

The background features a blurred image of an oil field with several tall drilling rigs and structures. The sky is a warm orange and yellow, suggesting a sunset or sunrise. Overlaid on this scene are various digital and network-themed graphics, including glowing blue and white lines connecting nodes, a robotic arm icon, a smartphone icon, a house icon, and a circular network diagram. The overall aesthetic is a blend of industrial and high-tech digital imagery.

CONNECTED OILFIELD

SURVIVAL OF THE DIGITALIZED

By Muhammad Soliman



CHALLENGES IN THE OIL AND GAS INDUSTRY



INDUSTRY CHALLENGES

- ❑ Severe Fluctuations in Oil Prices
- ❑ Lowest Reservoir Recovery Rate
- ❑ Inefficient Operations
- ❑ Fast Growing Car/Transportations Electrification & Decarbonizations
- ❑ Declining Return on Capital Employed (ROCE)
- ❑ Declining in Workforce and Expertise

One hundred years of oily crude

Crude oil price, \$ per barrel*



Sources: Goldman Sachs; Datastream from Refinitiv; US Bureau of Labour Statistics; Bloomberg

*Constant Feb 2020 \$ †At March 31st

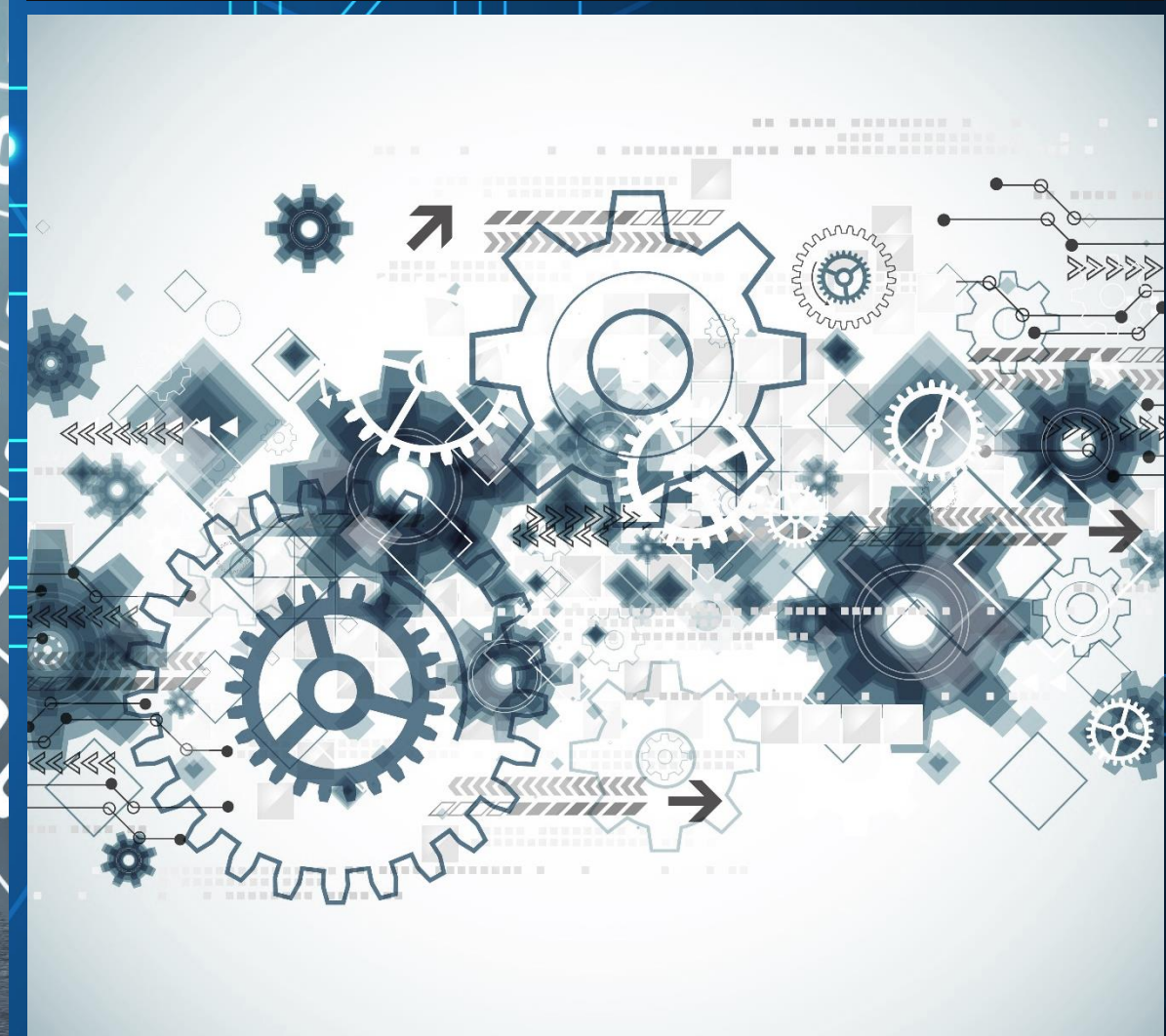
TECHNOLOGY INNOVATIONS IN THE INDUSTRY

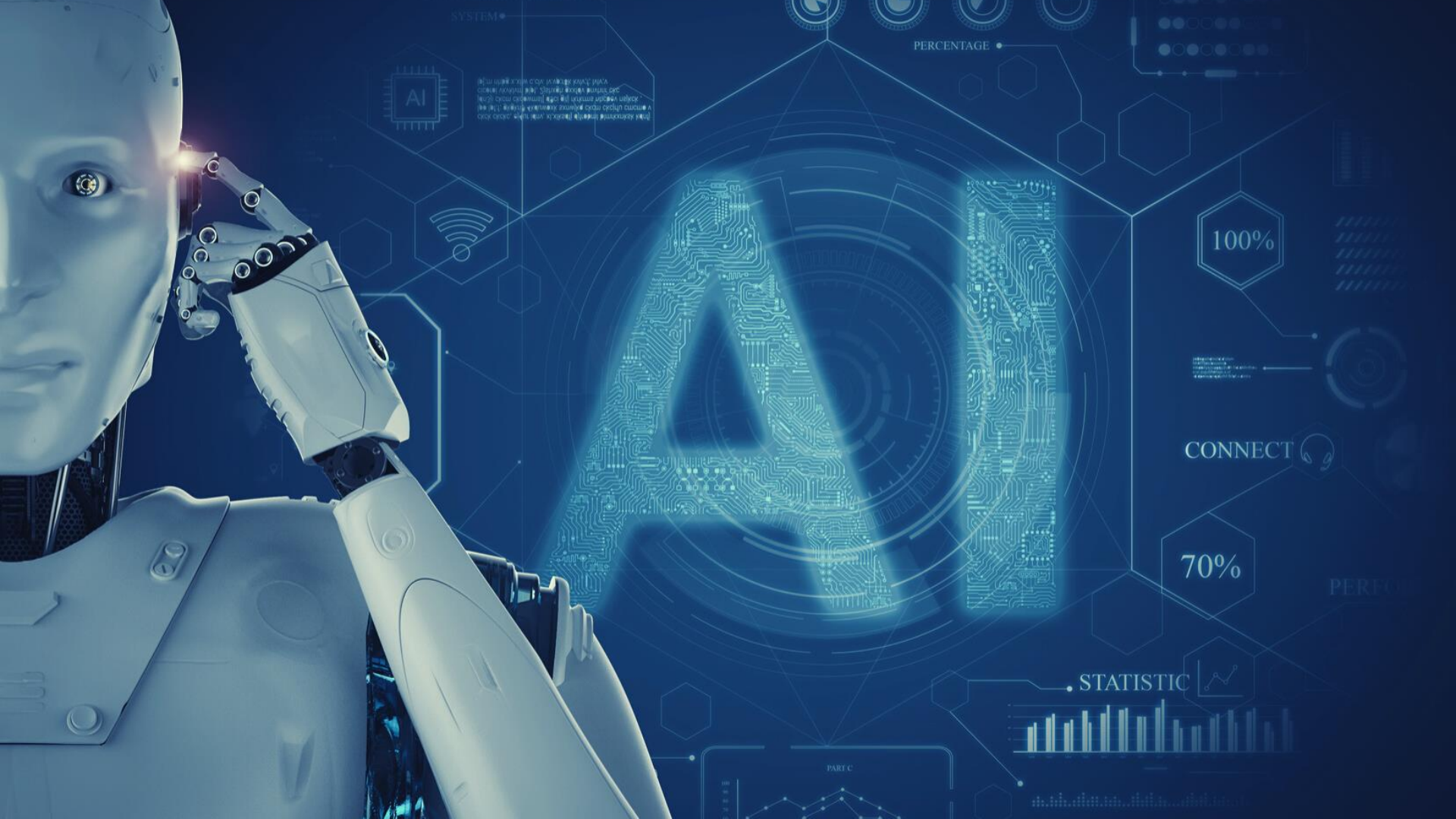
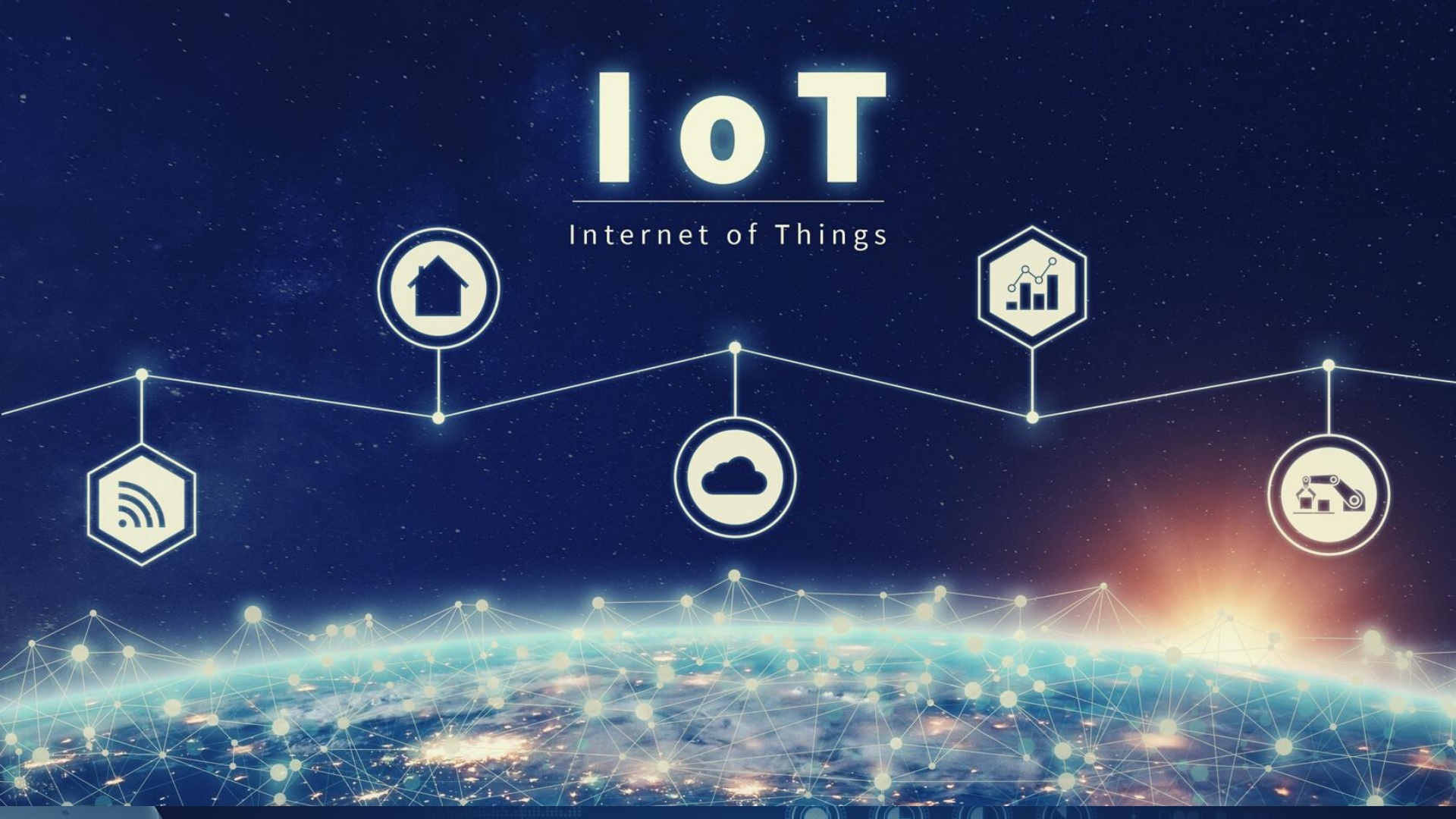
A Brief History



- | | | | | |
|---|--|--|---|---|
| EARLY 80s <ul style="list-style-type: none">• Large-Scale Development & Deployment of ESP Artificial Lifting | EARLY 90s <ul style="list-style-type: none">• 3 D Seismic• Horizontal Drilling• Multiphase Meters | EARLY 2000s <ul style="list-style-type: none">• Rotary steerable Drilling• Enhanced Oil Recovery EOR | EARLY 2010 <ul style="list-style-type: none">• Large Scale Multi-Lateral Completions• Prefoliation pf Hydrolytic Fracking | Today (The New Normal) <ul style="list-style-type: none">• Digital Transformations |
|---|--|--|---|---|

DIGITAL TRANSFORMATION PILLARS





The background of the slide features a photograph of an industrial facility, possibly an oil or gas processing plant, with a large yellow crane in the foreground. Overlaid on this image are various digital and technical icons in a light blue color. These include wrench and screwdriver symbols, brain icons representing AI or data processing, a network diagram with nodes and lines, a laptop, a Wi-Fi symbol, a gear, and a house icon. The overall aesthetic is high-tech and industrial.

What IS THE DOF ?

- **Smart measurement** and control systems in the wells (subsurface and surface), pipeline network and facilities
- The capture and **integration** of real-time and non-real-time data from across the asset
- Building **predictive models** (physical and data driven)
- **Intelligent processing** of information using **smart engineering workflows and business workflows** for:
 - integrated asset management, precision drilling, smart surveillance, adaptive control, diagnostics, optimization, planning and prediction
- Enabling **collaboration**

The background of the slide features a dark, atmospheric scene with several large oil barrels in the foreground. A white line graph is superimposed over the barrels, showing a fluctuating upward trend. The top left corner of the slide has a teal-to-blue gradient. The title 'WHY IS THE DOF ?' is written in a bold, white, sans-serif font.

WHY IS THE DOF ?

- Lower OPEX
- Optimized Assets Productivity
- Lower CAPEX
- Improve Return on Investment
- Maximize the Recovery of Assets Value



WORKER MOBILITY

- Collaborations

DOF IMPACT



Operational Efficiency

Allow smart surveillance of the wells, pipeline and facilities to enable smart operations, maximize uptime and reduce failures **(DAYS)**

Production Optimizations

Provide deep understanding of the performance of the wells, pipeline network and facilities. Help in Maximizing production and be able to predict future conditions **(WEEKS)**

Reservoir Optimizations

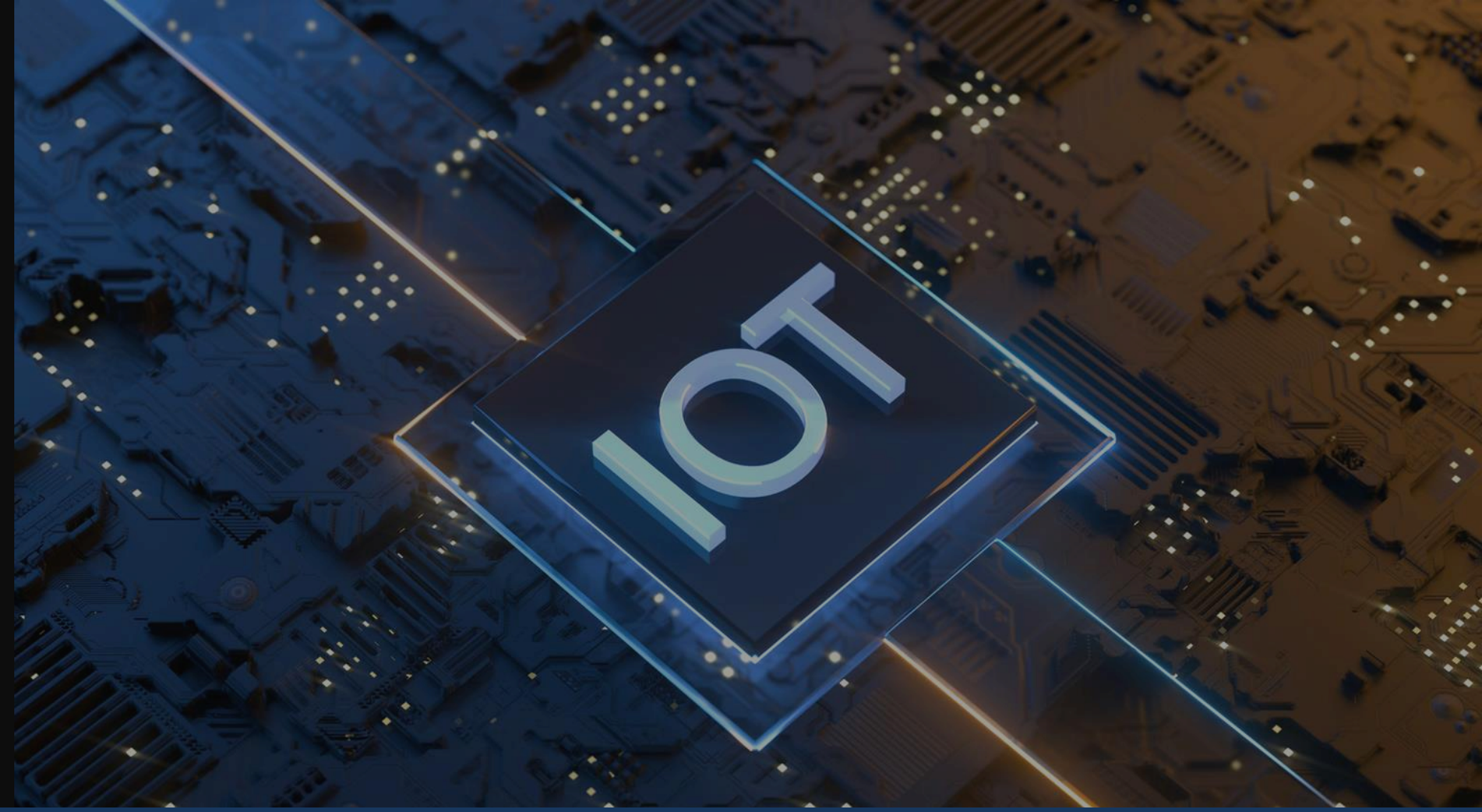
Ensure the Maximum Reservoir and Field Performance **(MONTHS)**

Asset Management

Ensure That the Asset are well managed and achieve the Bussniess goals **(YEARS).**

SHELL

- COVERS 500 K VALVE USING AI / Predictive Maintenances IN INSPECTIONS
- ESP IoT Monitoring



BP

- DIGITAL PIPE LEINE
- Reservoir Recovery



THANKS

Muhammad Soliman

