



**FLUTURA BUSINESS  
SOLUTIONS**



شركة بيزل العربية المحدودة  
Bezel Arabia Company Ltd.

# FLUTURA PROVIDES VERTICALIZED ARTIFICIAL INTELLIGENCE APPLICATIONS

For The Industrial  
World

Oil & Gas

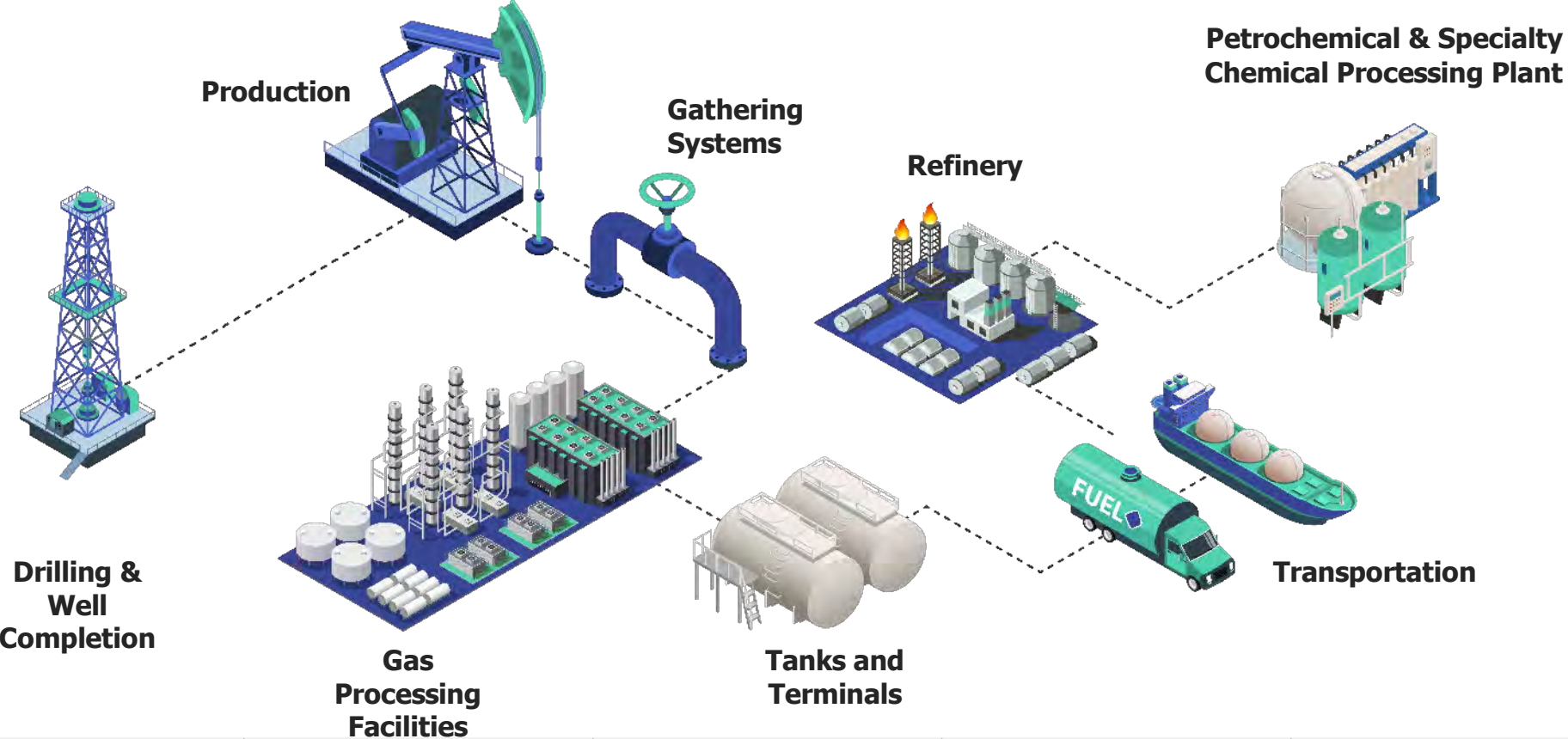
Manufacturing

Powered by Flutura's Product



Industrial OEMs and Tech Service Providers

# Flutura Solves these Massive Inefficiencies



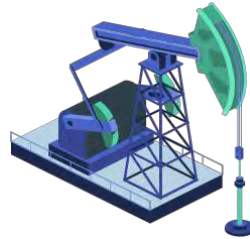
Mission critical applications delivered to Iconic Brands

**\$300 Mn**  
Value Delivered in just the first 3 years of our software being deployed in the field

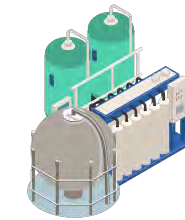
CONFIDENTIAL



# Cerebra Product Portfolio



## Oil & Gas



## Process Manufacturing

### Cerebra Digital Assistants



Drilling Performance Optimization

Fracturing Job Assistant

Production Perf. Benchmarking

Gathering System Optimization

Equipment Diagnostics

Predictive Maintenance

Quality Benchmarking

Quality Diagnostics

Quality Prediction & Simulation

Automated RCA

Energy Optimization

Process Unit Performance

### Cerebra Platform



Equipment Diagnostics & Prognostics

Process Optimization

Digital Twin

Advanced Diagnostics

Advanced Prognostics

Complex Event Processing

Enterprise Data Management

Visualization Studio

Significant Event Timeline

Security

Enterprise Integration

Embedded irreversibly within Core Operations

Not peripheral processes, but powering core areas such as Production Operations, Reliability, Quality etc.

# Rated #1 by Our Customers



*Great Technology and Platform, But  
An Even **Better Team Behind It!***

**VP Digital Operations in a O&G Industry**



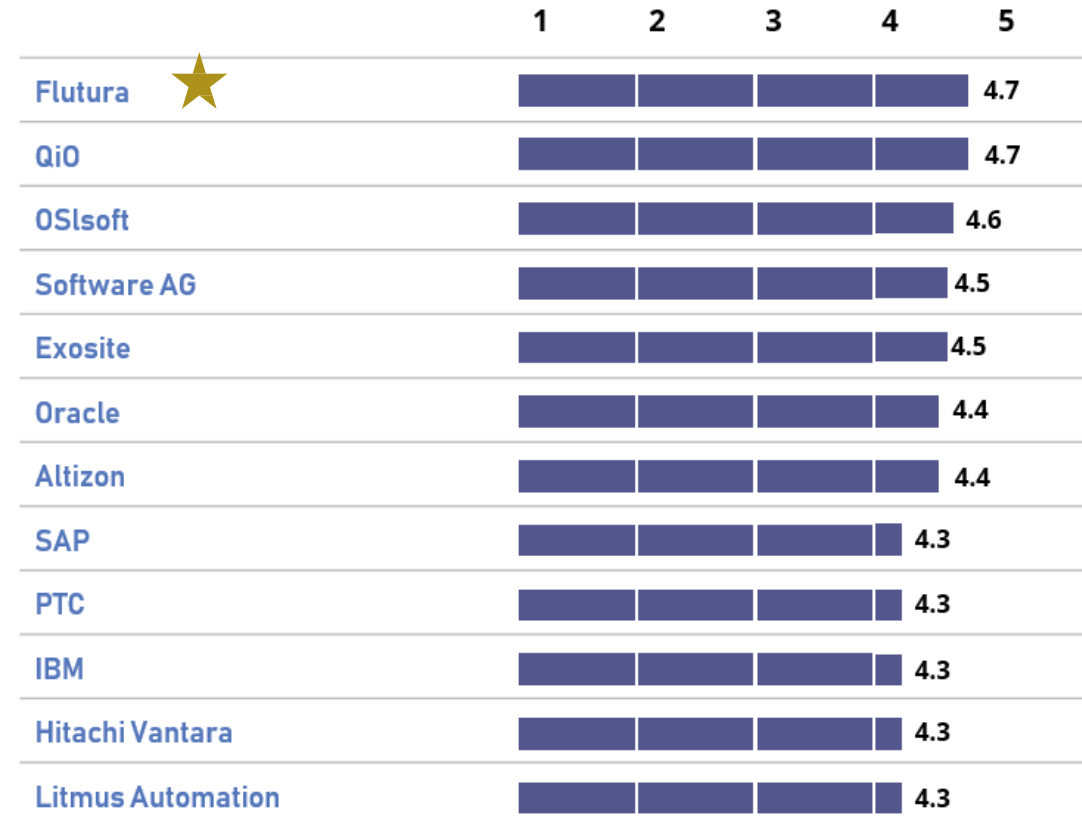
*I am really amazed how they have been  
able to **Scale up their solution across  
multiple lines globally** in such a short time*

**Global Head Digital Operations, Process Manufacturing**



*Cerebra's **Analytics Capabilities** And Their  
**Agile Implementation** Approach Are  
Impressive*

**Senior Manager R&D , O&G Industry**



Source: Gartner Peer Insights, Excluding names with <10 reviews

“Congratulations ! Flutura is the HIGHEST ranked vendor in the Voice of the Customer research for Industrial IoT !”



## A BEACON OF INNOVATION

In mid-November 2019, Shell completed construction of the first integrated iShale® multi-well pad and production facility system in the East Slash Ranch development area of its Permian Basin asset, in West Texas.

### Advances in automation

In mid-November 2019, Shell completed construction of the first integrated iShale® multi-well pad and production facility system in the East Slash Ranch development area of its Permian Basin asset, in West Texas.

iShale® is Shell Unconventionals' program to leverage technological advances in automation, digitalization and advanced analytics to reduce the industrial intensity of shale development and implement more efficient ways of working. The iShale® program underpins our views for a potential 'asset of the future'.

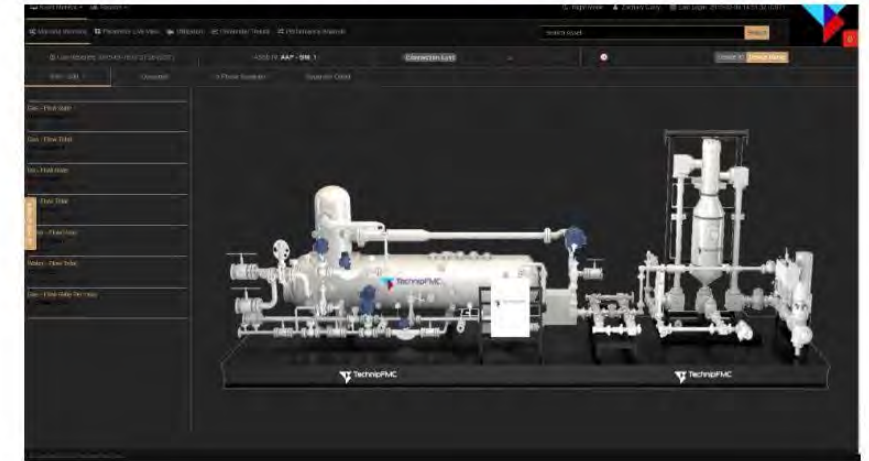
iShale® provides an open innovation platform for technology companies - big and small – to test whether their innovations can be rapidly modified and transferred to the shale industry. Shell enables its industry partners to co-invest in technology deployments without restricting future replication.

### The concept

This first installation consists of two well pads with a total of eight wells, multiphase gathering systems and a mini-modular processing facility, which is integrated into a larger Central Processing Facility (CPF). First oil from the wells was produced in late-November.

The project aims to trial new technologies and capabilities to reduce unit development and operating costs and project cycle time as well as improve safety and environmental performance.

Throughout the project lifecycle, our iShale® team worked in close cooperation with our industry partners as well as our Permian operations team to optimize the design and implementation of the integrated iShale® multi-well pad and production facility system.



A virtual representation of the AWT

"The AWT brings in a much higher level of automation," says Hernan Anzola, vice president, Surface Products. "It allows us to operate with less personnel, record data and respond automatically to changes in field conditions. It is already assembled, which provides a lot of benefits in terms of safety. At present, pieces of pipe and equipment are put together manually by technicians in different configurations every time. The AWT is skid mounted, and is simply hooked up."

### Driving job performance by the integration of digital technologies

The AWT is advancing the market by providing clients an already assembled solution, which streamlines efficiencies and delivers a quicker path to first oil.

"By leveraging UCOS, we are able to not only automate and reduce the human intervention required to perform this service, we are also providing insights to our field personnel that were never possible before," says Zachary Curry, product line manager with Global Controls and Automation, Surface Technologies.

"We can now hand the technicians a tablet and they are able to see how the equipment is performing, the overall job progress and if issues arise, we provide them tools for troubleshooting, reducing any nonproductive time that is typical in these types of operations," Curry says.

Flutura is part of Shell's strategic iShale program. Flutura is among the few partners which Shell has selected for this programme along with the likes of TechnipFMC and Schlumberger

Cerebra on TechnipFMC's website  
Flutura working with TechnipFMC on several strategic projects

<https://www.shell.us/energy-and-innovation/shale-gas-and-oil/a-beacon-of-innovation---shell-s-integrated-multi-well-pad.html>

<https://www.technipfmc.com/en/media/features/accelerating-shale-production-through-digital-technology-integration>

# Media Recognitions



[Flutura Receives Highest Overall Rating in Gartner Peer Insights 'Voice of the Customer': Industrial IoT Platforms Report](#)



[Flutura Named to Gartner Magic Quadrant for Industrial IoT Platforms for the Second Year](#)



[2018 North American Artificial Intelligence in Energy Entrepreneurial Company of the Year Award](#)



[10 Hot IoT Companies To Watch In 2019](#)



[An AI startup keeps mega-machines at peak performance](#)



[Flashback 2018: Deep-tech B2B space finally gets its poster boys](#)



[Honorable mention of Flutura in Reuters](#)



[This Indian IOT Product in China shows how factories will be part of the 4<sup>th</sup> revolution](#)



[Flutura ranked as one of the fastest growing tech companies in APAC](#)



# Case Studies – Drilling & Completion





**Lack of granular insights into Rig State Activities**



**Operators missing anomalies due to data explosion**



**Higher NPT due to lack of real time visibility**



**200+ drilling rigs**



**8000+ drilling jobs**



**400+ tags streaming 2.5 billion+ data points a day**



**Reduced Non-Productive Time due to early interventions**

# Early Failure Detection for High Pressure Pumps used during Critical Operations



**Continuous operation of pumps at very high pressures, prone to frequent failures**



**Engineers missed crucial alarms leading to extensive Downtime**



**Customer was unable to accurately observe their fracturing operations**



**1000 fracturing pumps  
600+ Sensor Tags every second**



**Real time Alerts to Operators**



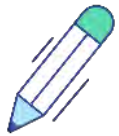
**Detect deviations, causal factors and Predict Failures**



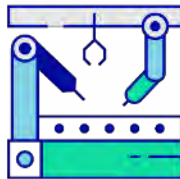
**Increased Utilization due to reduction in number of failures**



**High Pressures and Volatile Flow Rates in Early Production State**



**Manual Calculations and Reporting**



**Lack of visibility into flowback operations**



**25% Reduction in Operations time**



**Early Anomaly Detection & Diagnostics**



**Reduction in Risk factors due last mile visibility**



**Digital Twin Configuration in 48hrs**



# Case Studies – Production

# Cerebra powering Gas Well Diagnostics for 180 wells for a Leading US based O&G Technology Provider



**Manual Shortlisting of wells that require intervention**



**Unable to estimate Well Risk Level**



**Unable to Compare performance of different type of wells**



**Minimized Time to Intervention by Automated Scoring**



**Insights into Artificial Lift Operations**



**Minimized Visits to the Field**



**Reduced the Estimated Well Recovery Risk**

# Optimization of Gathering System for Increased Production and Fast Recovery from Abnormal Conditions for a Leading Operator



**Operating Characteristics variations for Well Pads**

**Unpredictable Pressure Variations due to Compressor and Pipeline maintenance**



**Well pad anomalies and Pressure hotspot Detection**



**ML & Pipesim powered Hybrid models enabling What if analysis**



**Driving better decisions thereby maximizing Sales gas output**

# Powering Next Gen Production System for a Leading Operator

## Deployed Hybrid Models to reduce safety impact and costs



**RVP Measurement process requires a technician's visit to the field**



**High RVP pressure (>10psia) can result in loss in production**



**High Safety and Environmental Issues**



**Real-time RVP virtual sensor to assess the volatility of the oil**



**Hybrid Approach - Prediction Models integrated with a simulation models**



**Reduced Production loss and safety impact due to volatility**

# Digitalization of a Leading Oil and Gas OEM

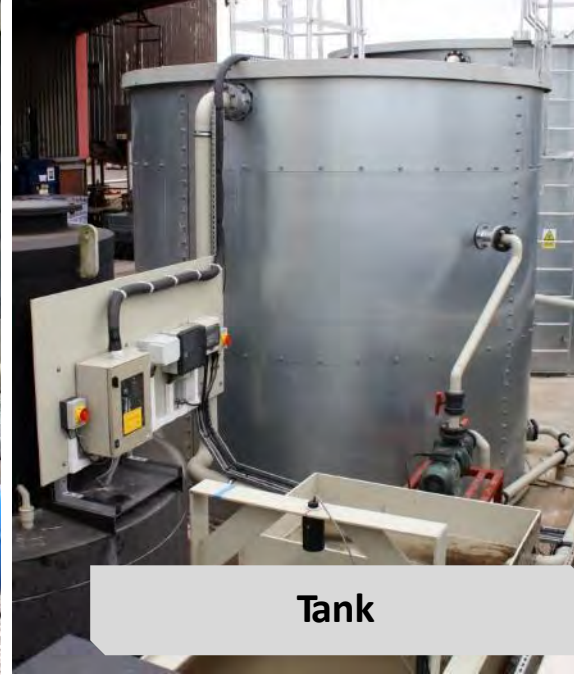
Integrated Solution Powering Digital Twins for 14+ Disparate Equipment Categories



Seperator



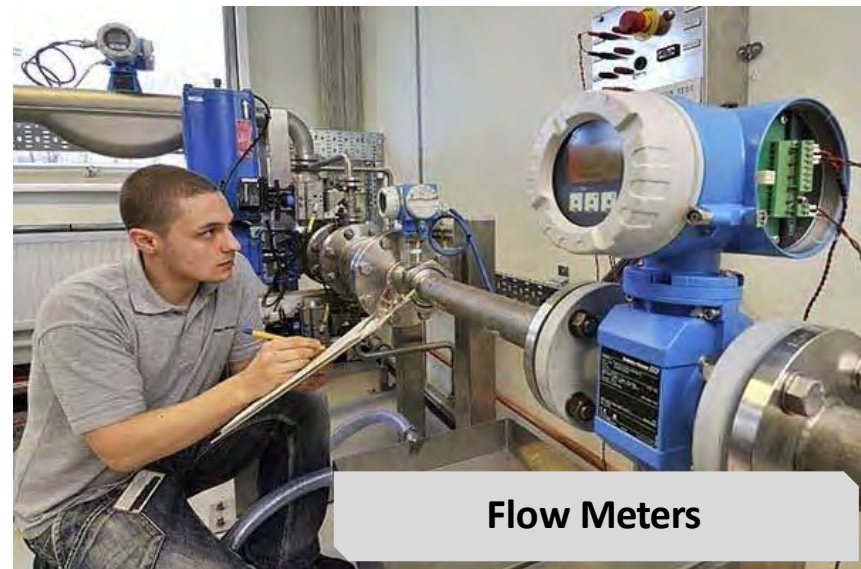
Desander



Tank



Multi-Phase Meters



Flow Meters



Valves



**Closed Loop  
Automation**



**RCA Automation  
and Anomaly  
Detection**

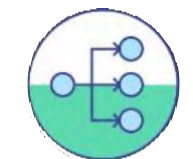




**Manual Proving of Flow Meters in the Flow Lab**



**Proving meters took 4-6 hours due to manual Valve settings**



**Unable to simulate various conditions**



**90% Reduction in Proving Time**



**Self Learning, running at 99% Prediction accuracy**



**Built for various ambient conditions**



# Case Studies – Midstream

# Compressor Diagnostics and Failure Prediction for a leading Midstream operator

## 300+ High Pressure Compressors across US



**Frequent compressor failures at compressor stations**



**Increased operational cost due to downtime**



**Diagnose Faulty Compressor Station in the Pipeline Network**



**Predict Compressor Unit Failures to Prevent Disruption in Gas Supply**



**Compressor Performance Benchmarking to Identify Underperforming Compressor Units**

# Cerebra powering hotline emergency assistance and response centre

for containment systems for shipping and storage in cryogenic conditions



**Existing Emergency Response was reactive and manual**



**Lack of early leak detection**



**145+ signals analysed real time**



**Deployed on the edge to detect issues quickly**



**90% reduction in Response time**

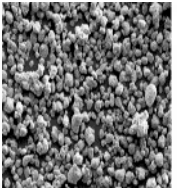


# Case Studies – Downstream

# Yield Optimization for a Leading Catalyst Manufacturing Company



**14% production off-spec leading to customer complains**



**Non-uniform size of finished product leading to clogging of reactor**



**Lack of insights into off spec causal factors**



**Never before seen visibility into in-process quality**



**5% Increase in Yield**



**Estimated Savings of \$ 60MN Annually**

# Quality Optimization for a Leading Process Chemicals Company



**Very High Precision Outputs**



**Stringent Quality Requirement**



**Time Sensitive Manufacturing Turnaround**



**Connected Plants Game Changer Award**

Recognized by

**Forbes**

**40%**

**Reduction in quality related customer complaints**

**15%**

**Reduction in Off-spec Production**

**90%**

**Reduction in Root Cause Analysis Time**

# THANK YOU



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*Nothing delights us more than winning your Trust*