

Innovations in Blockchain

PESA Supply Chain Conference

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Eventually **everything connects** - people, ideas, objects. The quality of the connections is the key to quality per se.

Charles Eames, American Designer, 1907-1978



Digital transformation

It **IS NOT** about just digitizing the current process, or adding new technologies on top of legacy systems/processes.









It **IS** about transforming **how we work**, across **processes**, **people**, and **technologies**.



Oil & Gas Adopting Blockchain in Partnerships and Investments

CHANGING How We Work





Consortium comprising energy companies and tech vendors, predominantly in Europe and Asia Pacific, including Shell, Total and Equinor



First O&G blockchain consortium in the U.S. with ten operator members advancing four initial use cases in upstream activities



VAKT reaches one year in production and grows membership to 12 major traders; expanding commodity and geographic scope





BP, Mercuria and Shell developing new JV venture, potentially leveraging VAKT for natural gas post-trade activity in North America



Blockchain: Building a Network for Transformation



U.S. Oil & Gas Blockchain Consortium

1Q18

First Oil & Gas Operator-led Blockchain Forum Consortium meeting agreements signed

4Q18

Established Consortium structure and projects

1Q19

By YE19 First pilot(s) in execution

Complete pilots and explore other use cases

By YE20

2021+

Influence industry blockchain standards setting

REP Lead

OPERATOR MEMBERS

- Chevron
- ConocoPhillips
- Equinor
- ExxonMobil
- Hess
- Marathon
- Noble Energy
- **Pioneer**
- Repsol
- Shell

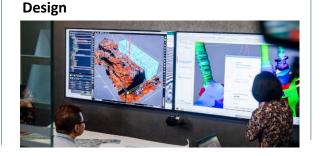
ADVANCING 4 PILOT PROJECTS TO SOLVE COMMON PAIN POINTS

Truck Ticketing Pilot



EQN Lead





Seismic Entitlement

JIB Exchange **COP Lead Consolidated with AFE Balloting**





Case for Blockchain - Characteristics of a Good Process for Blockchain





More than one participant



Transaction dependency



Opportunity for disintermediation









TWO HEADS (OR MORE)
ARE BETTER THAN ONE



DERISKING TECHNOLOGY **EVALUATION**





Truck Ticketing Pilot

In overall US onshore operations

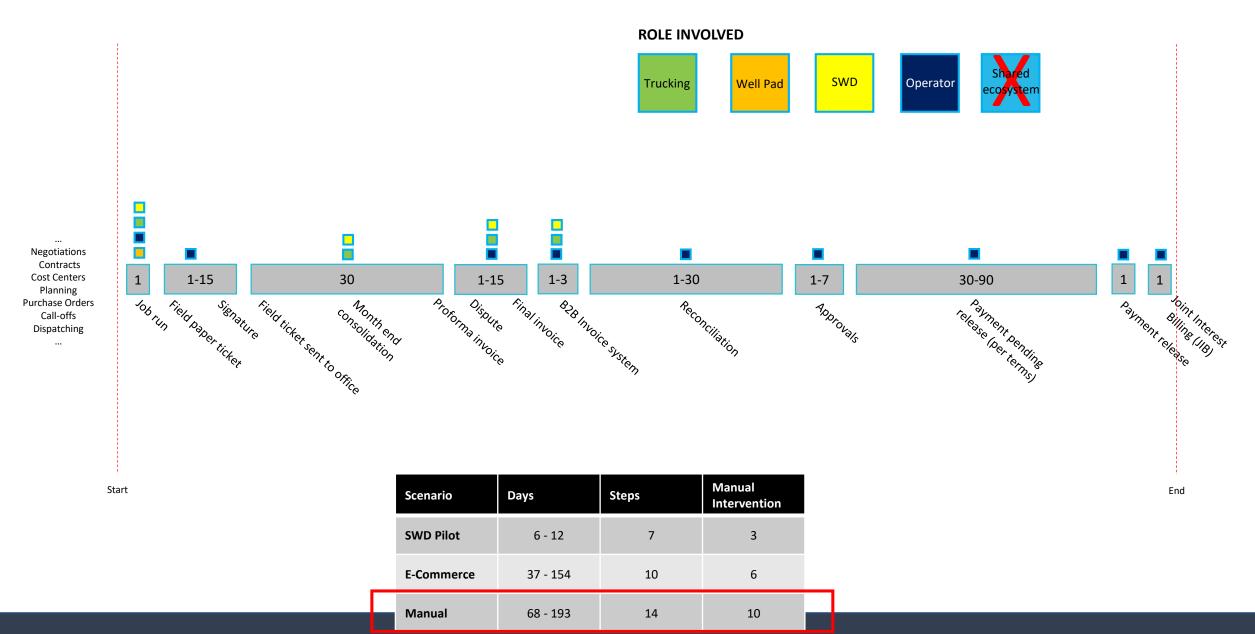
About 20 billion barrels of water produced each year.

90:10 Split between salt water disposal by pipeline and trucking.

This produces over **100M** SWD trucking field tickets each year.



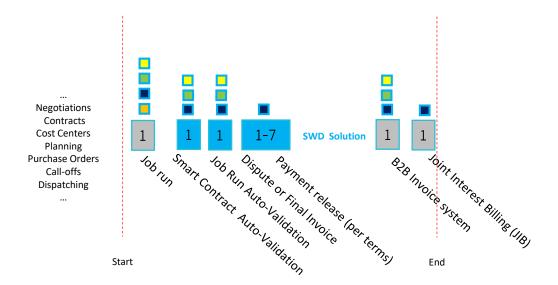
CCC Truck Ticketing Pilot -Transforming the SWD payment cycle





Truck Ticketing Pilot -Transforming the SWD payment cycle

Ambition



ROLE INVOLVED









Shared ecosystem

Equinor expects to realize over **25%** operational cost savings, and significant time savings with salt water alone...

and suppliers can expect to (finally) be paid on time, while also realizing their own cost and time savings*.

	Scenario	Days	Steps	Manual Intervention	
	SWD Pilot	6 - 12	7	3	
	E-Commerce	37 - 154	10	6	
	Manual	68 - 193	14	10	

* Based on full scale implementation.



Truck Ticketing Pilot – Lessons learned



Timing is key.



Strong stakeholder management.



Ways of working...



Integrated view of Systems, data and processes



Truck Ticketing Pilot





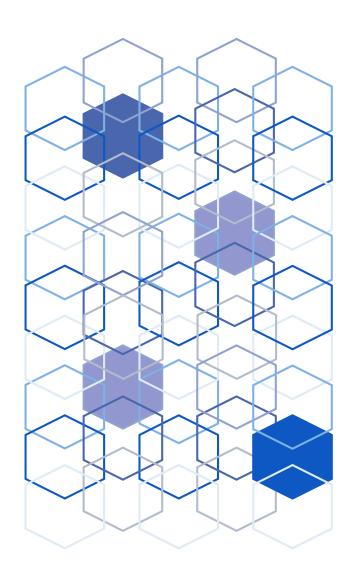


It is about more than just truck ticketing.

This is paving the way for automated **vendor validation**

of any deliver of **goods** or **services**.

Questions



"Learn how to see. Realize that **everything connects to everything else**."

Leonardo Da Vinci, Italian Polymath, 1452-1519