

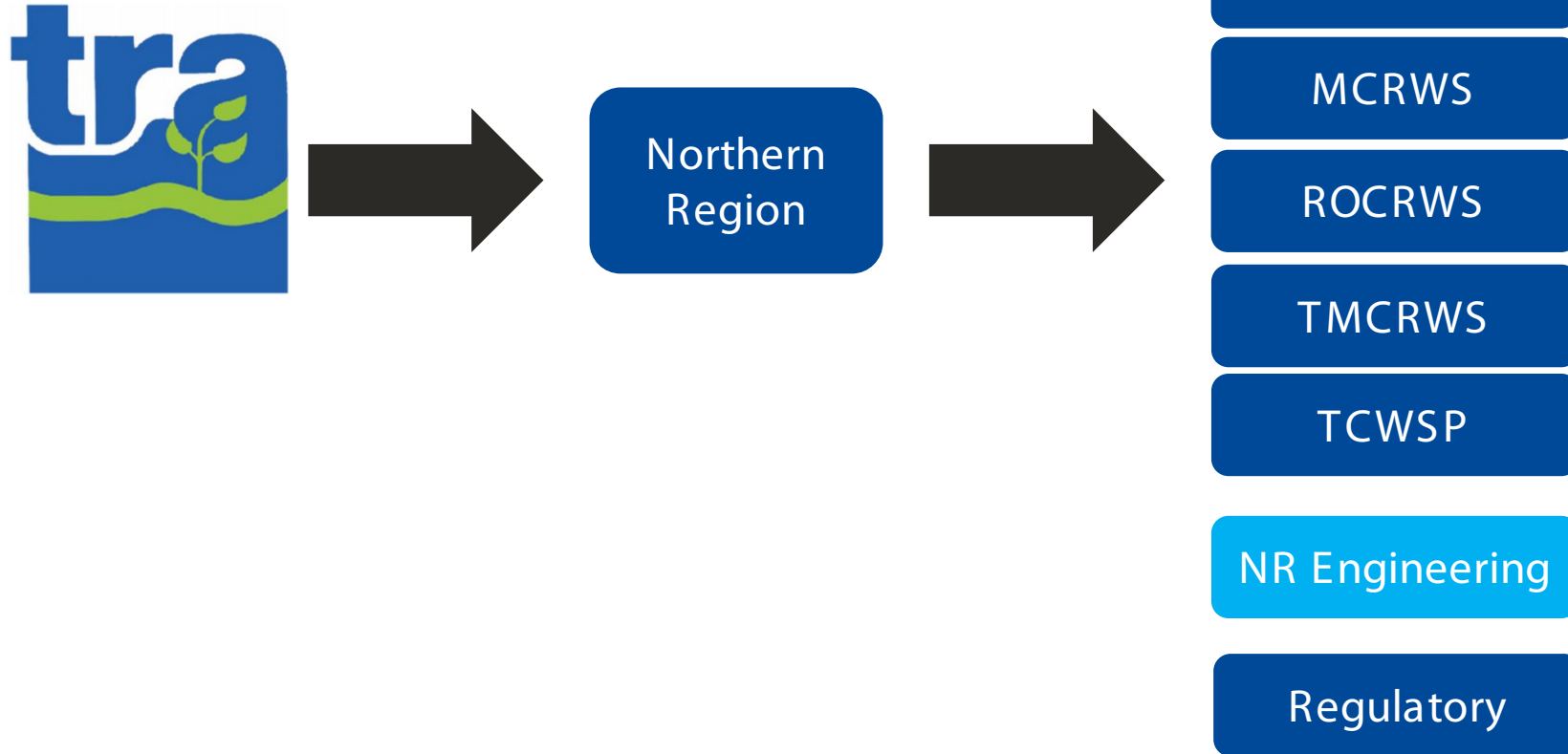
# Process Support: A Never-Ending Tale

Elaine Masters, PE  
Trinity River Authority

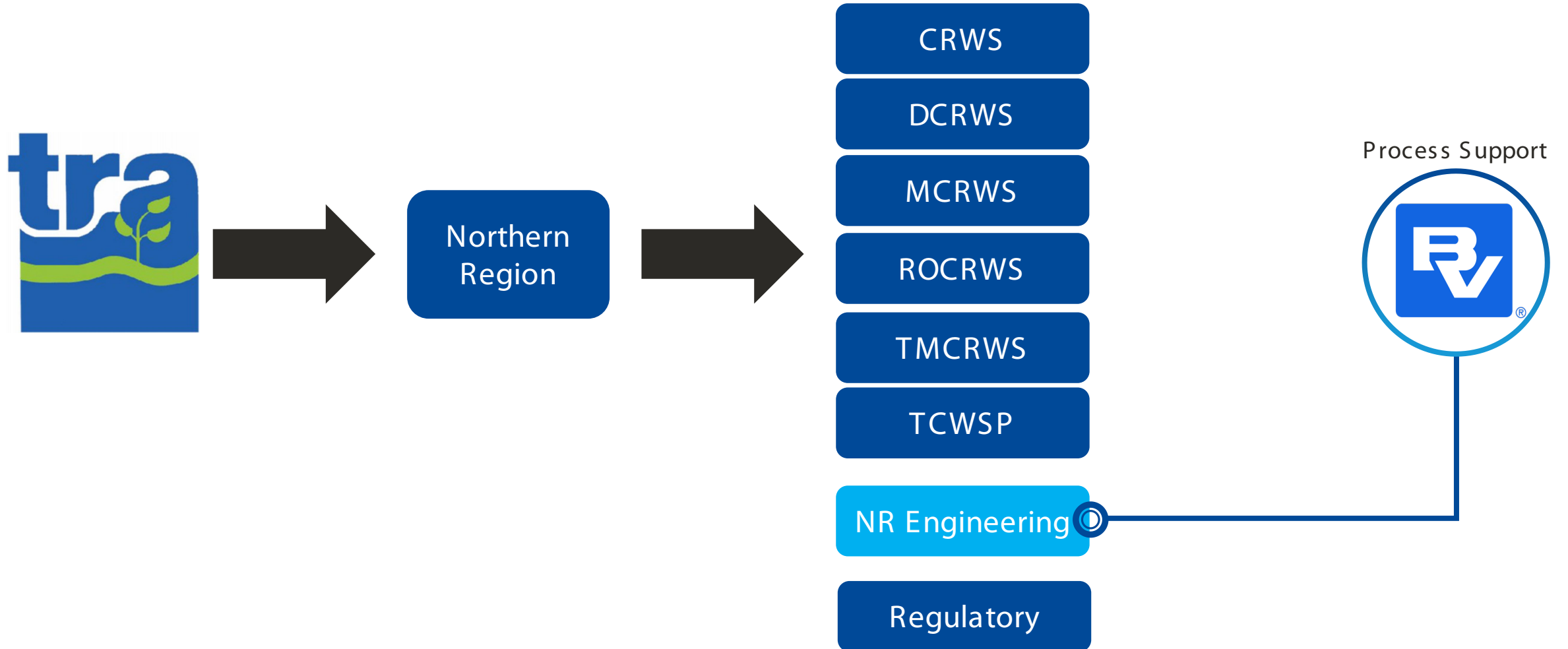
Caitlin Ruff, PE  
Black & Veatch

January 23, 2026

# Organization structure

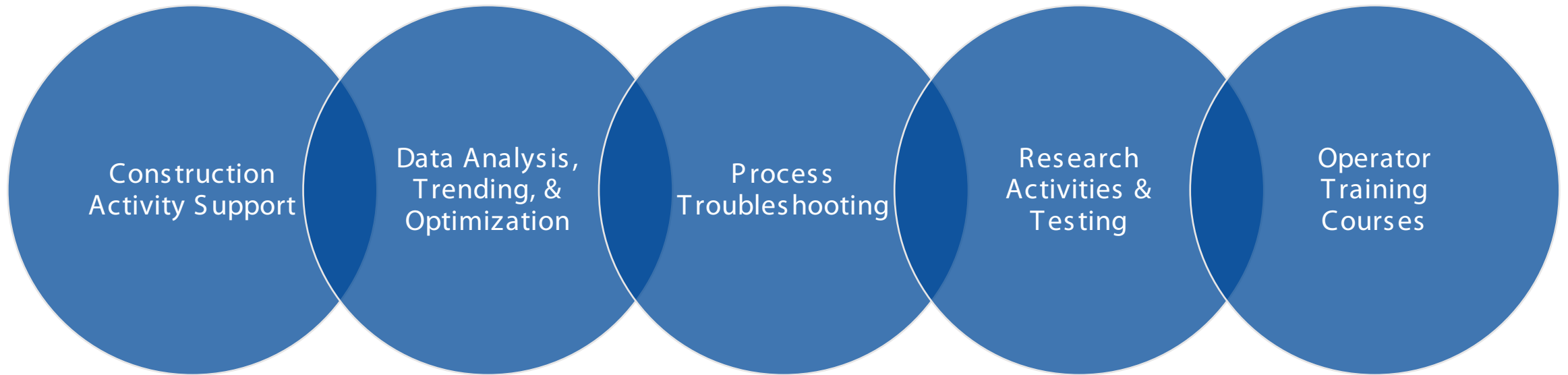


# TRA contracts out process support engineering services



# What is process engineering support services?

Providing support to related to process operations...



# Why does TRA contract out process engineers?



Access to more than just TRA's plant experience



Tap into other SMEs



Accessibility to resources & tools



# Case Study 1: Operations Training

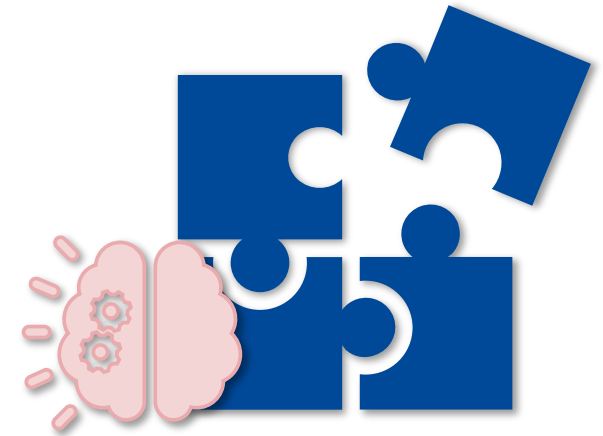
# Operations support activities capture knowledge from unique perspective with technical expertise

Construction Activity Support

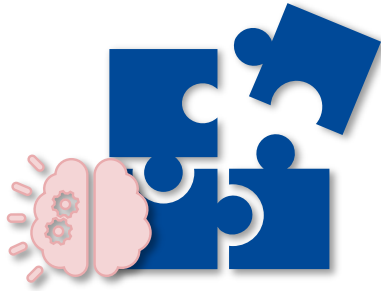
Data Analysis, Trending, & Optimization

Process Troubleshooting

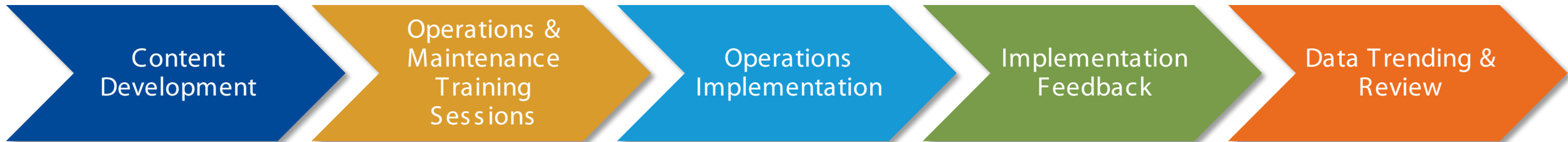
Research Activities & Testing



# Then, transfer that knowledge & empower operators



Continuous Feedback





# TCEQ Operator Training

## Spring BNR Training (20-hr)



Come and join us for the 2025

# Mike Young Spring BNR Training

CRWS Large Upstairs Conference Room

Day 1 - April 29, 8 am - 4 pm  
Day 2 - April 30, 8 am - 4 pm  
Day 3 - May 1, 8 am - 4 pm\* ← microscopes how-to  
Day 4 - May 2, 8 am - 12 pm  
↑ hands-on microscope usage

\*Bring microscopes\*

RSVP to [huncec@trinityra.org](mailto:huncec@trinityra.org) or [prices@trinityra.org](mailto:prices@trinityra.org)

## Fall Solids Training (16-hr)



Please join us for

# 2025 Fall Solids TRAINING

**PART 1**  
TUESDAY, OCTOBER 7 - 7AM-3PM **BLUE GROUP**  
THURSDAY, OCTOBER 9 - 7AM-3PM **GREEN GROUP**

**PART 2**  
TUESDAY, OCTOBER 14 - 7AM-3PM **GREEN GROUP**  
THURSDAY, OCTOBER 16 - 7AM-3PM **BLUE GROUP**

**CRWS LARGE UPSTAIRS CONFERENCE ROOM**

Contact Elaine at [huncec@trinityra.org](mailto:huncec@trinityra.org) with questions.

CRWS solid operators have been pre-registered. Operator shifts are designated with a **blue group** or **green group** label.

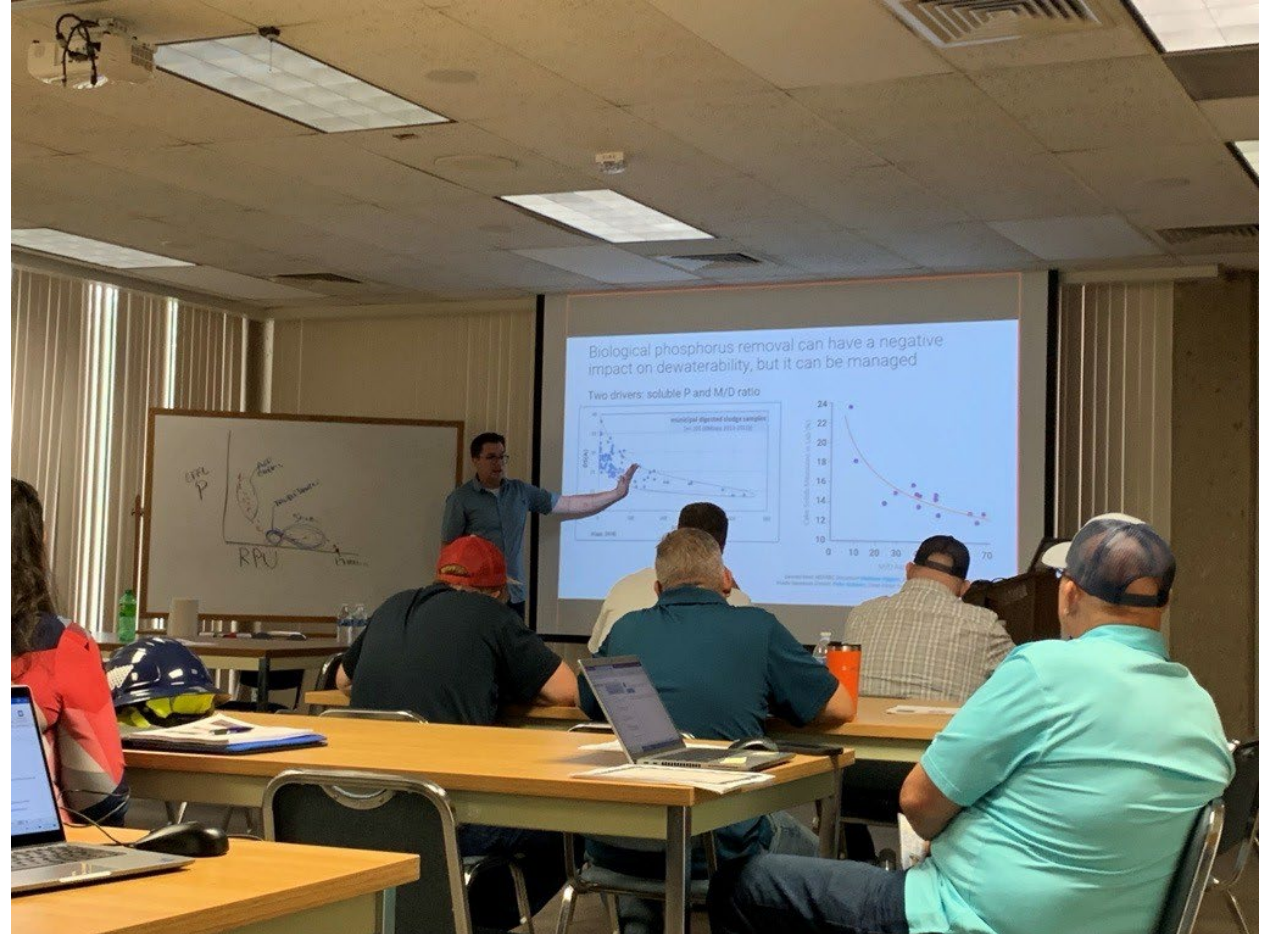
Each part repeats for schedule flexibility.

Registration can be done through TRA MyLearning.

Training is pending approval for 16 hours of TCEQ Operator Training for attending Part 1 and Part 2. Partial TCEQ training hours will not be provided. Attendance will be monitored.

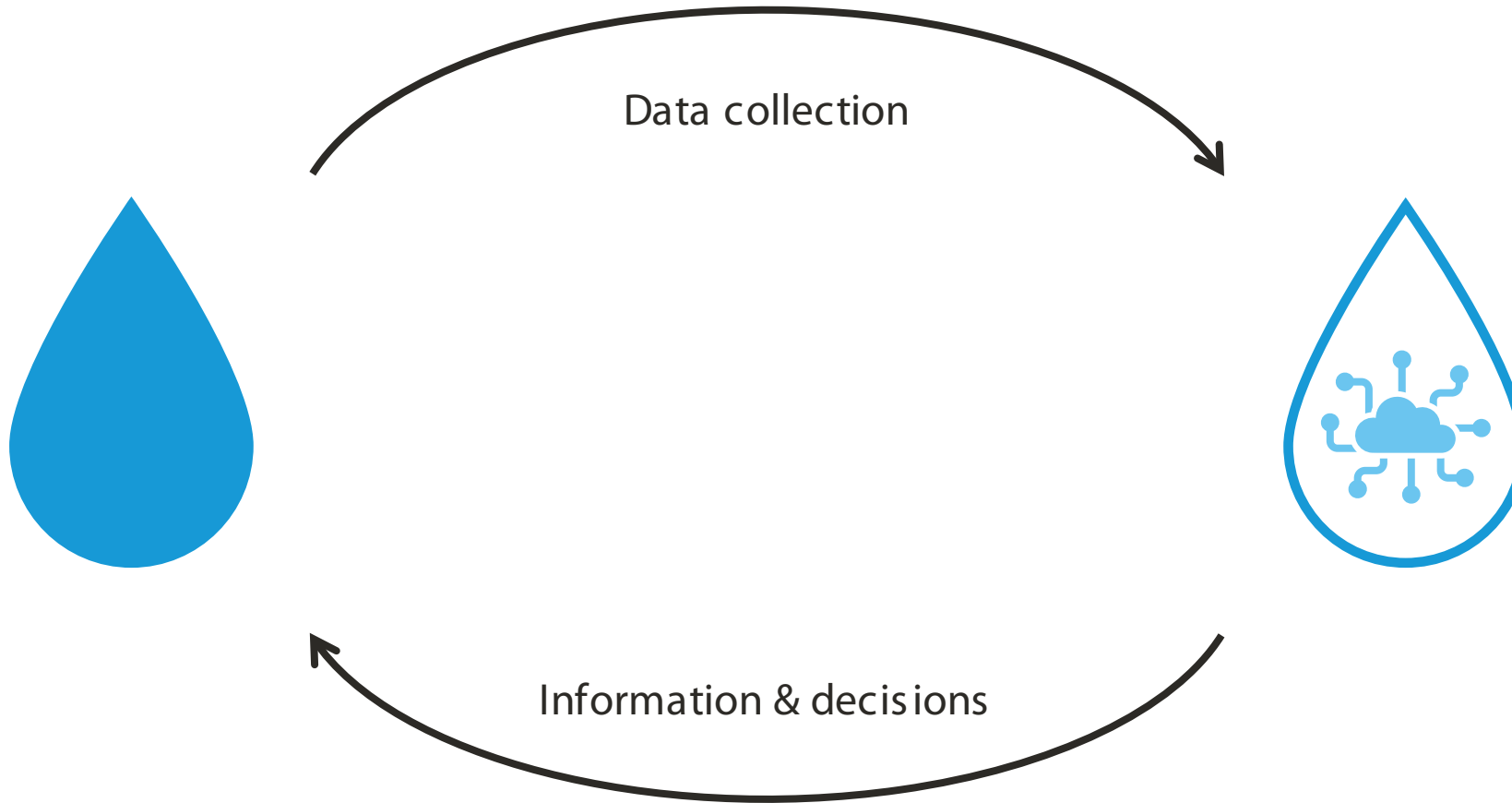


# TCEQ Operator Training: BNR and Solids

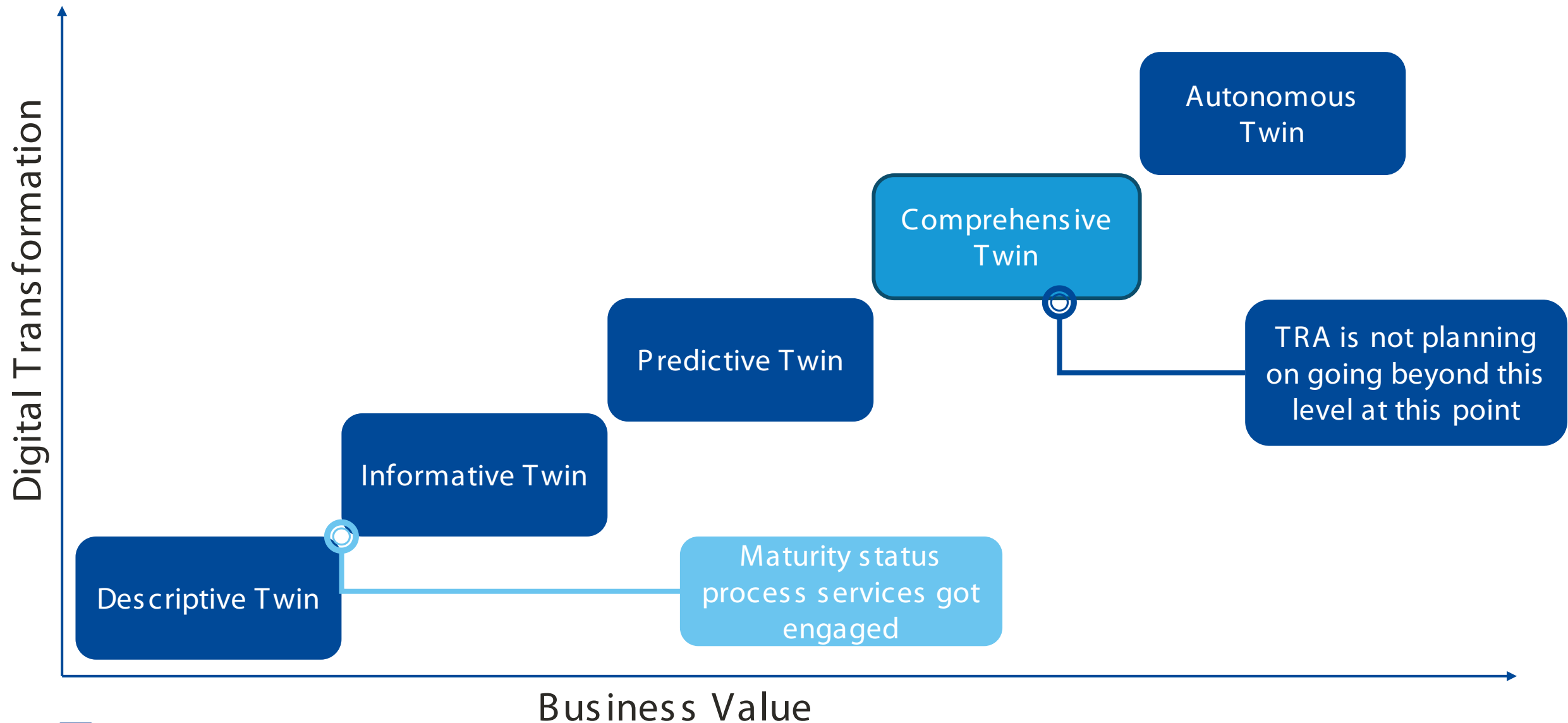


# Case Study 2: Digital Twins

# What is a digital twin?



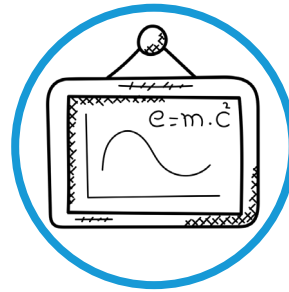
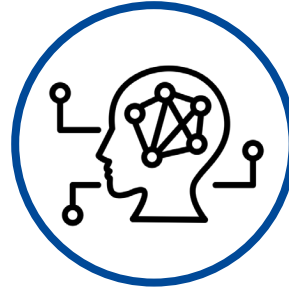
# Where is TRA going with Digital Twins?



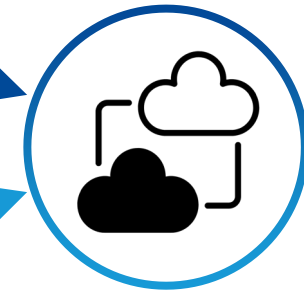
# How are we going about this?

Combining mechanistic models and machine learning models to create a hybrid model approach to utilize advantages of both

Machine Learning Models  
(i.e., MS Azure within Fabric)

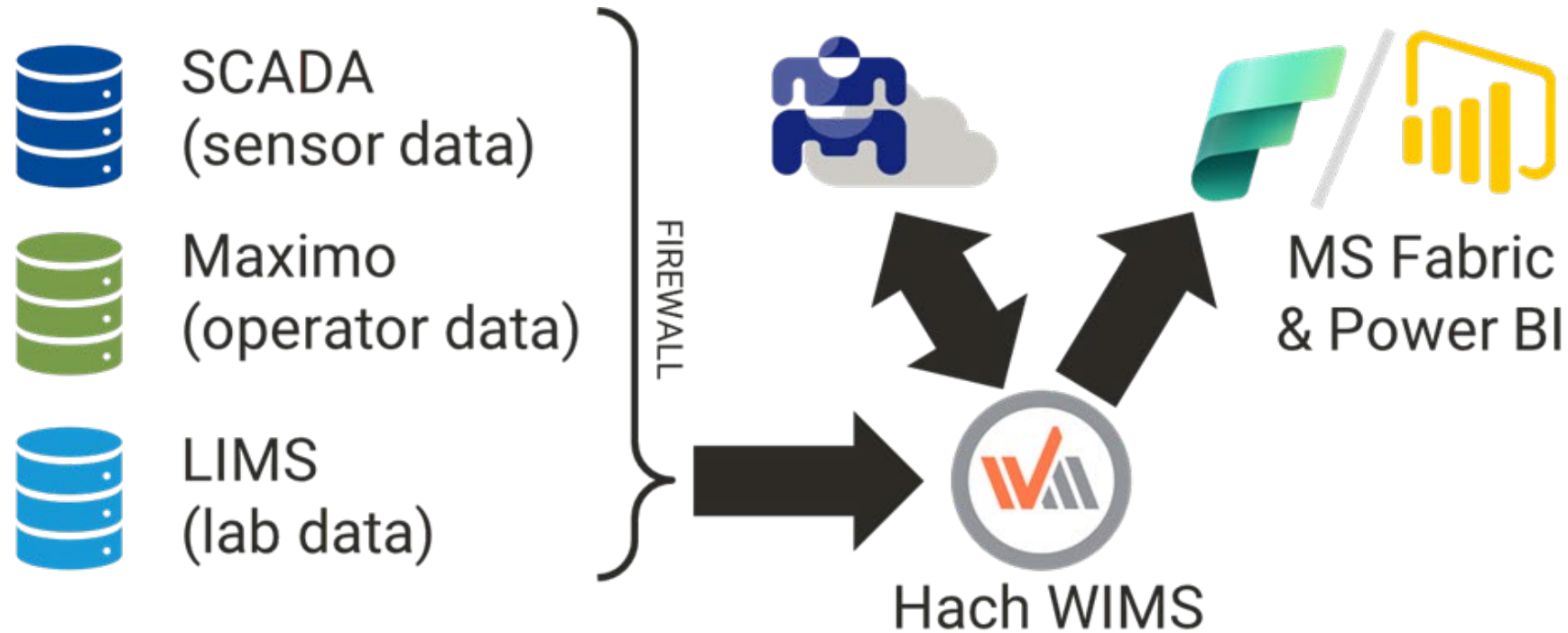


Mechanistic Models  
(i.e., Dynamita's SUMO)



Hybrid Models

# So what does that look like?



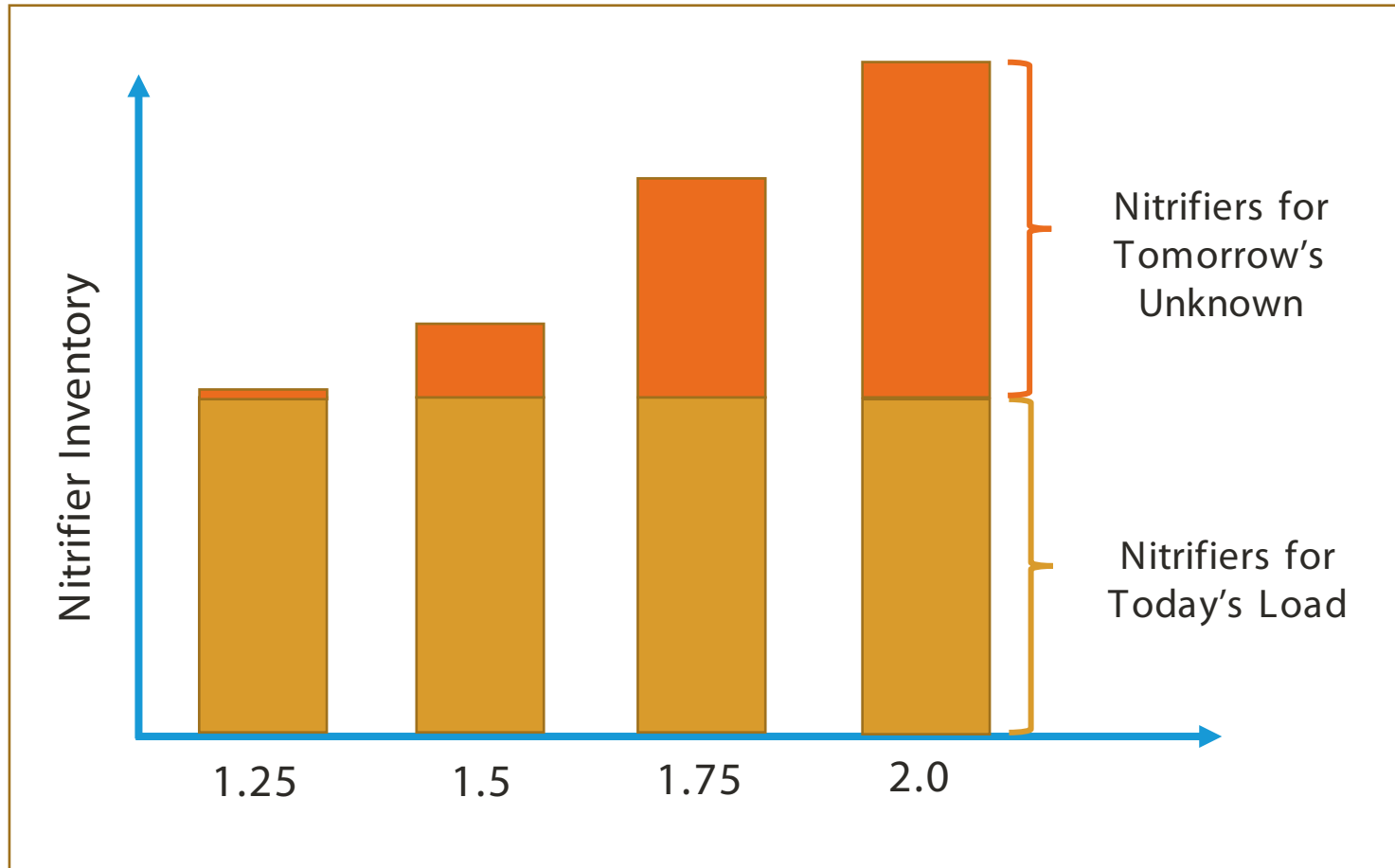


# Why pilot at DCRWS?



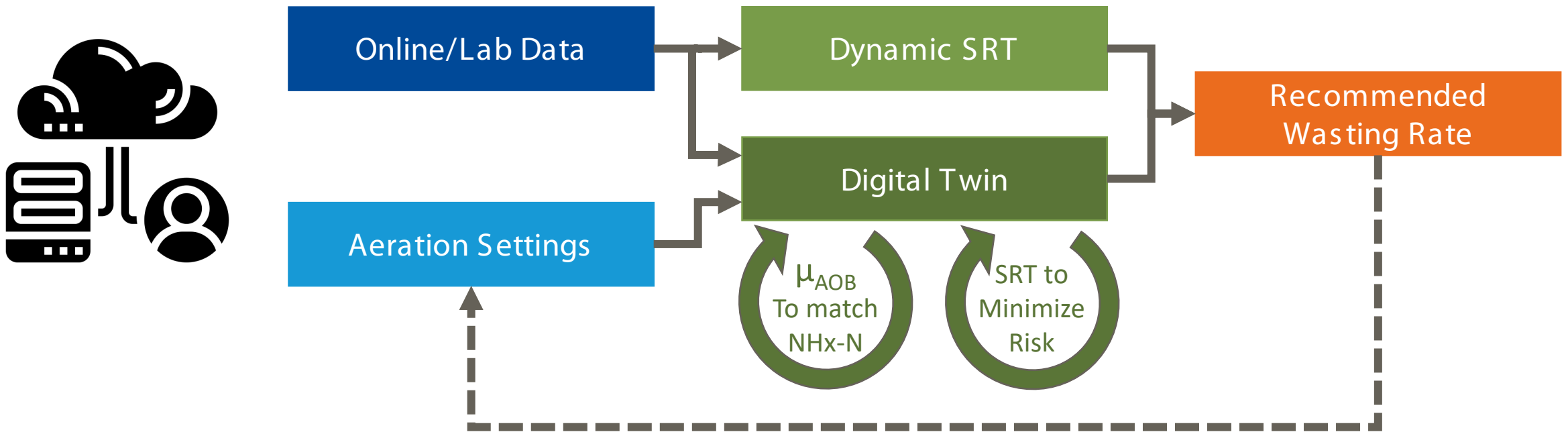


# Risk can be tied to the nitrifier safety factor



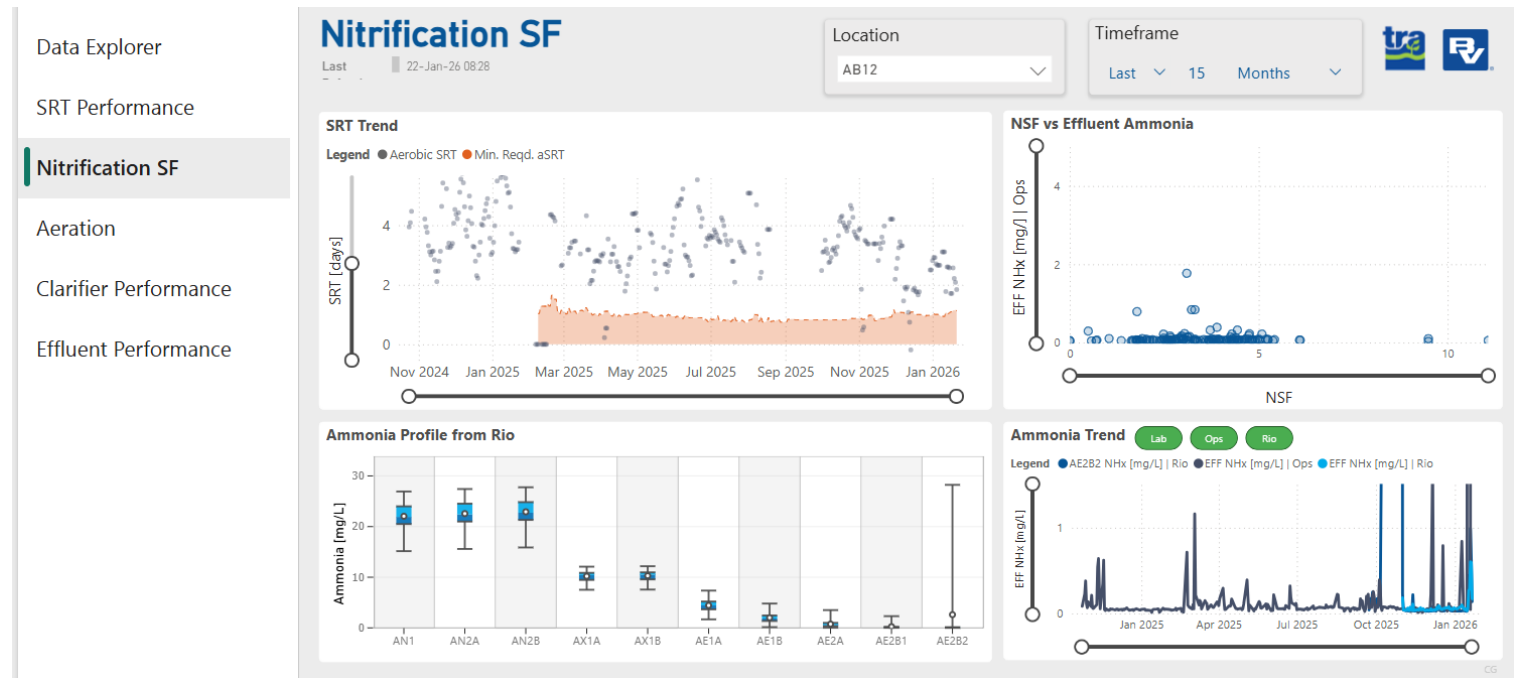
As loads increase, the same MLSS drives the safety factor lower, and water quality permit could be violated

# Digital Twin to optimize SRT control



# Where are we today?

- Currently in beta test with a platform
- Data connected and models are running
  - Ongoing calibration efforts
- Dashboard development to synthesize modeled data for use by managers/operations



# Contact Us

Elaine Masters, PE  
[hun gec@trinityra.org](mailto:hun gec@trinityra.org)

Caitlin Ruff, PE  
[ruffc2@bv.com](mailto:ruffc2@bv.com)