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# IIoT Applications: Oil, Chemical and Pharmaceutical Industry

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# IoT and the Industry

- Industries add extensive value by integrating IoT strategies for transforming the business
- Industries need to become more efficient and reliable
- Maximize profit by the predictions
- IoT cloud slash cost

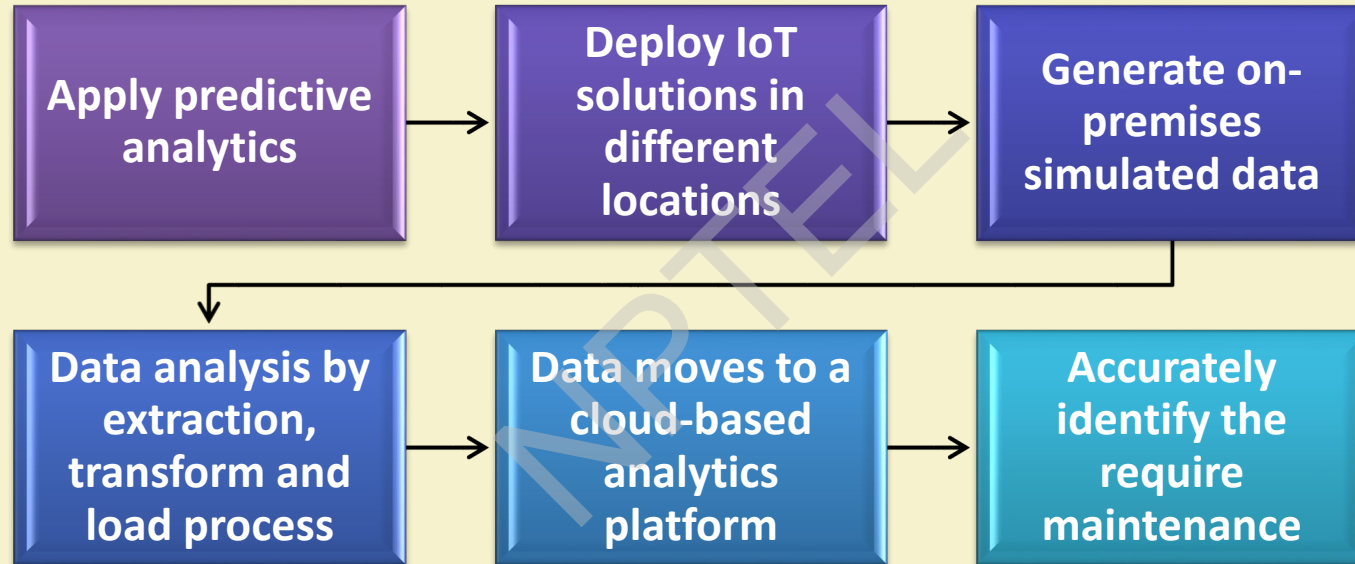
# IoT in Oil and Gas Industry



# Oil and Gas Industry

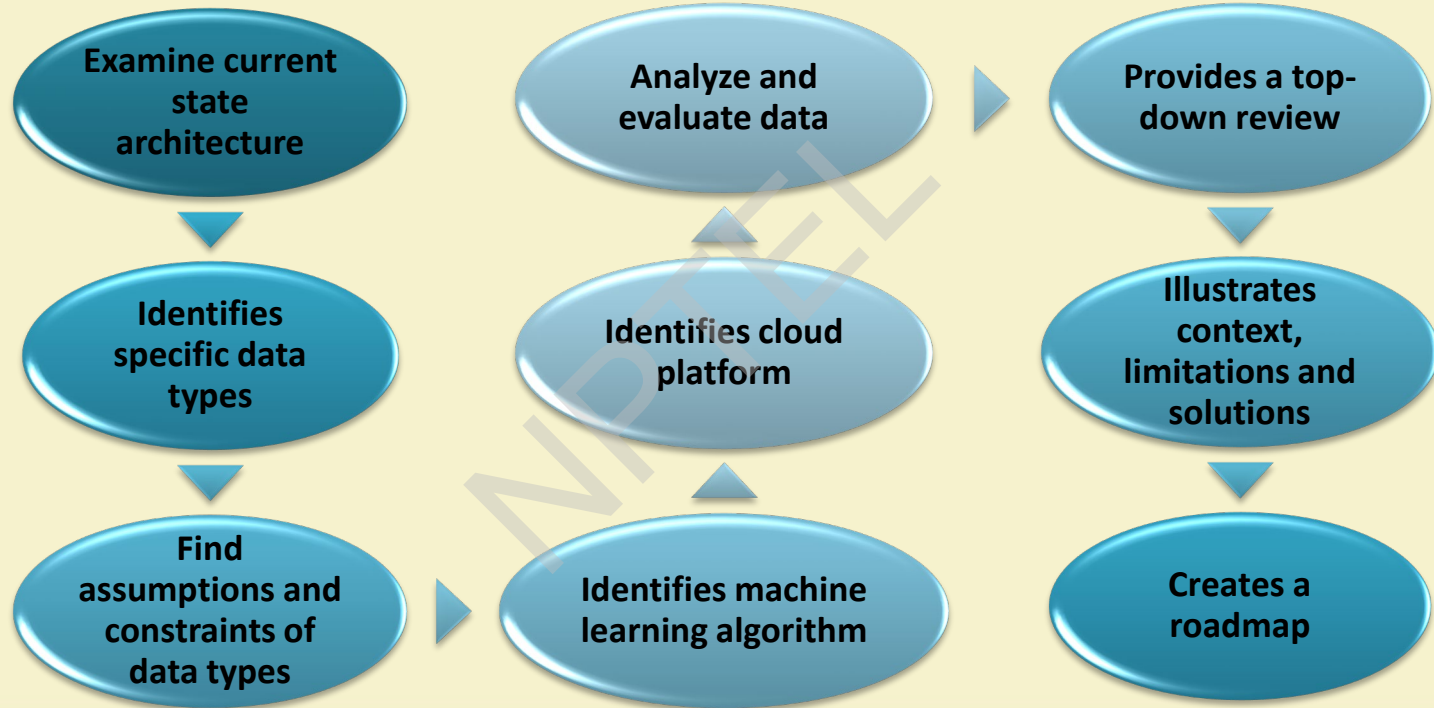
*“lies not in helping oil and gas companies directly manage their existing assets, supply chains or customer relationships—rather, IoT technology creates an entirely new asset: information about these elements of their business,”* Deloitte

# Oil and Gas Industry Work-flow



Reference: <https://blog.equinix.com/blog/2017/12/06/how-the-oil-and-gas-industry-is-powered-by-the-iot-machine-learning-and-cloud/>

# Machine learning and cloud services



# Improve operational Excellence

- Predictive maintenance
- Location Intelligence
- Pipeline and equipment monitoring
- Monitor
  - Sensor integration
  - Real time machines
  - Fleet operations

Reference: <https://dzone.com/articles/usage-of-iiot-in-oils-and-gas>

# IoT increases customer loyalty

- Connects business and car
- Smart application
- Energy consumption profiles

Reference: <https://www.allerin.com/blog/whats-iot-doing-in-oil-gas>

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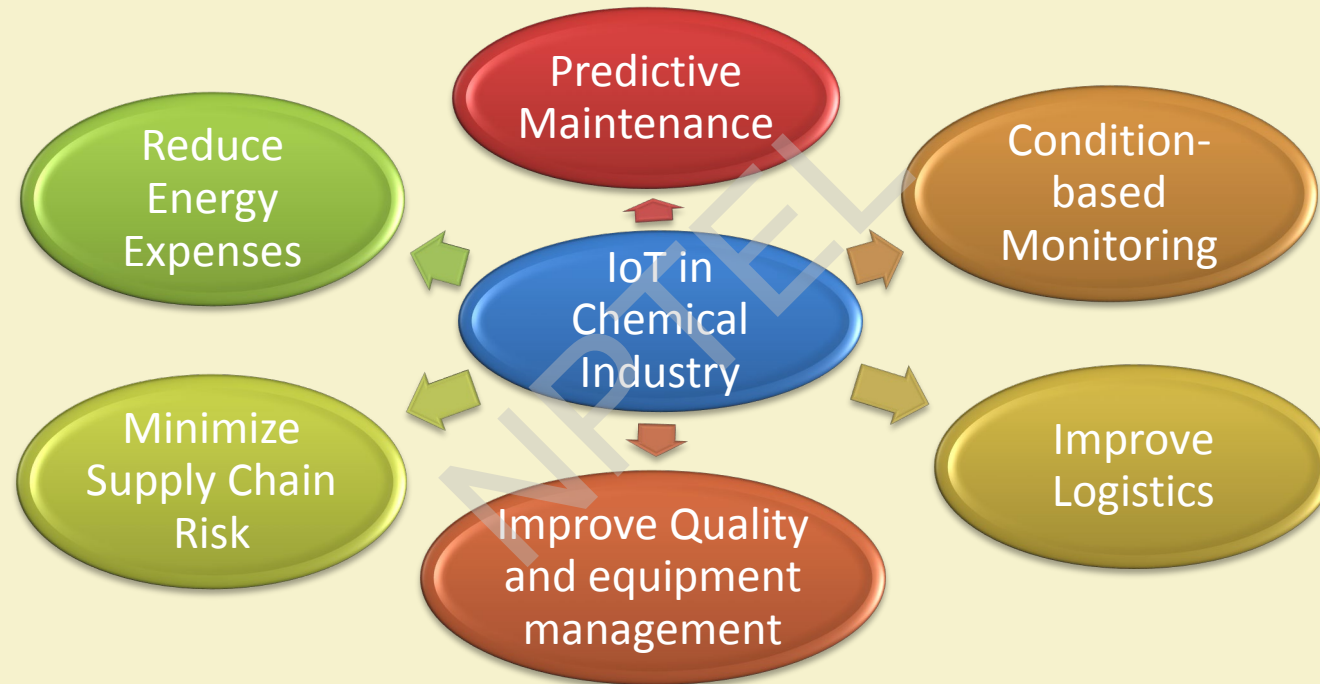
# Benefits of using IoT in Oil and Gas Industries

- Increase production efficiency
- Save cost and time
- Improve asset maintenance
- Enhance
  - Production
  - Work safety
  - Supply chain planning

# IoT in Chemical Industry



# IoT helps in Chemical Industry



References: <https://www.digitalistmag.com/iot/2016/05/12/chemical-industry-4-opportunities-provided-by-internet-of-things-04196654>  
<https://altizon.com/industries/chemical/>

# Predictive maintenance

- Address real time issues
- Reduce equipment breakdown
- Efficient and effective maintenance
- improve quality by efficient IoT analytics programs
- improve service

# Condition-based monitoring

- Predict quality by continuous monitoring
- Water, nutrients, and pesticides analysis
- Analytics predict weather and its impact on farming
- Adjust the amount of required material
- Pricing model with the profit margin

# Improve Logistics

- Ensure product location through sensors or RFID tags
- Track assets to prevent loss
- Detection of contamination or attacks
- Alert notification
- Warehouse monitoring

# Reduce Energy Expenses

- Energy usage and regulatory control
- Analyze real time data
- Improve
  - Usage pattern
  - Inefficiency

# Minimize Supply Chain Risk

- Chemical manufacturers can response immediately to the required process
- Real-time monitor in supply chain:
  - Equipment
  - Material
  - Process
  - Environment
  - Workers



# IoT in Pharmaceutical Industry



# Use of IoT sensors in Pharmaceutical Industry

- Deployed in production areas
- Access huge data of different manufacturing departments
- Real time monitoring
- Able to control the areas remotely
- Proper utilization of equipment
- Reduce
  - Production cost
  - Wastage

# IoT Application in Pharmaceutical Industry

- Examine drugs
- Detect:
  - Adverse Drugs Reaction (ADR)
  - Effects of pharmaceutical excipients
  - Allergies
  - Other complications

# IoT Application in pharmaceutical Industry (Contd..)

- Quality control by real-time monitoring
- Safe and secure drug delivery
- Deploy to connect different technologies:
  - Manufacturing
  - Monitoring
  - Controlling
  - Distribution

# Improve logistics

- Track the movement of pharmaceutical goods
- Improve warehousing
- Optimize routing
- Maintenance of machines and equipment
- Inspects the maintenance of medicine and vaccines

Reference: <https://www.entrepreneur.com/article/305272>

# References

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- [3] Softweb Solutions. Online. URL: <https://www.softwebsolutions.com/resources/industrial-IoT-solution-for-oil-and-gas.html>
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# Thank You!!

