Anomaly Detection and Scalability in Chemical Manufacturing

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Ascend Performance Materials

Ascend is the world's largest fully integrated producer of polyamide 66 Resin. We manufacture and supply world-class plastics, fibers, fabrics and chemicals for the global market. We control every stage of manufacturing, ensuring the highest reliability, quality and performance.

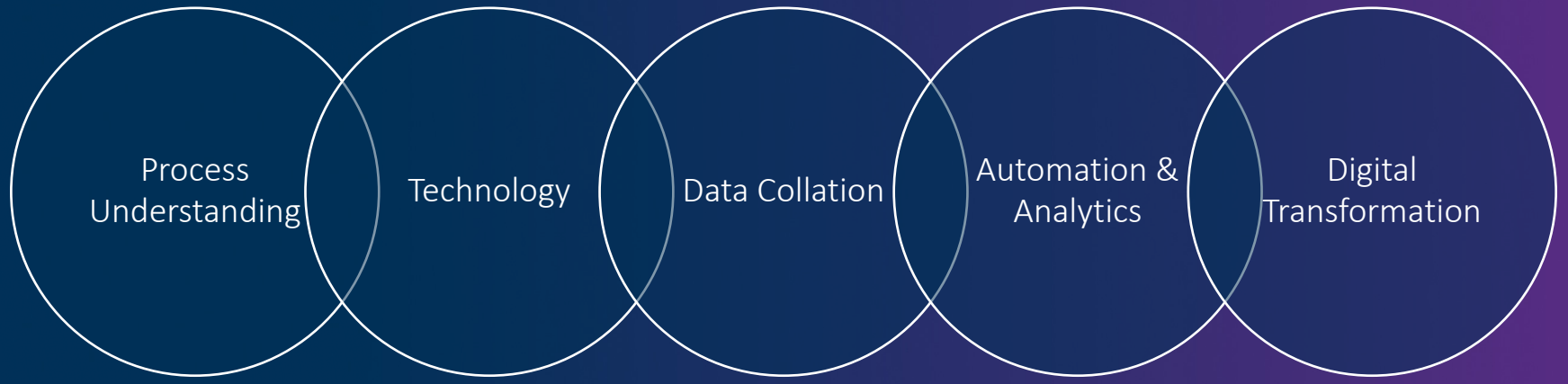
Headquartered in Houston, TX, Global presence

Operations **over 65 years.**

We create performance materials that improve the quality of life today and inspire a better tomorrow

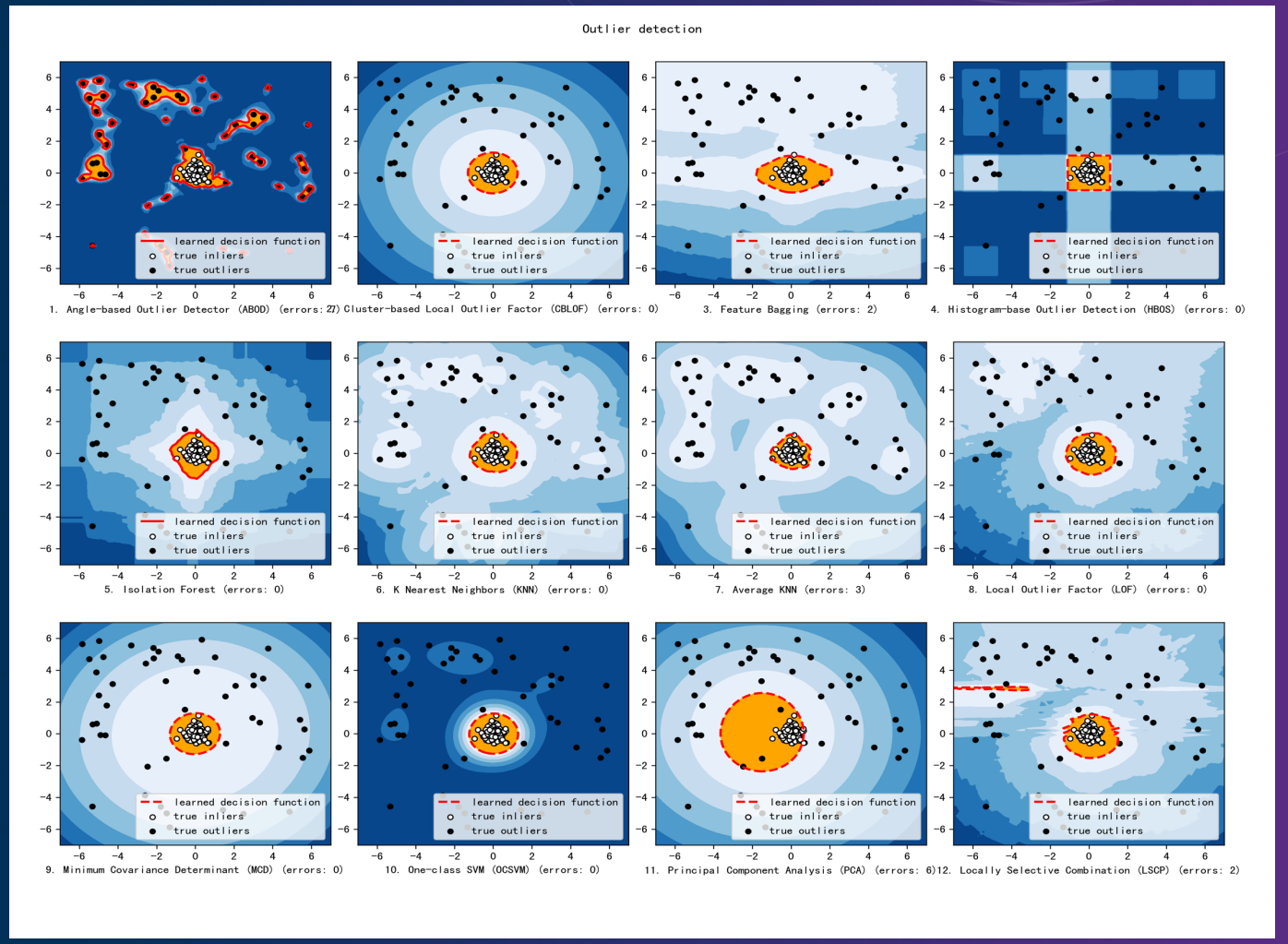
Digital Transformation & Scalability

- Why? Empowering people
- Collaboration
- Tools: Power BI, SEEQ
- Change Management
- Training people



Anomaly Detection (AD)

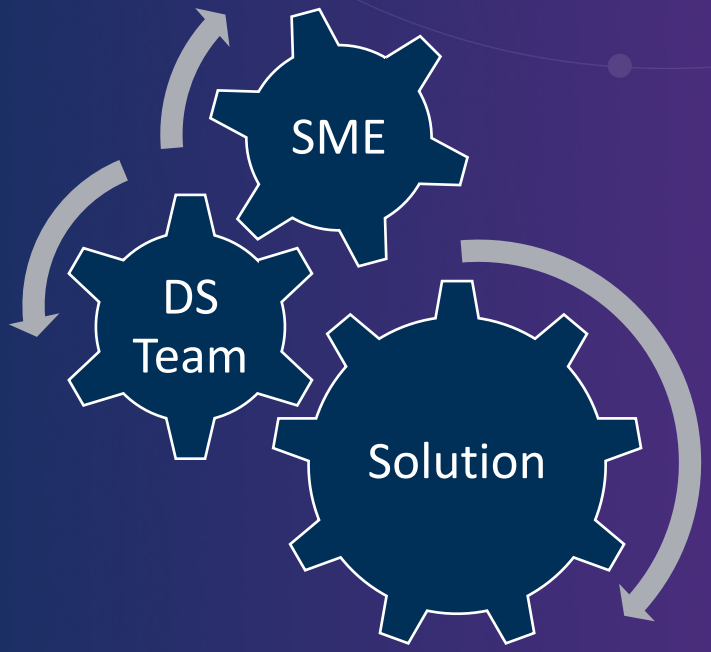
- What is AD?
- Importance :
  - Process visibility
  - Prioritize maintenance
  - Identify indicators of failures
  - Realtime monitor
- Methodology



https://thedatascientist.com/anomaly-detection-in-python-using-the-pyod-library/

Why did we use Seeq ML?

- Transferable
  - Pumps, compressors…
- Easy to use
  - Directly access in Workbench
- Iterative & Collaborative
  - Learn from false positives
  - Shareable



Implementation

- A compressor with 170+ variables
  - ➢ replacement $1.8M
  - ➢ significant failure ≈ $1M
- Variable selection
- Model
- Monitor real-time
- Next step!

Thanks!

Questions & Comments