✓ Oil and gas issues with data

Internet of things

- ✓ Use cases
- ✓ Architectures
- ✓ SCADA and IoT
- ✓ Developments

Artificial intelligence

- ✓ Definitions – AI, ML, deep learning
- ✓ Role of AI in the future
- ✓ Use cases in oil and gas – maintenance, field operations, optimization

Automation

- ✓ Robots in the field and office
- ✓ 3D printing and impacts on oil and gas
- ✓ Use cases – submersible, inspections, surveillance, data collection

Cloud computing

- ✓ Types of clouds – private, hybrid
- ✓ Role of cloud computing
- ✓ Impacts of cloud computing on oil and gas business models

Blockchain

- ✓ Definitions, examples
- ✓ ATOMIC – asset, trust, ownership, money, identity, contract
- ✓ Role of blockchain in oil and gas
- ✓ Use cases – VAKT, tracking, carbon

Business issues and digital solutions in the oil and gas value chain

- ✓ The Oil and Gas Industry Process Model
- ✓ Upstream – conventional, unconventional, on-shore, off-shore
- ✓ Midstream – processing, pipelines, transportation
- ✓ Downstream – refining, wholesaling, retail
- ✓ Capital projects – planning, execution

- ✓ Turnarounds and shutdowns
- ✓ Functions (HR, supply chain, finance)
- ✓ Services – field services and support

Management issues in digital

- ✓ IT, OT and digital team design
- ✓ Risks to be managed – cyber, security, data, policy, technology
- ✓ The Risk Matrix for Digital
- ✓ Management of change process and implementing digital change
- ✓ Agile versus waterfall methods
- ✓ Importance of user experience and design

Talent issues in digital

- ✓ Availability of talent
- ✓ Creating trust in digital
- ✓ Leadership of human change
- ✓ Talent attributes of the future

Digital strategy

- ✓ Setting a north star heading for digital innovation
- ✓ Confronting industry norms and practices that digital can impact
- ✓ The Strategy Cascade by Roger Martin
- ✓ Examples of digitally driven strategy – Rio Tinto
- ✓ Determining the business case for digital

Testimonials

“A must course for anyone getting involved in digital transformation to start that journey and understand the challenges and dilemmas afoot.” Large consultancy, Abu Dhabi

“This course provides a good overview on digitalization in oil and gas industry. General enough that can be applied to other industries with specific elements that are directly linked to oil and gas sector. Liked the case used for discussion throughout the course.” R&D company, Alberta

“The Digital Training and Strategy Workshop was one of the most online engaging courses I have ever participated in. The content was well balanced between lectures and activities and exceeded our expectations. The way the course content was delivered was very impressive and Geoffrey’s knowledge and experience made it very engaging. I would strongly recommend attending the course.” Oil and Gas Equipment company, Dubai

“The course provides very good insight into the challenges companies face in their digital journey and several simple yet powerful information gathering tools to discuss with customers at any level in the organization enhancing your ability to become a trusted advisor.” Technology supplier, London

Course Pricing

- Tuition is \$750/person
- Materials are \$50/person (includes an autographed copy of Bits, Bytes, and Barrels for each attendee, plus workshop materials, handouts and supplies)
- Class size minimum is 10, maximum of 25
- Travel expenses for instructor, facilities charges for classroom are reimbursed at cost

Contact Me

Learn more about '[Bits, Bytes, and Barrels: The Digital Transformation of Oil and Gas](#)', by visiting Amazon and other on-line bookshops.

Check out the on-line version of this course, '[Digital Oil and Gas](#)', available on Udemy.

Contact me directly to discuss:

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