



DIGITALIZATION OF SOGC

WELL-OILED MACHINE | KELLOGG SCHOOL OF MANAGEMENT – NORTHWESTERN UNIVERSITY
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Agenda

- 1 Executive Summary & Problem Overview
- 2 Industry Overview – Oil and Gas Digitalization
- 3 Areas of Focus for Digitalization Success
- 4 Financial Performance
- 5 Risk Mitigation
- 6 Recap

Executive Summary

The purpose of this presentation is to advise Super Oil & Gas (SOGC) on the best steps towards the digitalization of their business in order to become a digital leader within the oil and gas industry.

The Problem

- ❖ How can digitalization improve financial performance, inspire a creative culture, and increase the hiring and retention of underrepresented minorities?


The Solution

- ❖ Creation of a planning and strategy development team
- ❖ Digital transformations in daily operations
- ❖ Well-planned hiring and retention plan for employees across all levels


Keys to Success

- ❖ Commit to 100% digitalization
- ❖ Full audit of current practices
- ❖ Hiring of Chief Digital Officer
- ❖ Revamp hiring and retention initiatives to improve inclusion of underrepresented minorities

Problem Overview



How can artificial intelligence and automation improve financial performance?



How can digitalization drive a corporation's culture around innovation, creativity and inclusiveness?



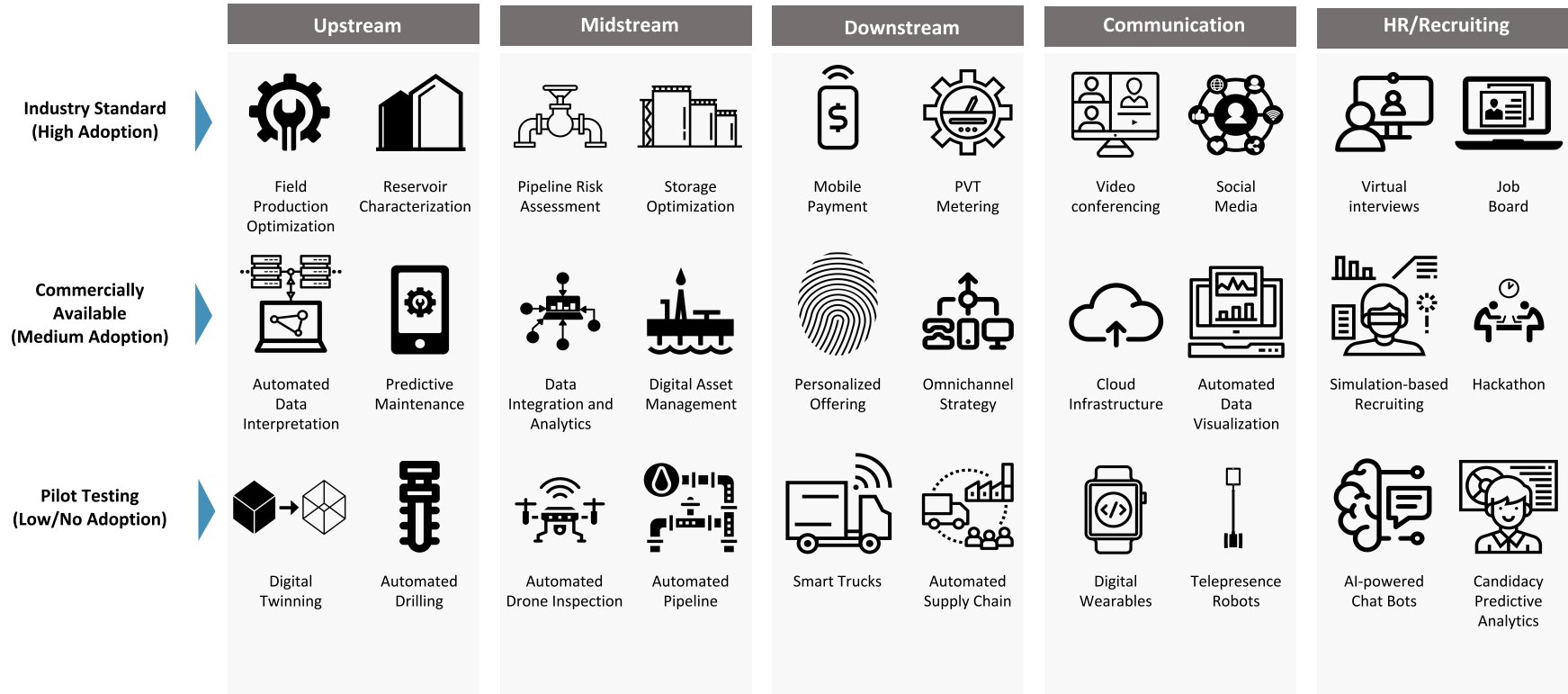
How can SOGC improve the hiring and retention of underrepresented groups in support of the digital strategy?



Industry Overview – Digitalization Within Oil and Gas



Digitalization can be implemented throughout the oil and gas value chain



Digitalization can mitigate or resolve the oil and gas industry's three major pain points

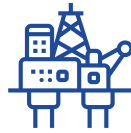


Knowledge Dissipation

25% of oil and gas workforce are **over 55 years old** and will **voluntarily or involuntarily separate** from the industry soon leading to **massive knowledge loss**

End-to-end data digitization, including **dynamic data storage**, **automated AI data analysis** and **real-time visualization** will help preserve this knowledge and improve decision making.

AI-driven seismic interpretation will **reduce the human and knowledge dependency** in seismic interpretation and yield **more accurate seismic interpretations at a faster pace**.



Revenue Loss

\$20B **annualized lost revenue** because of issues, such as poor pump pressure and equipment choking, associated with **aging legacy assets**

Addition of sensors to legacy assets and implementing **predictive maintenance** using data from the sensors is required. AI will learn from the data to **automate maintenance schedule**, **provide recommendations** and **allocate maintenance resources**.

Digital twinning of legacy assets allows maintenance personnel to **virtually plan and simulate modifications**, which will **reduce downtime** and allow for more **frequent maintenance**.



Declining Prices

70% **decline in oil prices** over the last 10 years led to a **reduction in profitability**, making projects **unsustainable**

AI-driven well capacity estimation will use predictive modeling to analyze geology properties, such as thickness, thermal maturity, or gamma ray levels, to determine which **parameters really affect well outputs** and **base estimations upon those parameters**.

AI-driven automated shutoff implementation will allow legacy assets to be **shut off automatically** when there is an issue that could damage the asset.



Areas of Focus for a Successful Digitalization



By focusing on these three key initiatives, SOGC can emerge as a digital leader in the oil and gas industry



Creation of a digital
**strategy and
development team**



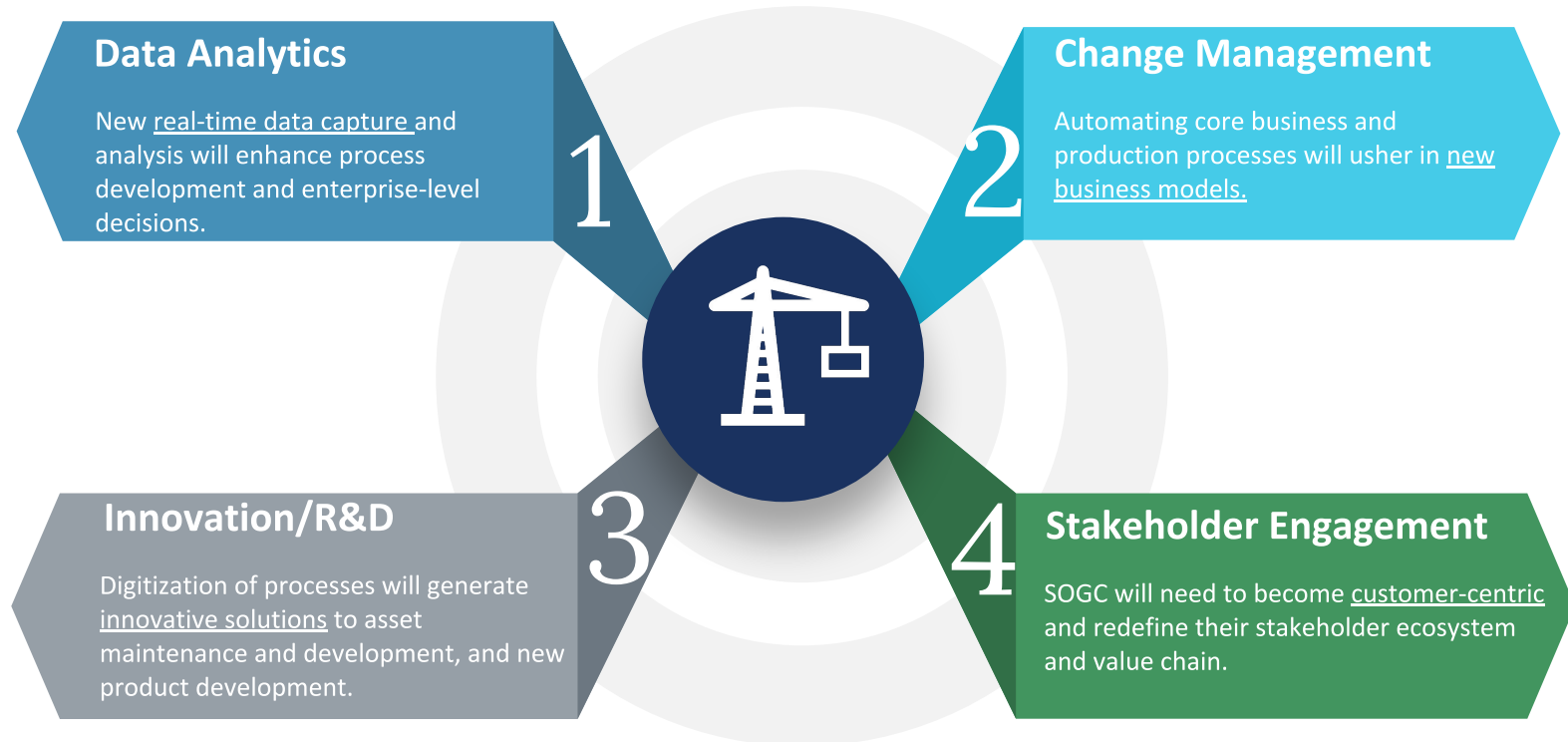
**Technical and digital
transformation** of daily
operations



Developing a **hiring
and retention plan** for
employees across all
levels

*Ultimately, a **100% commitment** to digitization is critical to SOGC's success.*

The digital strategy and development team will focus on the impact of new digital practices on the firm's operations



A comprehensive digital transformation plan for SOGC will focus on three digital adaptations

1

Sensor Addition

Addition of sensors on all applicable assets for monitoring and automation

2

Digital Twinning

Create digital versions of every asset that can be used for simulations

3

Data Digitization

Digital data collection, AI-driven analysis and data visualization

To change the culture, SOGC must revamp their hiring and retention strategy



LEADERSHIP

Buy-in across the org, including CEO

Hire a Chief Digital Officer (CDO) who defines hiring needs

CDO & CHRO audit current practices



EXPERIENCED

Sr. Engineers, Tech. Managers, Directors or Executives

Generous employee referral bonuses

“Outsource” hiring to agencies



EDUCATION

Expand outside of traditional O&G degrees

New partnerships with institutions & professional programs

Revamped interview process aligned with digital needs



DIVERSITY

Partner with HBCUs and provide free education & training on O&G

Partner with minority professional programs

Diverse HR team and diverse senior leaders



TRAINING

Upskill training for all employees on digital

Revamped promotion/review process based on technical expertise

Sponsorship and mentorship program

Identify Leadership and Define Baseline Needs

Hire a CDO

3-6 Months. Experience in large-scale transformations



Define Hiring Needs

Ongoing. Define roles, skills needed, future hiring pipeline



Develop Training

24 Months. Develop and hire training teams/managers



HR Audit

12 Months. Best practices, what's missing, etc.



Outsource Training

24 Months. Allows HR time to build in-house training



University and Diversity Partnerships

University Relations

12 Months. New universities and new degrees. Internship program



HBCU Partnerships

12 Months. Early access through training and exposure to O&G



Develop Onboarding

6 Months. Essential introduction to company culture



Revamp Interviews

6 Months. Evaluate mental agility, innovation, tech exp.



Referral Programs

3 Months. Focus on senior managers and executives



2

Build Culture and Continue Minority Recruiting

Professional Programs

6 Months. Underrepresented Minorities, long-term partnerships

URM Internships

3 Months. Robust internship program, rotational and visible

In-House Training

6 Months. Fully in-house, constantly up with tech trends



Transform Workplace

18 Months. Appealing culture, defined career progression

Learning Culture

Ongoing. Lunch & Learns and encouraged KT

3

Retain Talent and Build Culture

Revamp Reviews

6 Months. 360 feedback, frequent quarterly reviews



Revamp Promotions

6 Months. Based on technical merit, open & transparent



Continuous Training

12 Months. Develop “refresher” courses



Transform Workplace

18 Months. Employee Resource Groups, conferences, workshops



Innovative Culture

Ongoing. Hackathons and innovation competitions



4

Retention, Refinement, and Succession

Internal Promotions

12 Months. Reinforces career progression in SOGC



Sponsorship & Mentorship

12 Months. High potential individuals with senior mentors & sponsors



Internal Database

6 Months. Shared resource of lessons learned in digital



Community Outreach

Ongoing. Volunteering with local minority communities



Data & Metrics

12 Months. Retention and hiring data to fuel next steps



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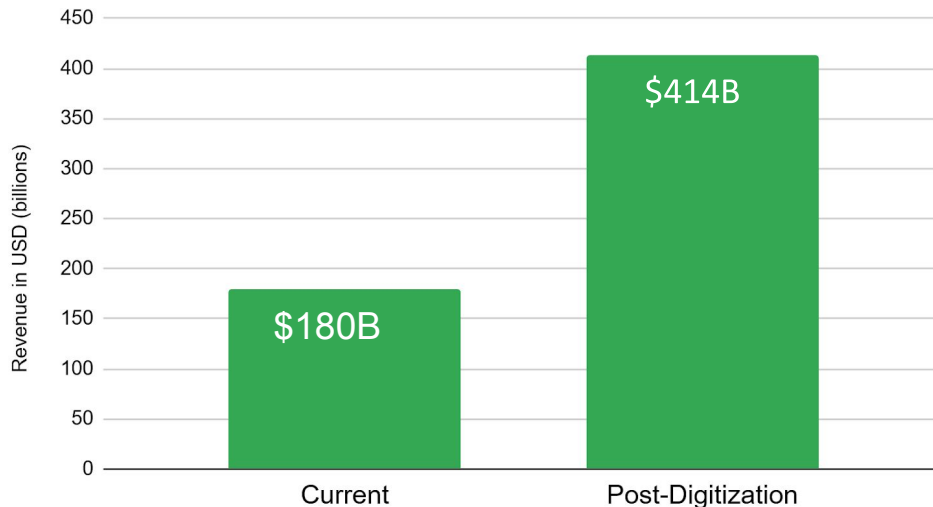
Financial Performance



Big digital investments will lead to high return on investment and profit growth for SOGC

IBM's research on top earning oil & gas companies found that firms who committed to a full digital investment, enjoyed a **130% increase in revenues**.

Projected Revenue Growth for SOGC



Despite an estimated \$220M-\$260M per asset cost for the digital transformation of assets, the impact to operations reduces expenses by:

- slowing asset depreciation timelines
- minimizing costs on unsuccessful oil field exploration projects
- planning asset maintenance downtimes to reduce long-term maintenance costs



Risk Mitigation



SOGC has to address these potential challenges for digitalization to be successful



Operational Disruption

- Current operational processes must change and/or halt until digitalization is complete
- This is especially problematic for brownfield assets
- Proper internal communication, segmented implementation, operational prioritization and using digital tools can reduce the downtime



Cybersecurity Risks

- Digitalization poses significant cyber security risks that can result in leakage, sabotage and data manipulation
- These risks can lead to major economic losses and jeopardize lives and assets
- A robust cyber strategy must be included in the overall digitalization plan



Digital Skill Gap

- Current oil and gas workforce lacks the skill to support fully digitalized operational processes
- Digitized operational processes require data scientist and analysts, and machine learning experts
- Changing recruitment strategies and recruiting creativity can help fill this knowledge gap



Internal Resistance/Lack of Commitment

- Lack of commitment is the major cause of most digitalization failures
- There must be complete alignment, both strategic and organizational for digitization efforts to be successful
- Digital readiness of the internal customers needs to be considered by senior management



Recap



SOGC's commitment to full digital reinvention will require a shift in strategic focus to achieve industry leadership



- ☐ Commit to 100% digitalization
- ☐ Full audit of current practices
- ☐ Hiring of Chief Digital Officer
- ☐ Revamp hiring and retention initiatives to improve inclusion of underrepresented minorities



Thank You

