Digital Leadership Strategy
Super Oil and Gas Company

AMPE Consulting Group
Executive Leadership Council
National Business Case Competition 2020

KELLEY
SCHOOL OF BUSINESS
MBA Program
AMPE Consulting Group

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Agenda

**Embrace**
- Executive Summary
- Recommendation
- Background

**Revamp**
- Human Capital: Leaders, Culture, and People set the Digital Trajectory

**Deploy**
- The Technology: Oil & Gas Toolkit
- The Technology: Evolving Quickly through Smart Capital
- The Technology: Customer Engagement
- New Digital Capabilities and Financial Performance

**Lead**
- Embrace, Revamp, Deploy: The Next Five Years
- Embrace, Revamp, Deploy: The Final Verdict

- Embrace, Revamp, Deploy: The Beginning
- CIO, TMT, and Digital Transformation

**CIO, TMT, and Digital Transformation**
April 2025, Alexis is the newly appointed Deputy CIO
Digital Transformation is a $150B opportunity for oil & gas

**EMBRACE**
- **Where?** To evolve quickly
- **Who?** Will be a part of the new era of innovation

**REVAMP**
- **What?** Tools will be used
- **How?** To measure financial performance

**DEPLOY**

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**Innovating Energy for an Inclusive Future**

**Sources:** CNBC, Tech and energy are teaming up, creating a market that could grow 500% in the next 5 years
Background: Oil & Gas in 2020

Current Oil & Gas landscape is challenged, but primed for digital transformation

Threats to both supply and demand require new approaches and leadership

Sources: Foreign Policy, World Economic Forum/Accenture analysis, Digital Transformation Initiative: Oil and Gas Industry
Negative perceptions pervade Oil & Gas

Gender and Ethnic Diversity combine for a 25% greater financial performance over industry medians

Meeting business needs with digital transformation

**SOGC can become the Oil and Gas Digirati**

**Sources:** MIT Center for Digital Business
Embrace, Revamp, Deploy: The Beginning

**Sources:** AMPE Consulting Group, March 2020 Report
Innovating Energy for an Inclusive Future
Foundational attributes for shared CIO/TMT vision

**CIO Relational Capital**

Trust between CIO and TMT in order to make effective IT investments

**Shared Language of Business**

Ability to speak in business terms not IT jargon – MBA/MSIS dual degree

**CIO Strategic Knowledge**

IT knowledge, strategic knowledge, and competitive knowledge

*Revamp the recruiting and retention pipeline in order to execute the shared vision of the Digirati*

Sources: MIS Quarterly Executive

Embrace  Revamp  Deploy  Lead
Innovating Energy for an Inclusive Future
Target Employee: MBA

Technology Focused  MBA/MSIS Double Major
Innovative  Leader

Human Capital – Internal HR Structure of SOGC

Create a committee that is diverse and representative of unique talent which will support digital transformation initiatives

Sources: Oakstone, LA Times
Human Capital – What worked for SOGC?

**Outreach & Awareness**
Raise awareness of technology transformation taking place within SOGC and how these internal developments will attract top diverse talent

**Average time cycle to hire**
To reduce hiring timelines and maintain the quality of diverse candidates within SOGC

**DIVERSITY PROGRAM CONSORTIUM**

*Sources: American Corbanone, Society of Human Resource Management*
Human Capital – Revamping the interview process

**SOGC VALUES**

- Be Passionate
- Be Bold
- Diversity & Inclusion
- Clean Energy Future

**Technical Presentation Skills**

**Sources:** Society of Human Resource Management
Human Capital – Diversity Leadership Rotational Pipeline

Sources: Oakstone, LA times, Payscale, Intel, U.S. Census Bureau, Square Space, Oil & Gas Consumer Insights 2020 Survey
EMBRACE
REVAMP
DEPLOY

CONSERVATIVE

DIGIRATI

O&G Toolkit

People

Leaders

CIO and TMT

Innovating Energy for an Inclusive Future
1TB + of daily O&G data, 99% of which sits unused

Use of cloud results in cost optimization of 40% and 10-20% reduction in labor costs

Sources: Beyond the Barrel: How Data and Analytics Will Become the New Currency in Oil and Gas
The Technology: Oil and Gas Toolkit

**AI/ML**
- Automation
- Data optimization and pattern recognition
- Skill and expertise retention

**IIOt**
- Improved tool & output monitoring and maintenance management
- Reduced Emissions

**Mobile Devices**
- Real time data access
- Virtualization implementation
- Improved health, life and safety monitoring

**Big Data/Analytics**
- Reduced CapEx spend with enhanced data leverage
- Cross functional skill building opportunities

Sources: World Economic Forum January 2017 white paper
The Technology: AI/ML

Automation, Data Optimization, Pattern Recognition & Skill Retention

Sources: WSJ, Oil and Gas Companies Turn To AI To Cut Costs Neanda Salvaterra
The Technology: IIoT

Upstream monitoring temperature, pressure, speed and vibration

Midstream monitoring temperature, pressure, heat content and flow rate

Downstream monitoring Carbon, heat content and temperature

Enhanced Output, Improved Maintenance & Reduced Emissions

Sources: AppsTek
The Technology: Mobile Devices

Durable field technology including virtualization hardware and wearables

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*Real Time Data Access, Reduced CapEx via Virtualization & Improved Health, Life and Safety*

Sources: Drager, Oil & Gas Mobile Technology
The Technology: Big Data

Data mined to analyze **volume, variety, velocity, veracity, value** and **complexity**

= 

**Reduced CapEx Spend & New Cross Functional Opportunities**

*Sources: Science Direct, Big Data Analytics in Oil & Gas Industry*
Evolving Quickly Through Smart Capital

Digital leadership through technology investments which enhance firm outputs and employee opportunities

Sources: AMPE Consulting Group, March 2020 Report
Innovating Energy for an Inclusive Future
SOGC needs to think “Beyond the Barrel”

Digital Customer Services

Omnichannel Retail and Experiential Services

Enable operations and customer capabilities to achieve the financial performance of a Digirati

Sources: World Economic Forum January 2017 white paper
Innovating Energy for an Inclusive Future
Innovative Energy investment must create long term Value

Revenue Generation from Physical Assets

Value Creation Imperatives

"A truly great business must have an enduring “moat” that protects excellent return on invested capital” Warren Buffet

Deploying Smart Capital improves Financial Performance

Internal Operations
- Reduce Cost
- Capital Efficiency

Customer Engagement
- Earning Growth
- Better Revenue Management

Digital technologies can help the oil & gas industry cut capital expenditure by 20% and improve global cash flows to the tune of $300 billion by 2025. McKinsey

Sources: AMPE Consulting Group, March 2020 Report
Enhanced Digital reporting tools- Kaizen costing

- IOT and Robotization: Advanced *predictive maintenance analytics* can reduce 70% of Pipeline leaks
- IIOT: reduce *unplanned downtime* and excessive maintenance cost

- Revamp the financial reporting tool for *dynamic analysis*
- *Embrace waste costing management* through Kaizen costing

Sources: CNBC, AMPE Consulting Group, March 2020 Report
Digital Capabilities drive up to 9% of Additional Revenue

**Customer Engagement**
- *Smart monetization models*
- Increase Revenue

**Increase ROIC**
- *New revenue streams*
- Additional Revenue from existing Client

**Increase Shareholder Value**
- *Improve ROIC Spread*
- Create Value

*Digirati deploy smart asset tools to enable instant collaboration between the Finance and Marketing*

**Sources:** Professor Rockney Walters, Marketing department, Kelley School of Business, AMPE Consulting Group, March 2020 Report
Innovating Energy for an Inclusive Future
Embrace, Revamp, Deploy: The Next Five Years

**Short-Term Wins**

**Technology Tools**
- Soft launch IoT upstream
- AI/ML pilot program expanded midstream
- First candidates from hiring revamp begin work

**People & Culture**
- Launch new CIO role
- Revamp Application Process for Fall
- Initiate shift to cloud
- AI/ML pilot program deployed upstream

**Long-Term Success**

**Linking Internal & External Digitization**
- Implement large scale rotational programming opportunities
- Expand customer engagement

**New Capabilities**
- Supply chain wide AI/ML and IoT roll out
- Mobile hardware investment and virtualization expansion

**Metrics & Measurements**
- Fully integrated process to evaluate firm performance and readjust

**Sources:** AMPE Consulting Group, March 2020 Report
Embrace, Revamp, Deploy: The Final Verdict

Innovating Energy for an Inclusive Future

Sources: AMPE Consulting Group, March 2020 Report
Welcome to your inclusive future
Appendix

- What is the current situation in oil and Gas?
- What opportunities exist in the Oil and Gas Supply Chain?
- What are the details of the Human Capital Plan?
- What is the tech toolkit deployment timeline?
- How can Data Analytics be expanded?
- What are the benefits of Industrial IoT in the industry?
- What is Artificial Intelligence at a high level?
- How is Virtualization used?
- What role does automation play?
- How to deploy Mobile Devices
- Why is Cloud Technology Important?
- What is the Embrace, Revamp, Deploy Framework?

- What are the expectations of Digirati Profitability?
- What are the SOGC Cost Savings Estimates?
- What are the Crude oil Production levels?
- How can we prioritize AI?
- How Tech and Energy are teaming up?
- How AI can help the oil industry?
- What is the Marketing Power of the industry?
- What Change Management Frameworks are most applicable?
- What are the transformation risks and mitigation tools?
- What is the SOGC SWOT Analysis?
- What is the Shared Vision of the CIO and TMT?
Innovating Energy for an Inclusive Future
Oil & Gas Current Situation

• March 6th: Oil Prices plunge to lowest in 5 years due to supply shock from Saudi Arabia and Russia: https://www.cnbc.com/2020/03/06/oil-sinks-5percent-to-multi-year-low-on-uncertain-opec-deal.html

• March 9th: Oil prices plunged further in sharpest single day decline since the Gulf War of 1991: https://www.businessinsider.com/oil-price-crash-market-drop-global-price-war-futures-coronavirus-2020-3

• March 30th: Oil prices plunged to lowest level in 18 years: https://www.bbc.com/news/business-52089127

• April 9th: It appears that a deal between Saudi Arabia and Russia is likely: https://www.wsj.com/articles/russia-and-saudis-have-agreed-in-principle-to-cut-output-11586445159

Appendix
Large Scale Infrastructure Optimization
- Decrease Annual CapEx Spend

Upstream
- Resource Transfer
- Remote Monitor Oil Levels

Midstream
- Enhanced Consumer Experience
- Improved Brand Familiarity

Downstream

Sources: Schedule Reader, Oil and Gas Industry Overview
Human Capital
Human Capital: Demographics gaps

- Hispanics and African Americans Under Index within the Oil and Gas industry compared to the National Average
- White Males Over Index within the Oil and Gas industry compared to the National Average

**Petroleum Fuels – Demographics, Q4 2018**

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Human Capital: Over a 100 survey responses

Negative Perceptions of Energy Sector

- Lacking innovation
- Destroying communities taking land for profit
- Resistant to change
- Close-knit homogenous community (i.e. the ‘good ole boys’ club)

What do Diverse Millennials/GenZ care about?

- Interest in technical roles
- Obtaining a role with a high starting salary
- Job security
- Create a sustainable energy sector

Appendix

Source: AMPE Consulting Group
Human Capital: Application and Interview Revamp

- Reduce the application to include resume and 250 exert on the need for digital transformation in the Oil & Gas Space
- Give the Candidates a chance to share their experience relates to company values (reinforce the culture re-building)
- Presentation based interview allowing candidates the opportunity to display their technical background
Human Capital: Diversity Consortium

- Who: Diversity Consortium
- What: 200 selected MBA & Mid career Technology focused Minorities
- Where: Houston, Texas
- When: Annually in July
- Why: Debunk Oil & Gas Perception, design thinking sessions on bringing innovation into the Oil and Gas Sector, Recruiting, and Brand Building

Appendix
Source: AMPE Consulting Group
Retention

Objective:
Increase and *embrace* representation of Millennial, Generation Z and diverse talent in SOGC’s 27k employee base.

Key Activities:
Diversity Leadership Rotational Pipeline
Building an Inclusive Culture, Recognition Awards, Transparency in Pay

Employee Resource Planning

Objective:
Create a committee that is diverse and representative of unique talent which will support digital transformation initiatives

Key Activities:
Create a committee that is diverse and representative of unique talent which will support digital transformation initiatives

Sources: Oakstone, LA times, Payscale, Intel, U.S. Census Bureau, Square Space, Oil & Gas Consumer Insights 2020 Survey
Human Capital

Metrics to track

Objective: To reduce hiring timelines and maintain the quality of diverse candidates within SOGC

Key Activities: Average cycle time to hire, Internal and External research

Outreach & Awareness

Objective: Raise awareness of technology transformation taking place within SOGC and how these internal developments will attract top diverse talent

Key Activities: Diversity Consortium, Organize Annual technology focused service projects with HBCU’s, Oil and Gas sponsored, Social Media Content Creation

Appendix

Sources: American Corbanone, Society of Human Resource Management
Conversion & Employee Selection

Objective: Enhance the recruiting pipeline by seeking vertical experts to support the hiring process by evaluating candidates.

Key Activities: Revamping Application, Presentation of Company Values, and Pride, Case Interview Presentation

Source: Society of Human Resource Management
Human Capital: Key Activities

Transparency in Pay
• Access to a breakdown of functional roles pay
• Access to Demographic based pay

Recognition Awards
• Provide an opportunity quarterly for employees to submit a write up on a project they believe they have went above and beyond for within the organization.

Diversity Rotational Program
• Pipeline to develop diverse talent
• Recruit from STEM certified programs that integrate technology into their learning
• Leadership opportunity working in multiple verticals

Assessing Internal Capabilities
• Identifying Internally where the gaps in performance and leadership are, and identify the talent and resource to revamp the department

Average Cycle time to hire
• Energy sector takes 28.8 days (2nd to last)
• Capturing top talent before they are poached
• Shortening the application will allow us to narrow focus

Internal & External Insights
• Continuing to evaluate the brand perceptions internally & externally of how Millennials & Gen Z perceive the Oil & Gas energy and track the evolution of the perception due to Diversity initiatives and digital transformation growth.

Source: Oakstone: Top 8 reasons to stay with a company, Glassdoor Survey

Appendix
Human Capital: Key Activities

Social Media Content
- Select a diverse set of employees
- Share their experiences in the digital transformation space
- Deploy the content on social media platforms to raise awareness around clean energy initiatives

HBUCU Annual Technology Focused Service Project
- Provide mentorship to minorities
- Close the cultural gap
- Discuss technology innovation within the Oil and Gas space

Appendix
Source: AMPE Consulting Group
Tech Deployment Timeline

Q3 2020
- Select cloud provider and begin cloud migration (expected to be completed by Q4 2021)
- Identify AI/ML out of the box solutions for upstream technology

2021
- Expand AI/ML pilot to midstream
- Soft launch of IIoT with sensors applied to upstream assets
- Retirement of on-site servers

2022
- Full roll out of AI/ML and IoT
- Mobile hardware deployment and virtualization roll out
- Expect to achieve cloud cost savings

2023
- Ongoing tech deployment
- Expect to begin realizing AI/ML cost savings
- Additional data analysis tools and training opportunities for staff

2024
- Anticipated to begin reaping the benefits of IoT and virtualization through increased processing

Appendix

Source: AMPE Consulting Group
Data Analytics

- Data is like crude. It’s valuable, but if unrefined, it cannot really be used.
- Focus of new analytics and big data is on data not being captured such as fleet management, acquisition and divestment data sets, leasing and well data.
- Data analytics can improve production by 6-8%
- Data is important because:
  - In real-time it is highly cost effective especially with visualization
  - Risk reduction and improved decision making
  - Improves accuracy in drilling methods and oil exploration
  - Ensures efficient performance of machines
- Some companies have 100+ employees working in data analytics
- Investment in big data is expected to increase from 56=61%
- The oil and gas industry produces terabytes of data every day 40, and the overarching challenge is less about how to gather more data, but rather how to maximize the efficiency of the data already collected as less than 1% of the data is ever analyzed. There has been a movement towards translating the huge volumes of data into ‘meaningful, intelligent information that can be leveraged to make important business decisions.

Appendix

https://www.oilandgaseng.com/articles/the-digital-fuels-the-oil-gas-industry-toward-profitable-transformation
https://towardsdatascience.com/here-is-how-big-data-is-changing-the-oil-industry-15572d36846
Industrial IoT (IIoT)

- Important for:
  - Optimizing efficient pumping activities
  - Maintaining the pipes and wells
  - Monitoring equipment failures and gas leaks
  - Monitoring pipe thickness, temperatures and erosion in a refinery

- Has been used in:
  - Offshore oil and gas rig monitoring
  - Refinery monitoring
  - Pipeline monitoring
  - Wellhead monitoring
  - Oil and gas shipping
  - Supply chain management

- IoT in oil and gas allows for swift automation and deployment of concurrent tools such as sensors which will trigger a maintenance truck. The peak of the s curve in IoT is asset optimization

- Currently, the energy industry ranks third in Industrial IoT leadership behind peers in the transport and maritime industries, implying there is an opportunity to leverage tools and techniques from other sectors to improve positioning. The oil and gas industrywide adoption rate is expected to increase the global GDP by as much as $816B over the next decade.

- Industrial IoT requires thousands of endpoints to be connected to a system. Once connected, companies can track and analyze processes on a granular level which can allow a company to make strides in predictive maintenance resulting in significant cost savings.

Appendix

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https://www.iiot-ibc.com/blog/iiot-oil-gas-use-cases
Artificial Intelligence/Machine Learning

- The mismatch between the number of AI projects and the number of data scientists led to a huge reskilling opportunity. Royal Dutch Shell has been training employees in other divisions in artificial intelligence through Udacity online courses which are even more practical during the Covid-19 time. Even with cuts to the company’s operating budget, the company plans to ensure the courses are available to all US employees. The programs range from Python to neural networks over the course of 4-6 months (10-15 hours per week). Key is to leverage the workers you already have rather than firing workers and hiring new ones - which is expensive, also increases employee satisfaction.

- Allows employees to spot maintenance needs in equipment before they break down, identify areas to reduce carbon emissions and quickly process seismic data.

- Oil & Gas AI/ML investment anticipated to reach $3B by 2022

- Some companies such as Exxon already have AI/ML as a significant portion of their R&D spend ($1B total annual R&D spend for Exxon) for things such as Deepwater oil detection, robotics, precision drilling, predictive maintenance,

- Uses are currently primarily in trading and FP&A functions, but has immense potential to dig through the data on valve positions, pump speed, pressure, temperature, etc.

- By using computer systems to perform tasks humans would normally perform, Artificial Intelligence is being used to reduce the likelihood of equipment failure, manage employees and increase overall oil outputs. Since the mass shift to convert data collected from the supply chain to digital platforms, there has been an immense opportunity to identify patterns and trends which can guide spending and operations.

- Exxon Mobil notes their database contains approximately 5 trillion data points collected from their 42 global refineries and chemical processing plants. Having a massive database makes it essential to leverage technological advances like AI to optimize working processes as it is impossible to rely on data analysts to weed through the data with traditional computer equipment. Artificial intelligence often goes hand in hand with machine learning (ML) tools such as algorithms, which help provide data scientists with insights and solutions such as ways to reduce emissions.

- BP Shell product “Hands” in which experts train algorithms to ensure capturing the expertise of retiring employees.

- Long term estimates of AI/ML in oil and gas suggest upwards of $1T in savings according to PWC

- 40% of respondents to an October 2019 survey said AI/ML deployment took more than 30 days to deploy vs. 28% where it was accomplished in 8-30 days and 14% in 7 days or less

- A recent Accenture study suggest AI/ML investments lead to 30% increases in revenue within 4 years.

New oil and gas tech startups offer out of the box AI/ML solutions which can be scaled easily and averages around $1K/user/year, estimated to cost $15M+ annually when 55% of staff have access.

Legacy resource providers offer enterprise (custom) AI/ML solutions which can be customized and are estimated to cost $7K/user/year, estimated to cost $100M+ annually when 55% of staff have access.

https://thenewstack.io/add-it-up-how-long-does-a-machine-learning-deployment-take/
http://www.applicationmanagement.com/articles/artificial-intelligence-companies-technological-costs-115710446

Appendix
Virtualization

• Virtualization turns a traditionally hardware bound process or instance which usually involves complex processes and large-scale infrastructure, into a virtual instance which can be observed and monitored on a simple platform such as a laptop or tablet. It is desktop emulation.

• Virtualization reduces data loss and theft and enable database continuity. Easily access tons of data which would be difficult to download. Challenges of maintaining hardware off-shore and in other precarious places can be mitigated and virtualization ensures everyone has access to the right data at the right time.

• Being mindful of the need to safeguard intellectual property, hosting apps and workstations via virtualization security protocols can preserve endpoint security.

• Estimated costs are $15K per server and each server can accommodate upwards of 80 virtual machines.

• Cost savings are achieved by reducing the amount of hardware which needs to be purchased and maintained, with estimates of annual savings.

Appendix
Automation

• Investment in automation is expected to increase from 53% to 65%
• Automation can help oil and gas in:
  • Daily drilling operations
  • Diagnostics and inspections
  • Weather monitoring
  • Pressure and flow

• The pattern recognition from the large amounts of data collected by the industry drives automation. In the upstream process, ensuring precision through the use of large datasets to pinpoint exact locations for drilling and methods of extraction can result in large savings. Additionally, automation allows for the opportunity to preserve and manage assets by reducing or optimizing downtime of rigs and other pieces of complex and expensive equipment.

Appendix
Mobile Devices

• Mobile devices can be used for inspections, compliance, maintenance and asset tracking. Can achieve savings of $5B annually if deployed correctly.

• Rugged and explosion proof laptops, tablets and mobile devices range from $300 - $3000 each

• Wearables range from a few hundred to $1K and reduce the burden of radio staff who can monitor health vitals remotely including gaining a better understanding of the impact of conditions on the body. This eliminates the need to spend $1K-$5K on radios

• As cellular technologies in the oil and gas industry have advanced aggressively to the point many companies own, provide, and manage cellular connectivity in the field (such as Houston based Infrastructure Networks), staying connected is no longer an issue, rather the main focus is the ability for companies to utilize the most optimal hardware for data collection and management.

Appendix
Cloud Technology

• Cloud technology is the building block of digital transformation as it allows seamless storage, easy access to the right parties and ongoing coordination across users and technology (AI/ML, IIoT, Mobile devices) which all log into the cloud.

• The Hess Corporation expects to optimize costs by roughly 40% by shifting to cloud services with anticipated labor savings of 10-20% through cloud management automation.
  • Cost optimization mans shifting expenses to other critical places such as shifting money which would be spent on on-site servers towards drilling equipment, talent recruitment, etc. This allows for more computing power, and faster ap.

• General speaking the primary cloud providers are Amazon Web Services and Microsoft Azure, but there are opportunities to leverage the Google Cloud, IBM, and other less popular platforms for discounts.

• Migration timeline takes on average 2-12 months and depending on the server costs $5K-$15K per server.

Appendix
Embrace, Revamp, Deploy Framework

**Embrace**
- CIO

**Revamp**
- Culture
- People

**Technology**

**New Capabilities**
- CIO/CMO

**Deploy**
- Internal Operations
- Customer Engagement
- Firm Performance

- The Chief Information Officer (CIO) in the Top Management Team (TMT) to best achieve Informational System (IS) strategic alignment
- Culture and People through Diversity and Inclusion initiatives
- Create an Oil and Gas toolkit
- Reframe technology around new capabilities
- Ensure a Market Orientation through the CMO
- Quantify and communicate financial performance with key metrics
Digirati Profitability and Market valuation

Companies with stronger transformation management intensity are more profitable

Basket of indicators:
- EBIT Margin
- Net Profit Margin

-11%  +26%
-24%  +9%

Companies with stronger transformation management intensity achieve higher market valuations

Basket of indicators:
- Tobin’s Q Ratio
- Price / Book Ratio

-12%  +12%
-7%   +7%

Appendix

Sources: MIT Center for Digital Business,
SOGC’s Digital transformation cost savings estimate

"Barclays estimates that greater efficiencies will save producers roughly $150 billion annually, which translates to shaving $3 per barrel from the production price of oil."

Potential SOGC Savings:

$3/ barrel * 2.5 M Avg Daily oil production * 365 D = $2.7B

Annual oil production 100.8Bbrls * $3*50%

~ = $150 B savings

Source: CNBC, Facset
U.S. crude oil production grew 11% in 2019, surpassing 12 million barrels per day

U.S. crude oil production (1940-2019)

Source: U.S. Energy Information Administration, Petroleum Supply Monthly
Oil and gas companies prioritizing AI and big data

Share of oil and gas companies focusing on various digital investments over the next 3-5 years, according to an Accenture survey

- Artificial Intel. / Machine Learning: 51%
- Big Data / Analytics: 50%
- Internet of Things: 43%
- Mobile/Wearable Tech: 38%
- Cybersecurity: 35%

SOURCE: Accenture. Sample size of companies is 255. Top five responses shown only.
How Tech and energy are teaming up?

“They [energy companies] are realizing that they’re not IT companies. They’re not software developers, but they are users of it,” IHS Markit director Carolyn Seto said to CNBC. “They are partnering with these [tech] companies to be able to gain access to these new technologies, as opposed to taking the development costs themselves of building out capabilities within their organization.”

“Tech companies can harness insights from applications refined and tested across sectors. It’s difficult — if not impossible — for individual companies to fully replicate what they offer. In other words, partnerships where applications and technologies are co-developed can be the only choice.”
How AI Can Help The Oil industry?

**UPSTREAM**
- Calgary-based Ambyint has developed intelligent High-Resolution Adaptive Controllers (HRACs) which integrate with the hardware and instrumentation, such as the motor, controller, variable frequency drive, and other moving parts of lift systems.
- MinePortal, developed by Seattle-based DataCloud, is a cloud-based platform for real-time management and analyzing of the geosciences data. The service integrates exploration drill data, block models, and control measures into a single platform, which can help make better faster drilling and blasting decisions to improve productivity.
- Silicon Valley data supplier Tachyus developed a platform that collects data from sensors and integrates it with data from seismic activity, drilling logs, cores, completion designs, production.

**Midstream**
- AKW Analytics uses machine learning and patent-pending technologies in its PALM (Petroleum Analytics Learning Machine) software product suite, which provides big data analytics for E&P and midstream pipeline gathering operations. AKW company has built a real-time intelligent system with forecasting and optimization capabilities for better decisions and operating performance.

**Downstream**
- Digital H2O is an American digital oilfield solutions company that uses a proprietary data model and predictive algorithms to develop software-based insights and solutions for the end-to-end management of water in oil and gas production. This is important, as oil refineries use a huge volume of water. Digital H2O’s service can manage water use more efficiently to reduce costs.
- Downstream refiners need to streamline their refinery and petroleum delivery operations to accelerate revenue growth. California-based Oracle Cloud helps downstream companies with its Oracle EPM Cloud, which can increase modeling speed and forecast financials through scenario analysis, lowering operation costs.

Appendix

Source: https://medium.com/syncedreview/how-ai-can-help-the-oil-industry-b853dda86be6
## Change Management Frameworks

### Workstream/Phase | Assessment/Planning | Design/Implementation | Measure/Sustain
--- | --- | --- | ---
**Change Management** | • Analyze stakeholders; ensure C-suite buy-in | • Engage early adopters with rewards and recognition | • Measure outcomes against dashboard
• Create dashboard to calculate ROI | • Celebrate small wins; showcase success stories | • Reinforce desired behaviors with rewards and senior leadership support
• Assess target readiness | • Design performance measures and rewards strategy to hold branch managers accountable for successful implementation

**Communications** | • Clarify business case for change | • Create multiple channels for communicating status AND soliciting feedback for ALL organizational levels (mid-management, floor-level employees, etc.) and ALL stakeholders (including suppliers and customers) | • Create JIT training to deliver training content
• Inventory and plan to leverage current communication practices, channels | • Establish knowledge center featuring two-way communications | • Design training for new system; deploy train-the-trainer program to build awareness and gather intel
• Identify strategies to accompany change phases of denial, resistance, exploration, commitment (create attention, interest, desire, action) | • Create regular pulse checks and other ways to solicit satisfaction levels/feedback | • Create IIT training to support ongoing use and to onboard new employees

**Training** | • Inventory offerings and current delivery methods—assess gaps | • Design training for new system; deploy train-the-trainer program to build awareness and gather intel | • Create IIT training to support ongoing use and to onboard new employees
• Assess skills and knowledge gaps for users | • Create multiple channels for delivering training content |  

### Appendix

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<th>Workstream/Phase</th>
<th>Assess</th>
<th>Implement</th>
<th>Measure/Sustain</th>
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| **People (Change, Communications, Training)** | • Get clarity on new strategy from initiative owners (SWOT analysis) | • Change adoption (Kotter’s 8-steps): Communications: 1) phased over time to take users from awareness to acceptance, 2) create two-way mechanisms and respond to feedback, 3) keep leaders engaged, 4) take organization’s pulse regularly | • Measure compliance
• Conduct stakeholder analysis (both C-suite for buy-in and to determine who is affected and to what degree) | • Reward and reinforce behavior from senior leadership
• Create multi-channel change strategy tailored to specific audiences (review organization’s history with change) | • Create marketing/ training on new process flows (assess gap for training, system, compare to best practices, and create new process), timeline, budget, resources; create project plan
• Inventory current communications to determine what to leverage; create strategic plan with resource needs |

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| • Inventory current learning portfolio (types of training offered/how delivered, e.g. classroom, e-Learning, other), compare with best practices and strategic vision to ID gap and suitable solution | • Inventory current learning portfolio (types of training offered/how delivered, e.g. classroom, e-Learning, other), compare with best practices and strategic vision to ID gap and suitable solution | • Model new business processes and get feedback from users (iterate)
• Determine scope (“big bang” vs pilot/phased process), timeline, budget, resources; create project plan | • Create marketing/ training on new processes for all-user types (administrators, users), conduct train-the-trainer sessions, and rollout to organization
• Map out key business processes affected by new system, compare to best practices, and create new process flows (assess gap for training, communications) | • Update training portfolio to sunset outdated training (cost savings); revamp existing training (convert to new delivery methods); develop new training content as needed
• Establish knowledge center featuring two-way communications | • Create dashboard for measuring success (decreased costs of delivery, improved productivity/compliance)
• Create regular pulse checks and other ways to solicit satisfaction levels/feedback | • Review L2Ps and/or L3Ds to identify gaps between current state and SDAs needed to support future strategic direction
• Create IIT training to deliver training content |

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| • Assess current HRIS system to determine whether/ how to integrate | • Model new business processes and get feedback from users (iterate) | • Create marketing materials
• ID user requirements (e.g. self-service, regulatory compliance) | • Populate LMS with updated portfolio; set enrollment targets; track and measure levels of improved performance
• Select LMS system | • Assess current HRIS system to determine whether/ how to integrate
• System config, integration, data migration, and interface development |

### Appendix

- Inventory current learning portfolio (types of training offered/how delivered, e.g. classroom, e-Learning, other), compare with best practices and strategic vision to ID gap and suitable solution
- Determine scope (“big bang” vs pilot/phased process), timeline, budget, resources; create project plan
- Map out key business processes affected by new system, compare to best practices, and create new process flows (assess gap for training, communications)
- Create dashboard for measuring success (decreased costs of delivery, improved productivity/compliance)
- Review L2Ps and/or L3Ds to identify gaps between current state and SDAs needed to support future strategic direction
- Create marketing materials
- Populate LMS with updated portfolio; set enrollment targets; track and measure levels of improved performance
- Create marketing materials
Marketing Power: Creating New Digital Capabilities

Marketing Department Power

- positively associated with
  - short-term future profitability (ROA)
  - long-term future shareholder value (TSR)
- ability to build and maintain brand equity and customer relationships

CMO

- superior perceived quality, customer loyalty, and customer satisfaction
- superior ability to “create and implement new ideas, products, and processes…”
- builds “sustainable customer relationships that span the trajectory of customers’ needs.”

Market Orientation

Enable internal operations and customer engagement to achieve the financial performance of a Digirati

Appendix
Source: AMPE Consulting Group
Risk

Fail to hire the right CIO & Lack of C-Suite buy in

Lack of culture change adoption by mid-level manager and low level employee

Fail to achieve cost savings & generate revenue lift

Mitigation

Evaluate CIO Candidate against cultural Change goals and reinforce C-Suite support against performance measures

Empower Mid-level manager by Designing performance measures and rewards strategy for accountability

Invest in Smart Capital that increase Spread and Create long term value

Source: AMPE Consulting Group

Appendix
## SWOT Analysis

### Strength: S
- Strong Balance Sheet
- Strong Market position in the industry
- Strong Brand

### Weakness - W
- Lack of firm wide IT integration plan
- Lack of C-suite engagement
- Risk averse culture

### Opportunities: O
- Cost savings $3 / Brl of oil produce
- Build an Inclusive and Creative culture
- Embrace digirati to capture 9% lift

### Threats: T
- Lack of Diversity
- Oil Supply and demand risk
- Negative perception – “Hire to retire”

### SO- Strategies
“Deploy smart assets that increase firm value”

### WO- Strategies
“Develop and firm wide innovative culture”

### ST- Strategies
“Partner with Technology company to build analytics to control oil production level and cost”

### WT- Strategies
“Increase SOGC gender and ethnicity ratio to country index rate”

**Source:** AMPE Consulting Group

**Appendix**
Embrace a CIO to achieve strategic alignment around digital transformation

- Shared Language of Business
- Shared Common Interest
- Visioning Network Hierarchy
- CIO Strategic Knowledge
- CIO Educational Leadership
- CIO Relational Capital

Appendix

Sources: MIS Quarterly Executive

AMPE