

The Importance of Data Governance in Oil & Gas

Presentation by **Dean Lancaster**
April 30, 2025



Agenda

1. Why Data Governance Matters
2. Current Data Regulations: Alberta and Canada
3. International Data Regulations & Cross Border Concerns
4. Political & Legal Implications: Ownership, Residency and Sovereignty
5. Industry Case Studies: Lessons Learned
6. Recommendations
7. Questions and Answers

Why Data Governance Matters

01

Data as a Strategic Asset

Oil & gas operations generate vast data (geological, production, IoT sensors, ESG metrics). **Treating data as an asset is now as vital as managing physical assets.**

02

Decisions & Efficiency

Reliable, well-governed data **enables better decisions** – from optimizing drilling to predictive maintenance. **Poor data quality or silos can cost millions in delays, rework, or mistakes.** (*E.g., one oil company **improved profit margins by 12–15%** after integrating high-value data sources across the business*)

03

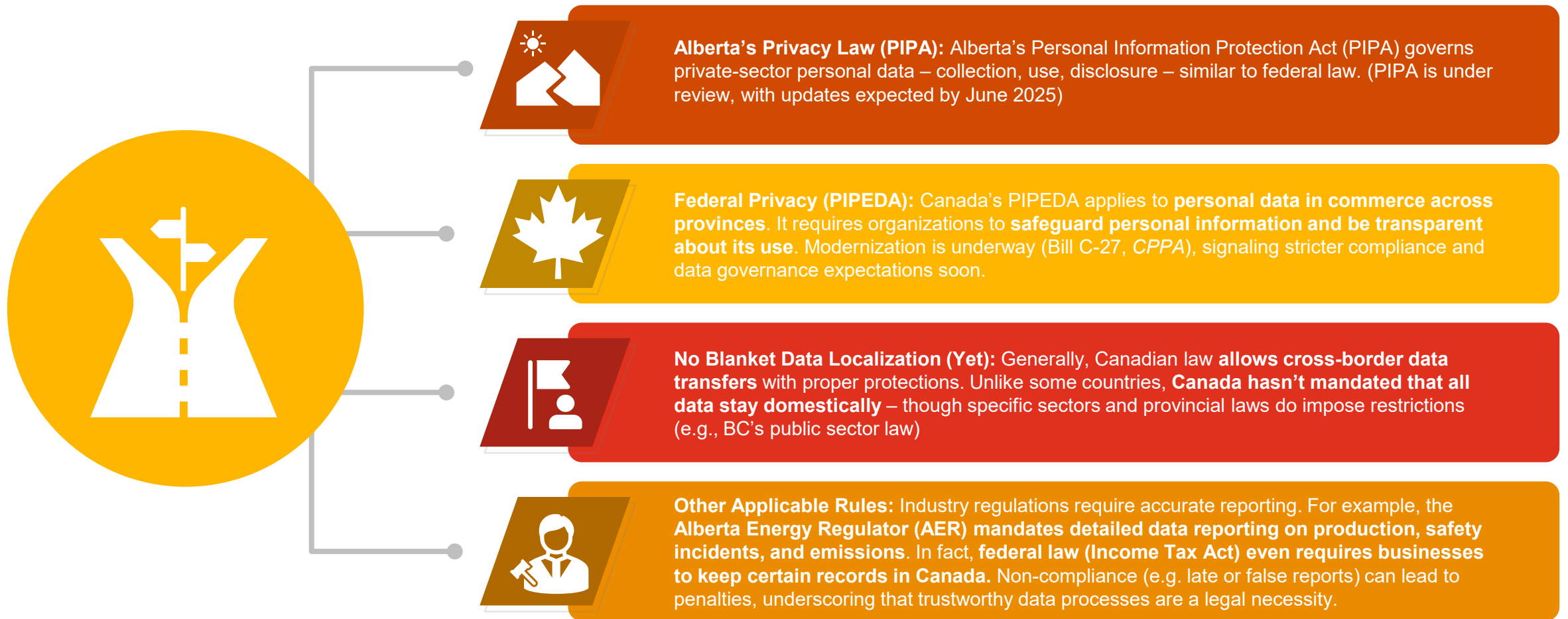
Risk & Compliance

Weak data governance heightens risk – from safety incidents due to misinterpreted data, to regulatory fines for inaccuracies or breaches.

Realization: Data governance isn't just IT's job; it's a **business imperative** for resiliency and competitiveness.



Current Data Regulations: Alberta and Canada



International Data Regulations & Cross-Border Concerns



United States Texas/Alberta Corridor

The U.S. **lacks a single federal privacy law**, relying on sectoral and state laws. Texas, for instance, passed a new Data Privacy and Security Act (joining ~10 other states with comprehensive privacy statutes) Oil & gas firms operating along the corridor must **navigate both Canadian and varying U.S. state requirements**.



Trump Administration Impact

With President Trump's return to office, U.S. policy may tilt toward deregulation and "America-first" data policies. We might see looser federal oversight on data privacy and environmental reporting (recall the 2020 rollback of methane reporting rules for oil & gas). This shift could create **regulatory divergence** – e.g., Canada tightening privacy and ESG data rules while the U.S. eases them – putting companies in the corridor in a tricky compliance balancing act. **Staying agile and informed on policy changes is part of good data governance.**



Data Residency & Sovereignty

Cross-border data storage raises questions: If seismic data or personnel records are stored on a Houston server, which laws apply? U.S. laws like **the CLOUD Act can compel U.S.-based cloud providers to hand over data even if it resides in Canada**, potentially clashing with Canadian privacy expectations. Companies are mitigating this by contractual safeguards and choosing data centers strategically (e.g., keeping critical datasets in-country or with providers who offer Canadian cloud regions).



The USMCA and it's Impact on Data Flow

The US–Canada–Mexico Agreement (USMCA) encourages free data flow across borders, limiting data-localization mandates. This is beneficial for integrated operations across Alberta–Texas, but it also means companies can't rely on localization alone for compliance – **they must ensure governance and security travel with the data.**

Political & Legal Implications: Ownership, Residency and Sovereignty



Data Ownership

- Companies typically own operational data (seismic surveys, production metrics), but governments require reporting or disclosure of certain data.
- Tension arises between corporate IP protection and regulatory transparency demands.



Data Residency & Jurisdiction

- The location of stored data determines legal jurisdiction.
- Data stored in the U.S. can be accessed by U.S. authorities, raising privacy and compliance concerns for Canadian businesses.
- Canadian jurisdictions (e.g., BC, Nova Scotia) increasingly mandate in-country storage for sensitive data.



Data Sovereignty

- Increasing emphasis on national or provincial control of critical resource data.
- Alberta's recent pushback on federal data collection highlights sovereignty issues, emphasizing provincial rights over resource data.



Cross-Border Politics

- Regulatory differences between Canada (stricter privacy/ESG rules) and the U.S. (potentially looser under Trump) create compliance complexity.
- Businesses must proactively manage these differences to avoid operational disruptions and maintain compliance.

Key Takeaway: Clearly defining data residency policies and staying agile with political changes is critical to minimizing risks and maintaining operational continuity.

Industry Case Studies: Lessons Learned



Success!

Laredo Petroleum (US)

Mid-size oil producer Laredo revamped its data architecture by migrating to a governed cloud data platform. The result: **\$100k saved** by eliminating legacy servers and a net gain of ~\$60k/month in efficiency and cost savings. With better data accessibility, Laredo's teams sped up reporting and identified new optimization opportunities. **Takeaway: Investment in modern data governance (cloud + clear data cataloging) can yield quick financial wins.**



Success!

Integrated Operations via OSDU

Several majors (Shell, Chevron, Equinor) adopted the Open Subsurface Data Universe (OSDU) – a common data platform standard for subsurface and production data. By standardizing data formats and governance across the enterprise, they reduced data duplication and uncertainty. Shell reported faster setup of new analytics projects and easier data sharing among global teams. **Takeaway: Industry collaboration on data governance standards can drive innovation and efficiency sector-wide.**

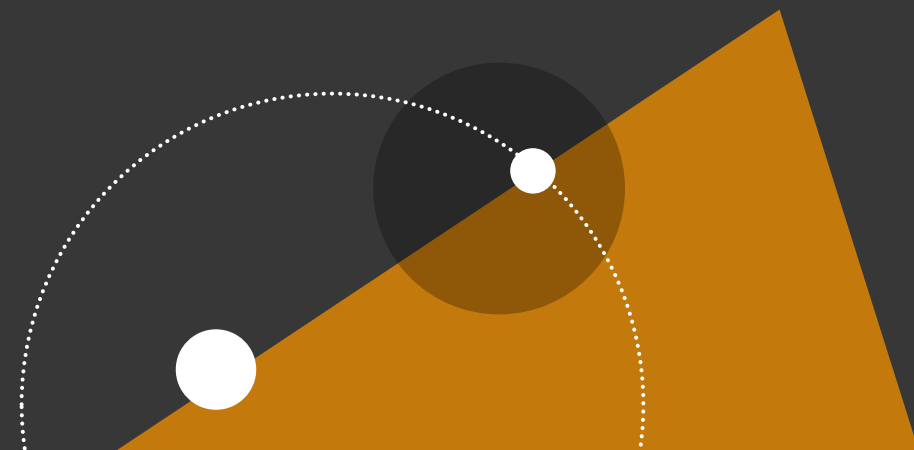


Failure!

BP's Deepwater Horizon

The infamous Macondo blowout had many causes, including **data governance lapses**. Investigations found that critical test data was misinterpreted or not shared effectively. In the final hours, anomalous pressure readings were overlooked – a catastrophic communication failure. **Lesson: All the sensor data in the world is useless if governance and culture don't ensure the right data gets to the right people at the right time. In safety-critical operations, clear data procedures and training are as important as the data itself.**

Recommendations





1

Implement a Clear Data Governance Framework

- Define roles (Data Stewards, Data Owners), standards, and policies.
- Gain strong **executive sponsorship** to ensure company-wide alignment.



2

Prioritize Compliance & Regulatory Awareness

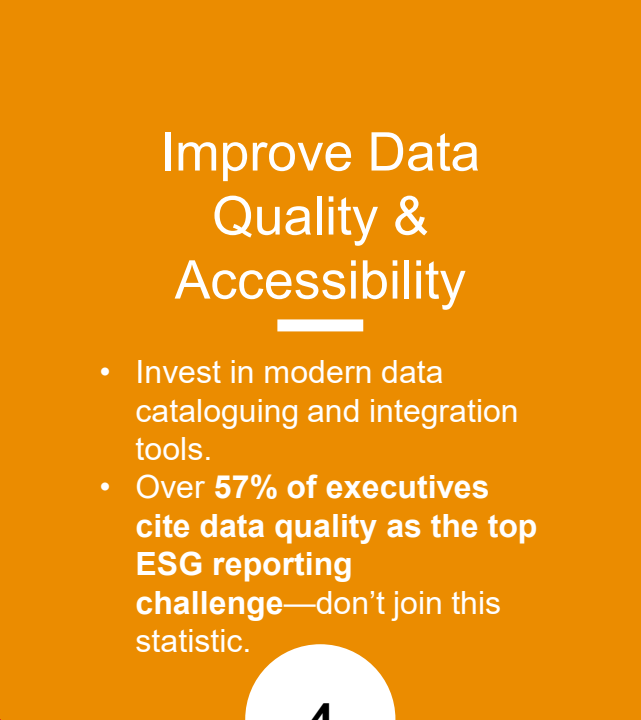
- Regularly audit data practices against Alberta, Canadian, and applicable U.S. regulations.
- Proactively monitor changes (e.g., Bill C-27 in Canada, Texas privacy laws).



3

Develop a Data Residency Strategy

- Clearly define where critical data resides.
- Use Canadian hosting or hybrid cloud solutions to maintain data sovereignty.
- Implement contractual protections if using U.S.-based providers.



4

Improve Data Quality & Accessibility

- Invest in modern data cataloguing and integration tools.
- Over **57% of executives cite data quality as the top ESG reporting challenge**—don't join this statistic.





5

Leverage Industry Standards & Collaboration

- Adopt standards like **OSDU** for subsurface data.
- Participate in industry forums (e.g., CRIN, PPDM) for shared best practices.

Build a Data-Driven Culture

- Make data quality everyone's responsibility.
- Integrate data governance training and KPIs into performance management.

6



7

Turn Data Governance into Measurable Value

- Set clear, measurable governance goals (e.g., reduce data reconciliation time by 50%).
- Highlight and communicate successes to reinforce value and encourage ongoing commitment.

Call to Action

Commit today to assessing and enhancing your data governance maturity. Companies that prioritize strong data governance now will see tangible operational and competitive benefits tomorrow.

Thank you



Dean Lancaster

dean.lancaster@pwc.com

(416) 454 0150

Suite 3100, Suncor Center, Calgary AB

pwc.com/ca

© 2025 PricewaterhouseCoopers LLP, an Ontario limited liability partnership. All rights reserved.

PwC refers to the Canadian firm, and may sometimes refer to the PwC network. Each member firm is a separate legal entity. Please see www.pwc.com/structure for further details.

This content is for general information purposes only, and should not be used as a substitute for consultation with professional advisers.