



Digital Innovation to gain efficiency in production process A Robust Method for Data-Driven Gas-Lift Optimization using Edge computing

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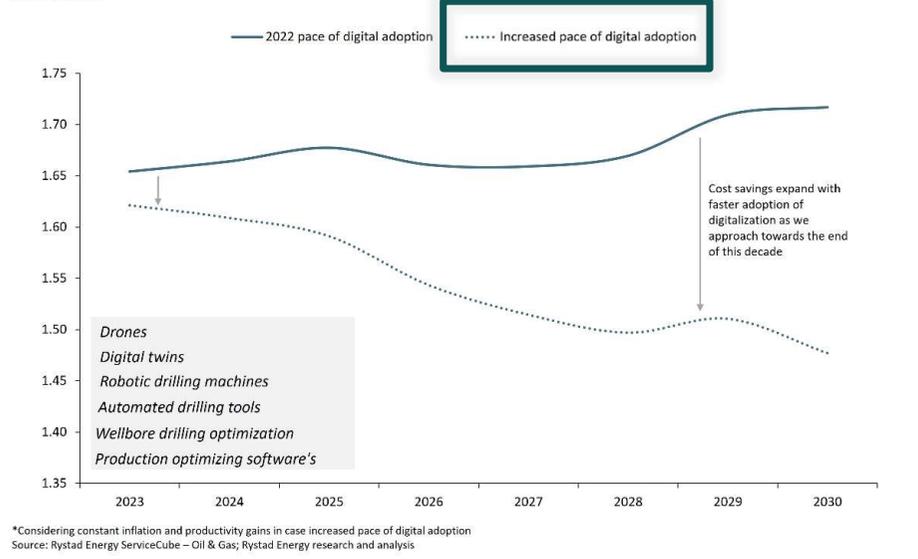
Society of Petroleum Engineers

Introduction

Digitalization

U\$1116 B Pre -spending till 2030
 **U\$130 B** Post spending after 2030
OPEX and CAPEX savings/Year

Figure 1: Oil and gas industry spending per year with an increased pace of digitalization
 USD trillion



Gas lift market



~2 Million Wells
~1 Million Artificial lift Wells
~10% Gas Lifted wells

U\$1.8 B 2023  **U\$3.8 B** 2032
 CAGR 7.6%



Smart sensors



AI/ML

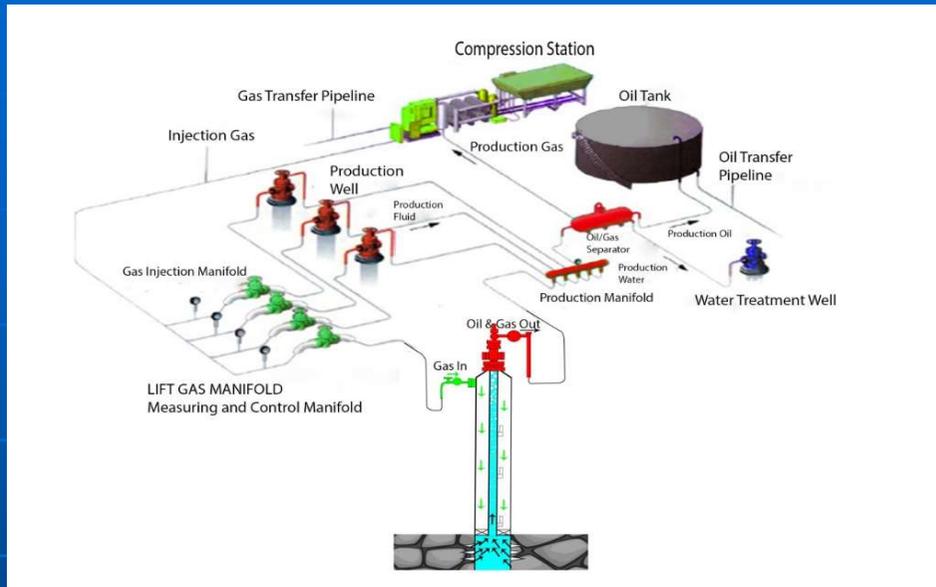


Footprint

IIoT/Edge platform | Benefit



Traditional workflow



Well performance

- Model driven
- Changing well conditions
- Outdated physics model
- Slugging behavior



Manual
Operation



Field resources
& time



Missed Production
Opportunities

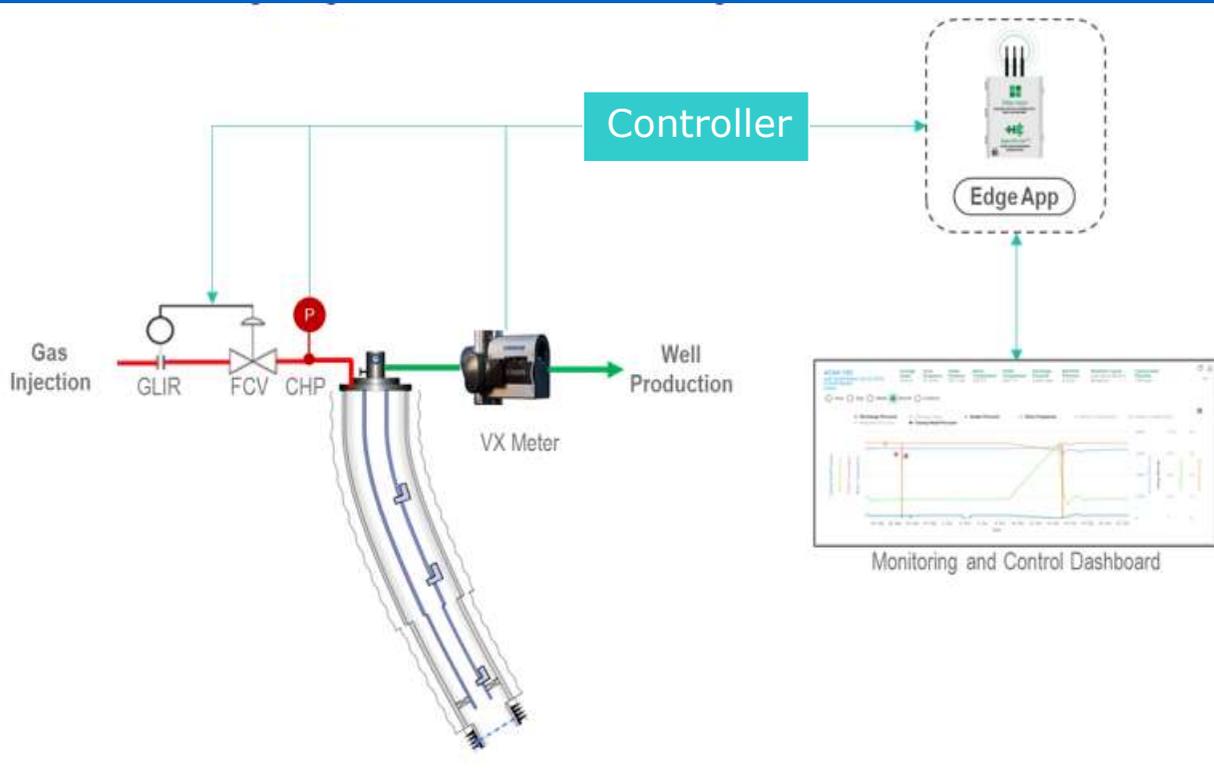
How do you ensure your well is in the best
operating envelope?

Data Driven approach

App Configuration

Define inputs and constraints

- Well level
- Group level
- Optimisation constraints



Permian Basin Case Study

Case-1: Single Well

- Single Well Optimization: Well A
- Main Highlights:
 - ✓ Fully autonomous workflow execution
 - ✓ Production maintenance inline with natural well declination
 - ✓ Good performance under changing conditions

Case-2: Multi-Well

- Multi-Well Optimization:
 - ✓ Well B
 - ✓ Well C
 - ✓ Well D
- Main Highlights :
 - ✓ Fully autonomous workflow execution
 - ✓ Production maintenance inline with natural well declination
 - ✓ Step-change for underperforming wells

Conclusion

Well performance



- Model driven
- Changing well conditions
- Outdated physics model
- Slugging behavior



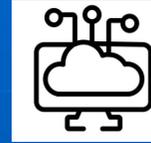
Manual Operation



Field resources & time



Missed Production Opportunities



Digital + Domain expertise
Data driven



Increase bbl/d



Reduce lifting cost



Connected assets



Automated process



Reduce carbon footprint

Maximizing value of existing assets

Carbon neutral

Sustainability

Decisions made today impact the future