

Data security and technological innovation for the energy transition

Professor Niloufer Selvadurai
Macquarie Law School



THE ENERGY TRANSITION

- The ‘energy transition’ involves adopting new technologies and changing legacy practices to advance the delivery of **secure, reliable, and sustainable** sources of energy



Overarching aim – to provide technology law insights to shape energy law and policy

Specific aims to –

- consider the ways in which new and emerging technologies are transforming the energy sector;
- analyse the potential effects of such technological changes on the continuing effectiveness of laws in these areas

Will focus on the oil and gas sector



THE EFFECT OF EMERGING AND EVOLVING TECHNOLOGIES

- **Commercial and logistical efficiencies of emerging technologies – AI, blockchain and IoT**
- Historically - *‘One rock, two geologists and three opinions’*
- Oil and Gas 4.0



AI-ENABLED PROCESSES IN OIL AND GAS

- **How AI technologies are revolutionising oil and gas exploration and processing**
- **Legal implications and risks**



AI-ENABLED PROCESSES IN OIL AND GAS ...

Australian Ethical Framework – 8 Principles

- Supportive of ‘human, social and environmental well-being’
- Adopt human-centred values
- Uphold fairness
- Protect privacy and security
- Be reliable and safe
- Be transparent and explainable
- Be contestable and accountable

OECD Recommendations on AI – 5 Principles

- Useful definitions and concepts

Continuing global law reform discourse

BLOCKCHAIN ENABLED PROCESSES OIL AND GAS

Blockchain based processes are revolutionising the oil and gas sector

- Exploration phase
- Development and production phase
- Transportation phase

Smart contracts

- Use in oil and gas sector
- Limitations and areas of legal uncertainty challenges



BLOCKCHAIN AND REGULATORY COMPLIANCE

- **Blockchain based processes are being used to support compliance**
- **Areas of legal risk and uncertainty**



CONNECTION TO THE INTERNET OF THINGS

- **The IoT is being used to support secure and efficient supply chains**
- **Risks - Cyber security threats, privacy issues and human trafficking concerns**
- **Applicable regulatory frameworks – Australian Signals Directorate**



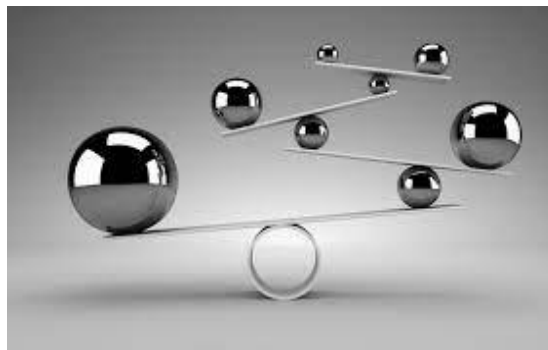
DATA PRIVACY CONSIDERATIONS

- The relevance of the Australian *Privacy Act* 1988
- The operation of the Australian *Privacy Principles*
- International considerations wrt cross-border data flows



CONCLUDING THOUGHTS

- Rapid increases in the scale and efficiency of oil and gas development is largely due to the sector's early adoption of new technologies
- But – need to identify risks of adopting such technologies and ensure systems and safeguards are in place
- Need to calibrate economic efficiency with social considerations of equity, transparency, accountability and cyber security
- This is made difficult by lack of clear laws in many of these areas – but this is always the price of being an early adopter!



SOME RELEVANT PUBLICATIONS

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- “Emerging technologies in oil and gas development: regulatory and policy perspectives,” with T Soliman Hunter and M Taylor in T Soliman Hunter and M Taylor, *Research Handbook of Oil and Gas Law*, Edward Elgar, 2023.
 - “Governing the interface between natural and formal language in smart contracts,” (2022) 27(2) *UCLA Journal of Law and Technology* 79-118, with Joshua Fairfield, Washington & Lee University, Virginia, UCLA Press, USA. Subject of UCLA JOLT Prize, 2021.
 - “A hard fork in the road: Designing a regulatory framework for public blockchain platforms,” (2022) 30(4) *Information and Communications Technology Law*, forthcoming 2021, with Steve Penzo. Taylor & Francis, UK.
 - “A statutory right of explanation for decisions generated using artificial intelligence,” (2020) 28(3) *International Journal of Law and Information Technology* 193, co-authored with Joshua Gacutan. Oxford University Press.
 - “Not just a face in the crowd: Addressing the intrusive potential of the online application of AI based face recognition technologies,” (2015) 23(3) *International Journal of Law and Information Technology* 187-218. Oxford University Press.

DISCUSSION

