

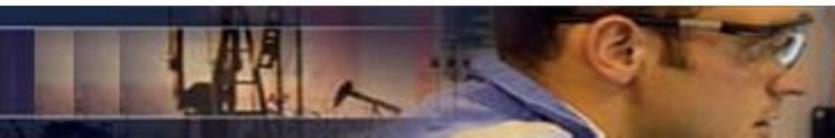
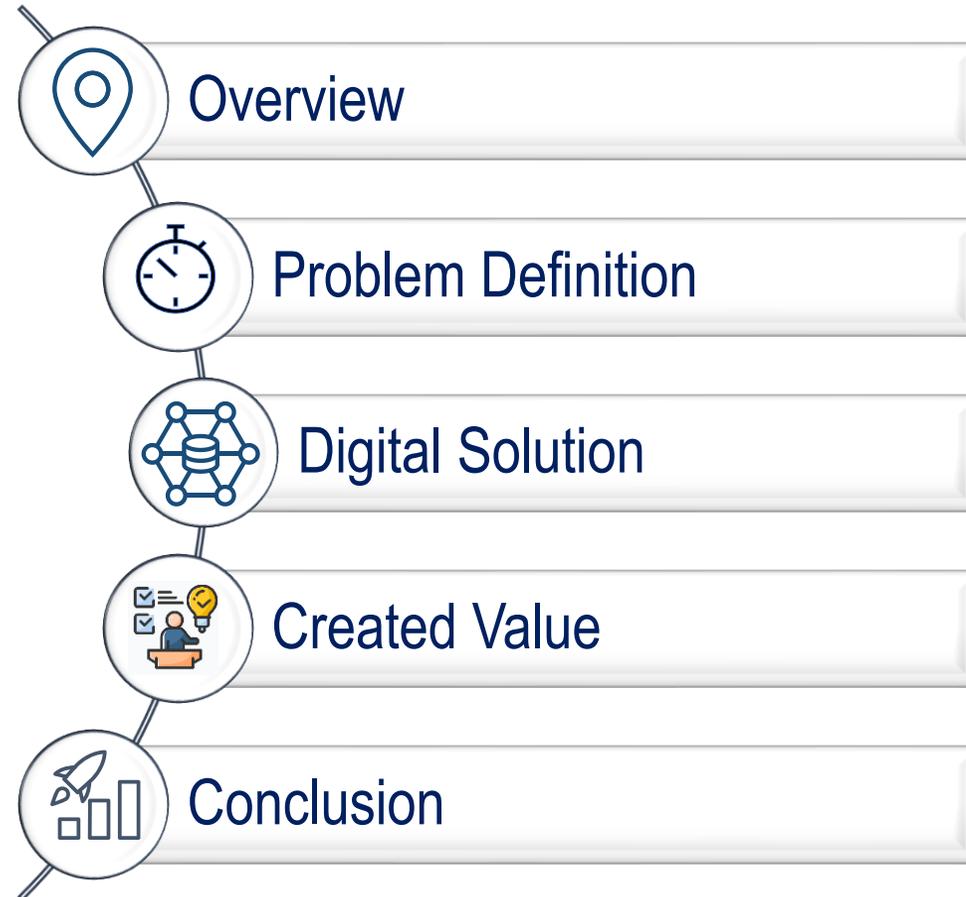


# Step Change in Production Excellence Workflows through Digital Transformation

Johanna Gallegos  
Senior Production Engineer



# Agenda



# Digital Transformation ... ... how?



# Digital Journey: How to Start?

## Build the Vision $f$ (KPO1, KPO2, KPn)

### Vision



#### ACHIEVE A STEP CHANGE IN PERFORMANCE

A new way of operating using digital solutions to integrate engineering and operation processes to enhance production, people efficiency and reduce environmental footprint.

### How



#### IMPLEMENT DIGITAL SOLUTIONS

Facilitate Exploitation work flows to improve Key KPI's

### Pillars



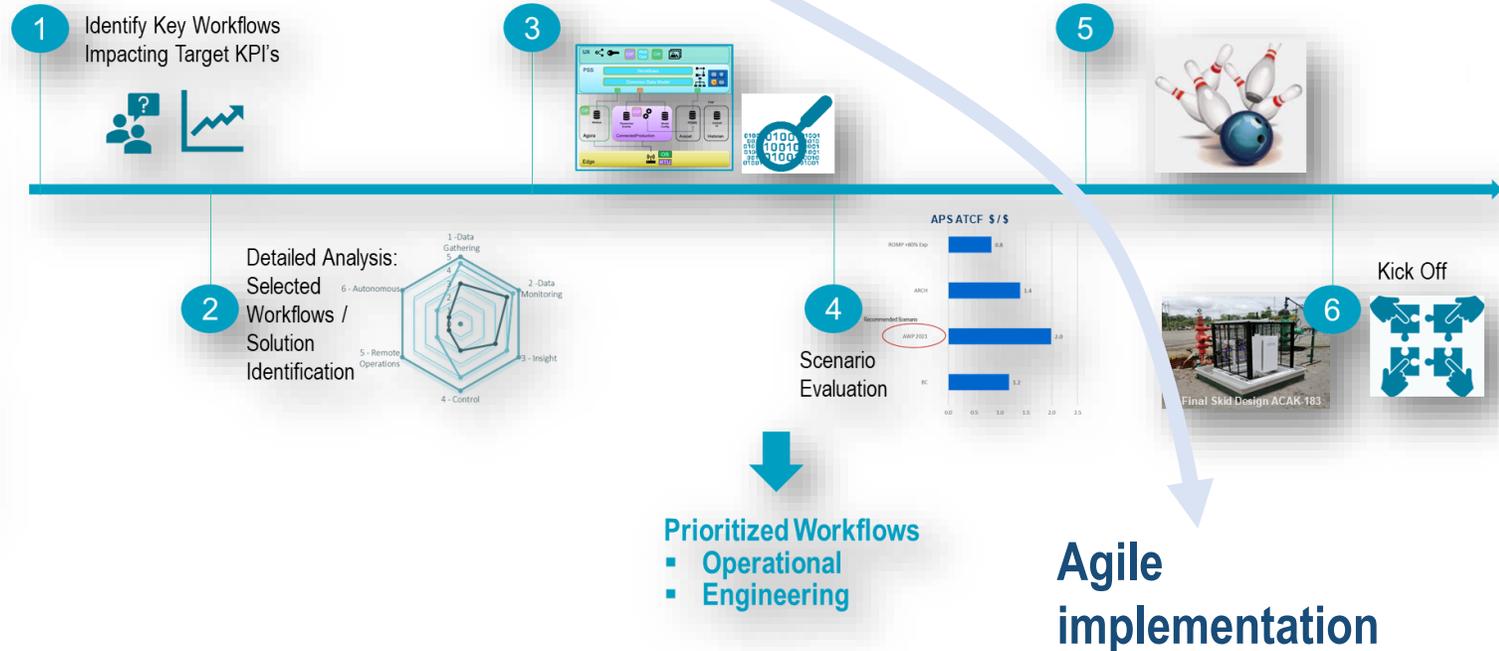
PROCESS AUTOMATION

DATA ANALYTICS

COLLABORATION

REMOTE OPERATIONS

## Create the Strategy



SPE-207968-MS: Assess Digital Maturity to Set Digital Transformation Strategy in Oil and Gas

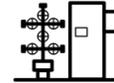
# Problem Definition



Mature Field with secondary recovery



17 fields scattered over +100 Km (NS)



More than 240 active wells



Several extensive workflows by manual job



Time-consuming

## Multiple Data sources



 Production optimization and losses reduction

*Excellence in Execution*

# What to improve?

## Macro-Workflows

### Operations Excellence

Prod/ Inj  
Optimization

Artificial Lift  
Solutions

Surveillance  
"Smart Production"

Surface Facilities

IPF

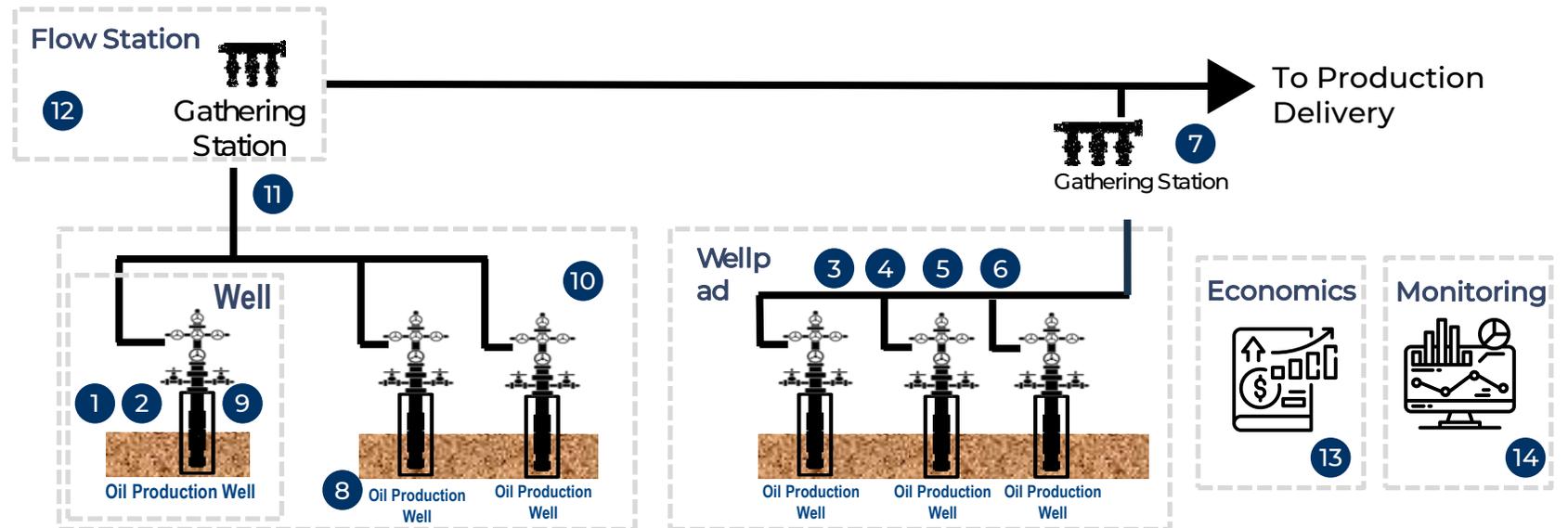
CIW

DIR

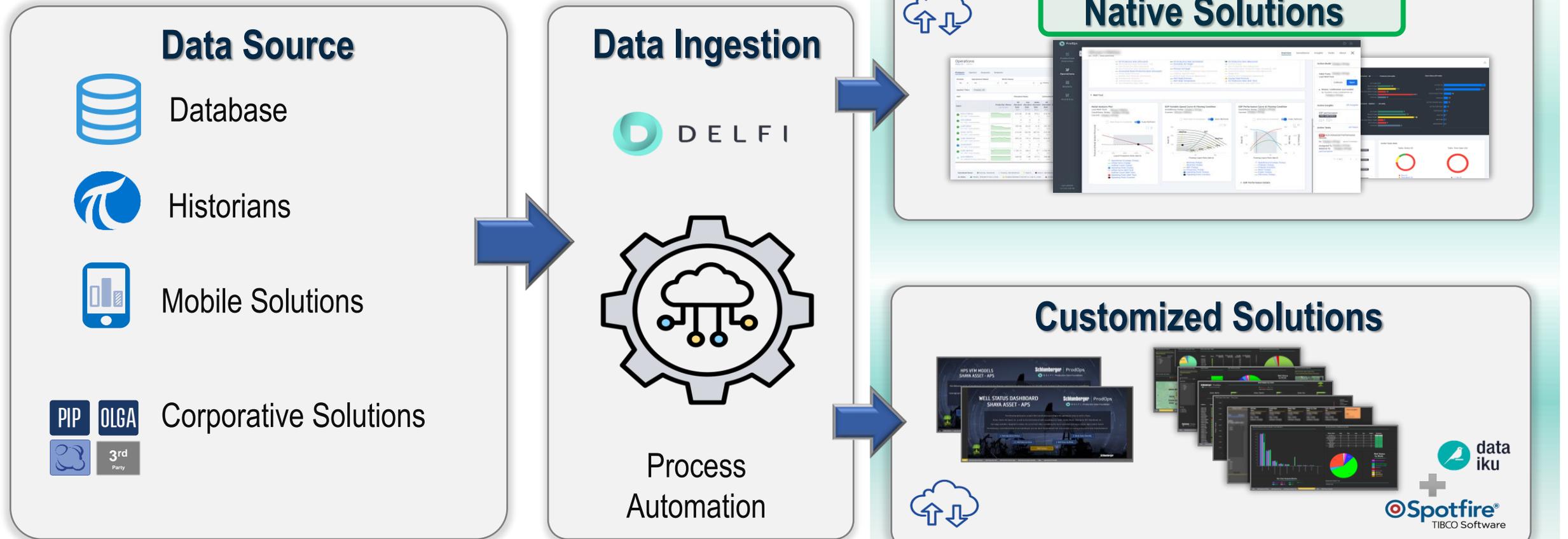
+ PRIORITY

## # Sub-Workflows

From Reservoir up to production delivery



# Digital Solution: Cloud Platform



# ProdOps Native Solution

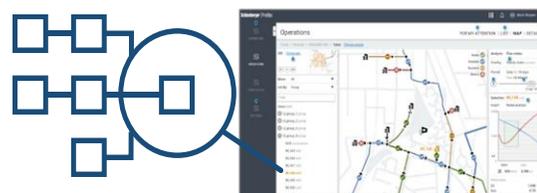
Act more effectively  
at speed and achieve  
production potential



**Well  
Performance Advisor** 

Optimization through continuous monitoring and automated ID of operational issues

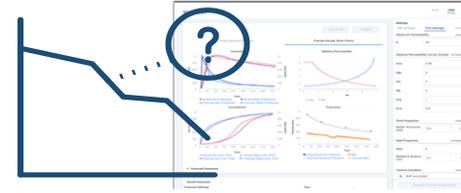
Enhance field-wide  
production management  
decisions



**Network  
Performance Advisor**

Guided well-network optimization, flow assurance risk and ID of enhancement opportunities

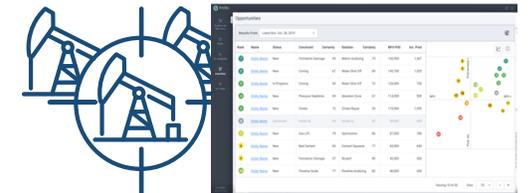
Achieve continuous  
understanding for  
targets and planning



**Production  
Forecasting**

An automated, evergreen pipeline of forecasts

Spend time working on  
opportunities,  
not looking for them

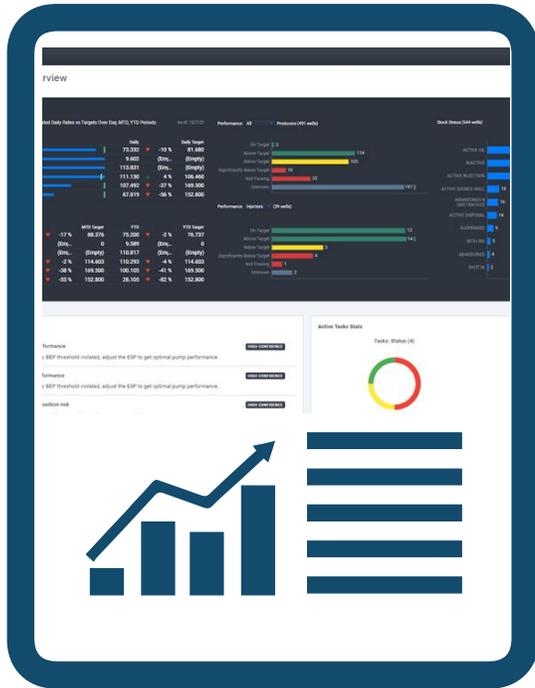


**Intervention Opportunity  
Manager** 

Rapid automated screening of candidates for intervention / workovers

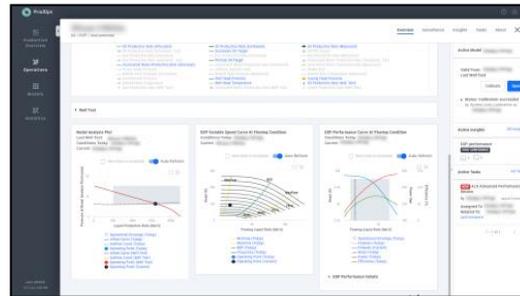
# Created Value

## ProdOps Native



### Solution 1: WPA (Well Performance Advisor)

- 240+ Online Well Models deployed
- Artificial Lift Surveillance
- ESP Performance Analysis and Diagnostics
- The latest well model automatically
- All models in the cloud



## Native solutions



### Solution 2: IOM Intervention Opportunity Manager

- Offline PoV
- 40 wells
- 100 Completions analyzed
- 9 WO identified



3 Months

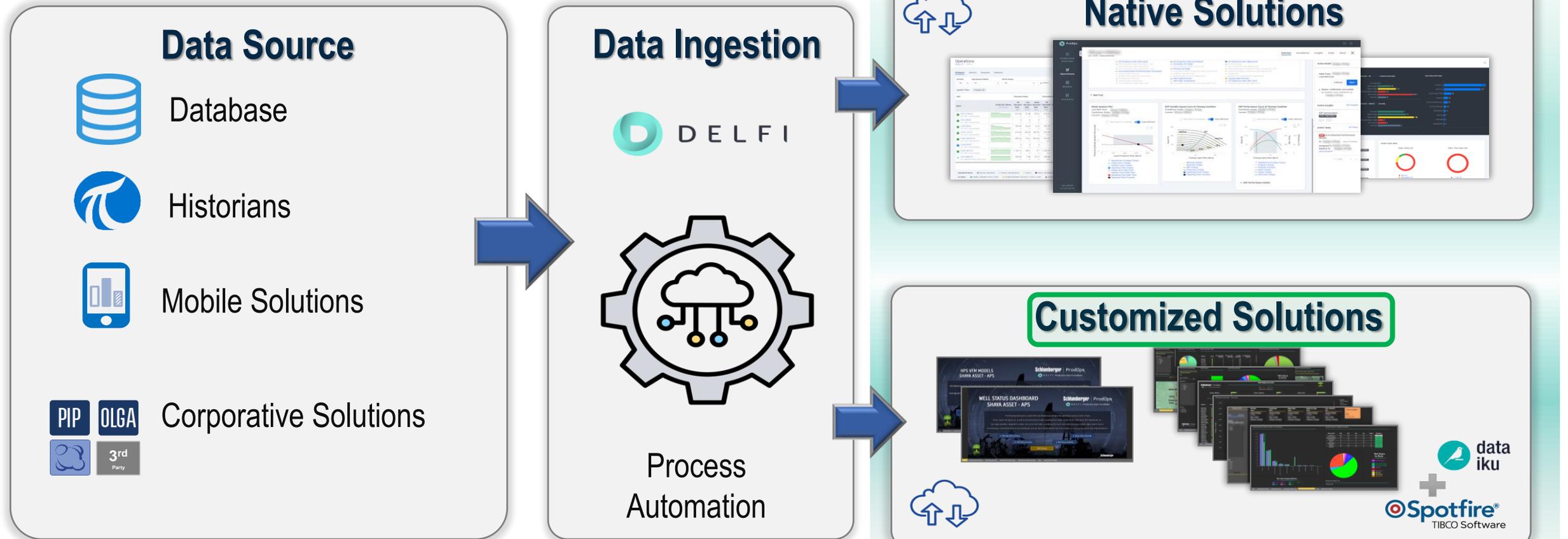


1 Week

(post data ingestion)

**90%**  
**Time Savings**

# Digital Solution: Cloud Platform



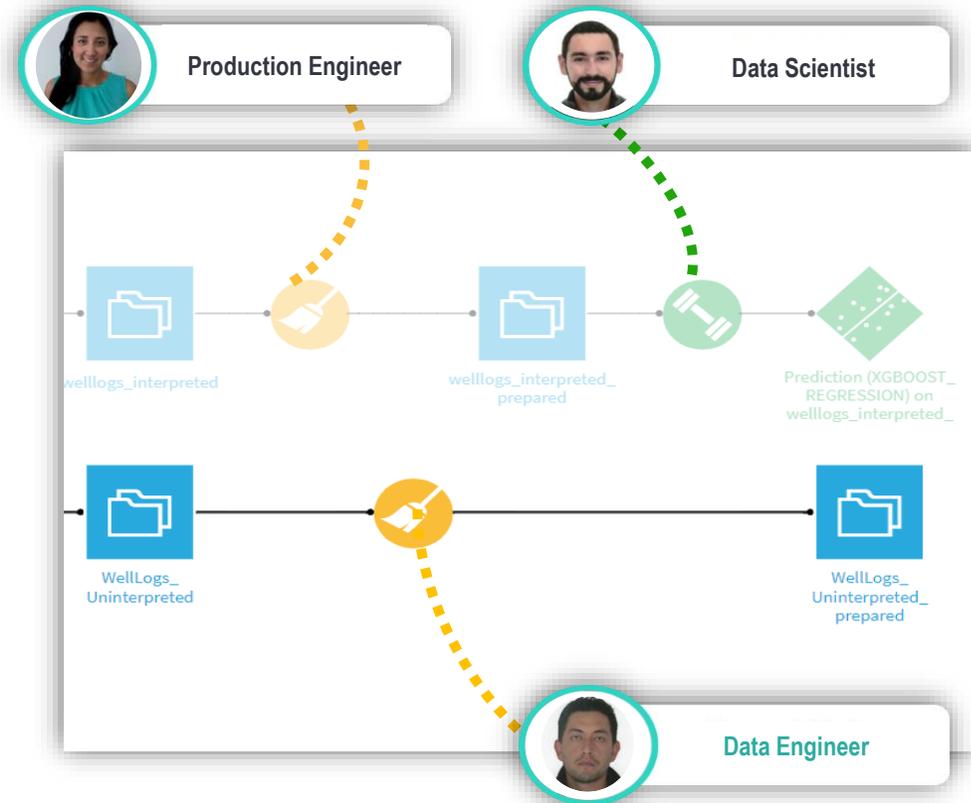
# ProdOps | Data Science: Integrated Self-Build Analytics & AI

**A foundation for value addition & innovation**

Data analytics & AI democratized to enable your IP and customized workflows

User friendly environment allowing multi-disciplinary collaboration

**Different capabilities to customize the needs for every team**



## Streamlined AI / ML projects.

- No code, low code, high code
- Easy to use visual modeling interface
- One-click deployment



*Excellence in Execution*

# Created Value: Customized Solutions



## Solution 3: Well Status

Updated every 15 min.  
Losses related to downtime  
Production to recover by zone  
Key for Shutdowns  
# of wells by status



5hrs



online

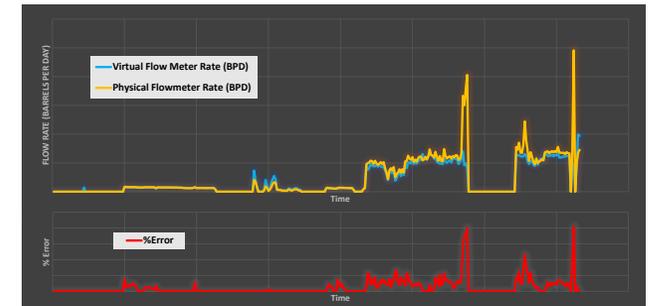
**95%**  
**Time Savings**

\*Monitored wells



## Solution 4: VFM -HPS

4 HPS  
Confidence >80%  
Reducing time travel  
ML implemented  
First version built in 1 day



CO2 reduction due to remote operations and surveillance

*Excellence in Execution*

# Created Value: Other Customized Solutions

Planned to view  
on Prodops



## Solution 5: Choke Model

Model from Delfi already updated  
Automation of the process  
Helpful for Candidate recognition



5 days



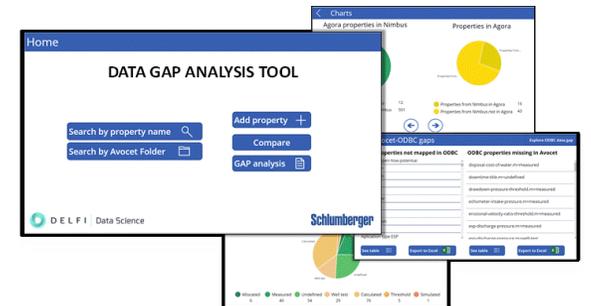
1 day

80%  
Time Savings



## Solution 6: Data Gap Analysis Tool

Availability of information  
Different sources  
Easy identification of variables needed and  
status



# Way Forward: Digital Pipeline



## Short Term

- WellStatus
- Online VFM solutions
- Wellpad Dashboard 🕒



## Big Data

- Prod. Eng. Optimization report. 🕒
- Root cause analysis 🕒
- Reservoir Pressure & BUP Analysis 🕒



## Lifting Optimization

- ALS Surveillance
- ESP Control & Optimization
- Flow Assurance



## Daily Operations

- Chemical Injection Automation 🕒
- Network Performance Advisor 🕒
- Electrical Infrastructure 🕒
- Digital Rig route



## Development Opportunities

- Well candidate recognition
- Automated Res. Eng. Models update.



## AI/ML Powered Workflows

- Equipment failure prediction
- Automated events detection
- NLP enriched workflows



# Conclusion

- After the implementation of the workflows, an 80% reduction in identification time and management of the specific task has been observed compared to how it was done before.
- The process of continuous improvement is part of a system of optimal management and development of the implemented workflows.
- In the operation, we must adapt to the benefits that by default offer native solutions in the corporate platform, however, the customization of engineering processes is essential to develop and increase the advantages of the online platform.
- The path of digital transformation is not overnight, it is required to have a clear and defined strategy from the beginning which must be shared with all team members.



# Contributors - Teamwork



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Production Excellence  
Manager



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Production and Execution  
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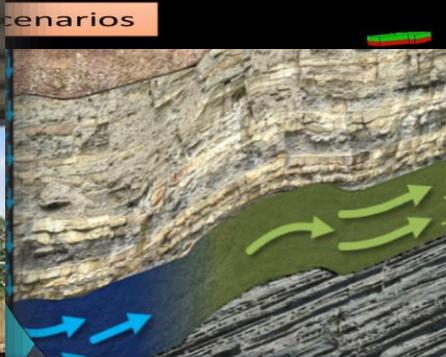
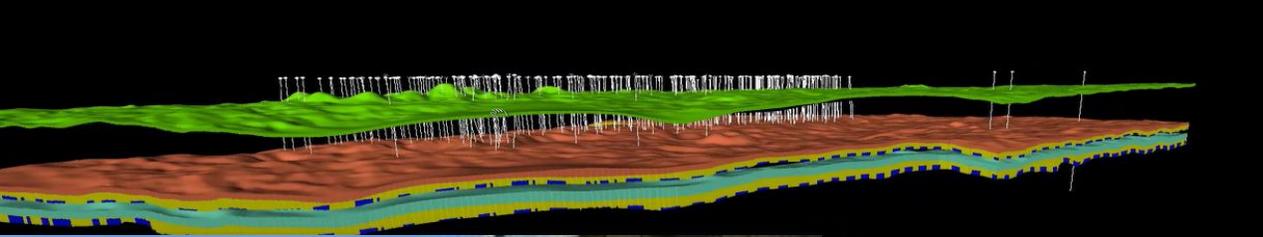


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Engineer



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Digital Production  
Operations Lead





# Step Change in Production Excellence Workflows through Digital Transformation

Thank you

