

SeeQ®

connect

CHEMICALS



Sherri Goodwin,
Data Science Engineer

INDORAMA
VENTURES





Optimizing Data Science Deployment for Velocity of Value @ Scale



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connect

Agenda

Who we are!



AIA Program



Core Values

Optimizing DS



Deployment

Use Case



Sharing

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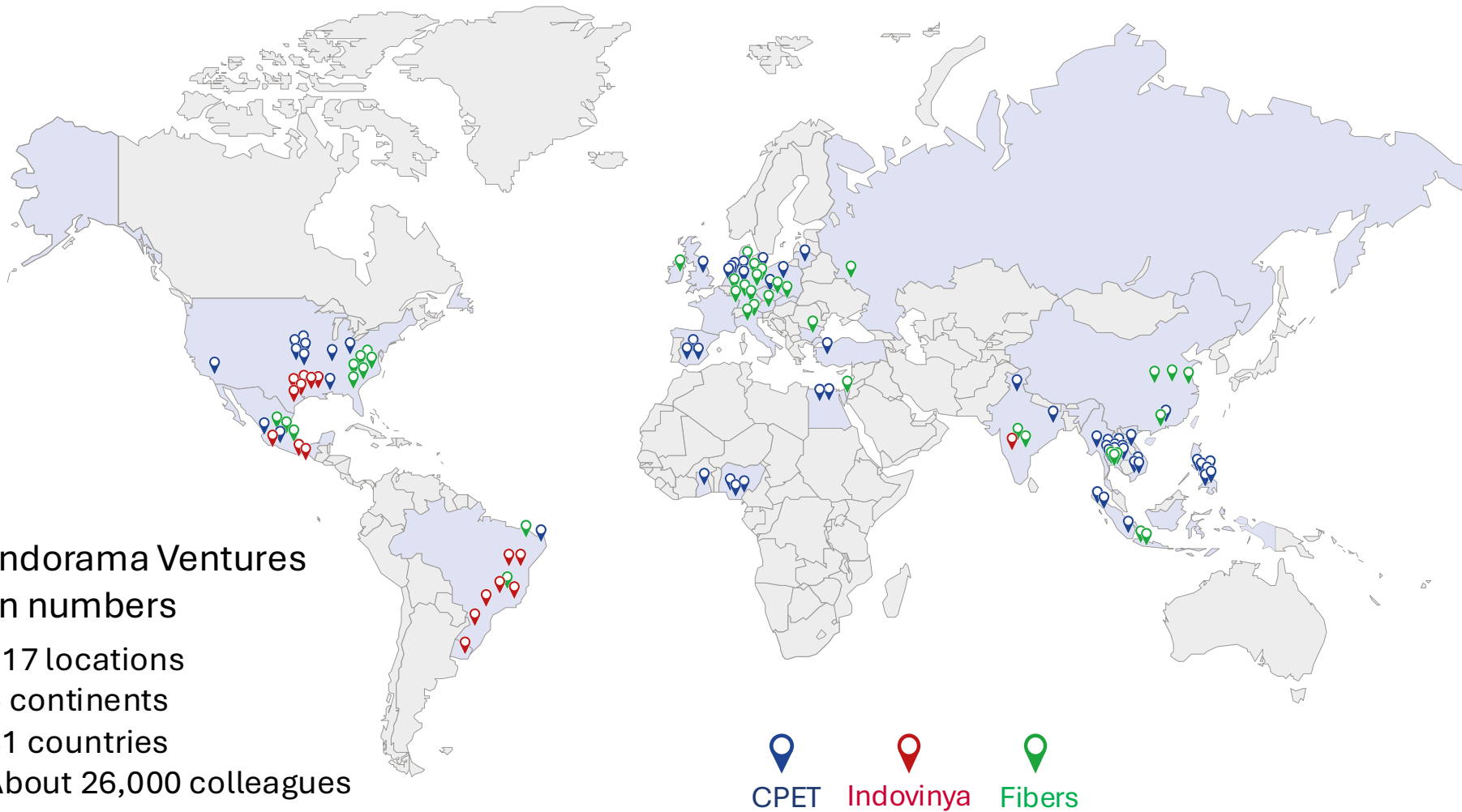
Deployment

Use Case



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Indorama Ventures Worldwide Locations



Americas

Brazil	Uruguay
Mexico	USA

EMEA

Bulgaria	Luxembourg
Czech Republic	Netherlands
Denmark	Nigeria
Egypt	Poland
France	Russia
Germany	Slovakia
Ghana	Spain
Ireland	Turkey
Italy	UK
Lithuania	

APAC

China	Myanmar
India	Philippines
Indonesia	Thailand
Israel	Vietnam

Indorama Ventures Worldwide Locations

Presence in

31

countries

Consolidated
revenues of

\$15.6B

(FY2023)

115+

Manufacturing
facilities

26,000+

employees

Indorama Ventures Public Company Limited (IVL) is a global chemical company based in Thailand. Founded by Group CEO Alope Lohia over 30 years ago, Indorama Ventures expanded quickly as a family-owned business to become a leading global PET manufacturer. In 2010, Indorama Ventures listed on the Thailand Stock Exchange and reset its vision to become a global chemical company by building a global portfolio of integrated assets across its chosen petrochemical value chain. Today, it has three business segments:



Indovina (formerly IOD)



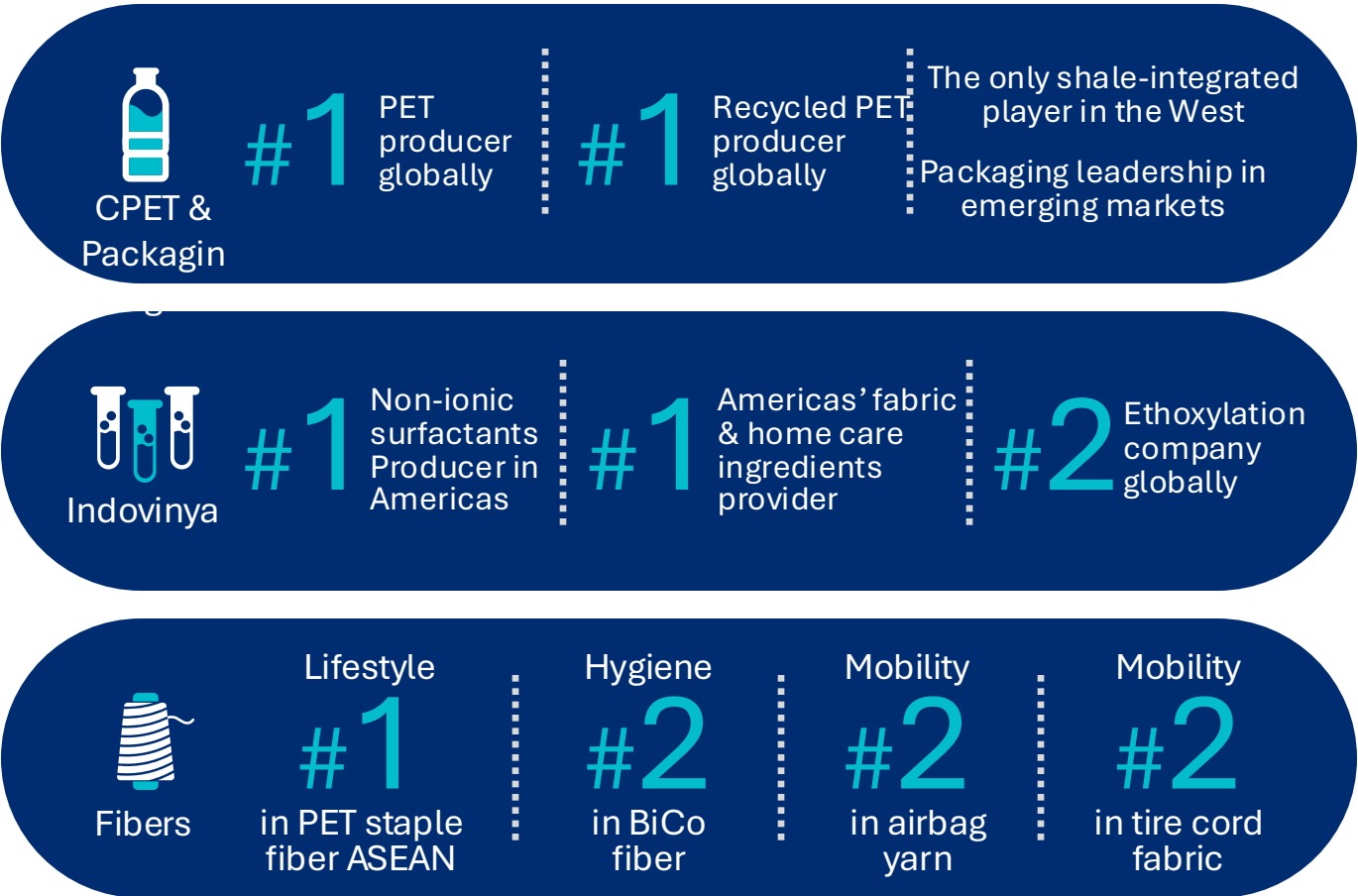
Combined PET
(CPET)



Fibers

Indorama Ventures also operates in the Recycling business, with an ambition to recycle 50 billion PET bottles every year by 2025.

Our customers help us grow as a market leader



*Recycled PET

Indispensable Chemistry



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AIA Program Goal: Empowering our Process/Equip SME's & DS Communities



Enabling OUR people

- Creating cross functional collaboration groups to improve operational excellence across different sites (24)
- Providing Best in class Advanced Industrial Analytics (AIA) training & ML tools to all in the #Seeq Community



Specialized Assistance

- Technical assistance on demand for sites that are using AIA Tools
- Additional support integration to facilitate speed up problem solving in specific core processes with help of Machine learning tools



Accelerate value Creation

- Machine learning app development to facilitate “No-code” gaining the insights quickly from ML Models
- Sharing globally add-ons & solved use cases (How to's – step by step)
- Training on No-code ML add-on tools



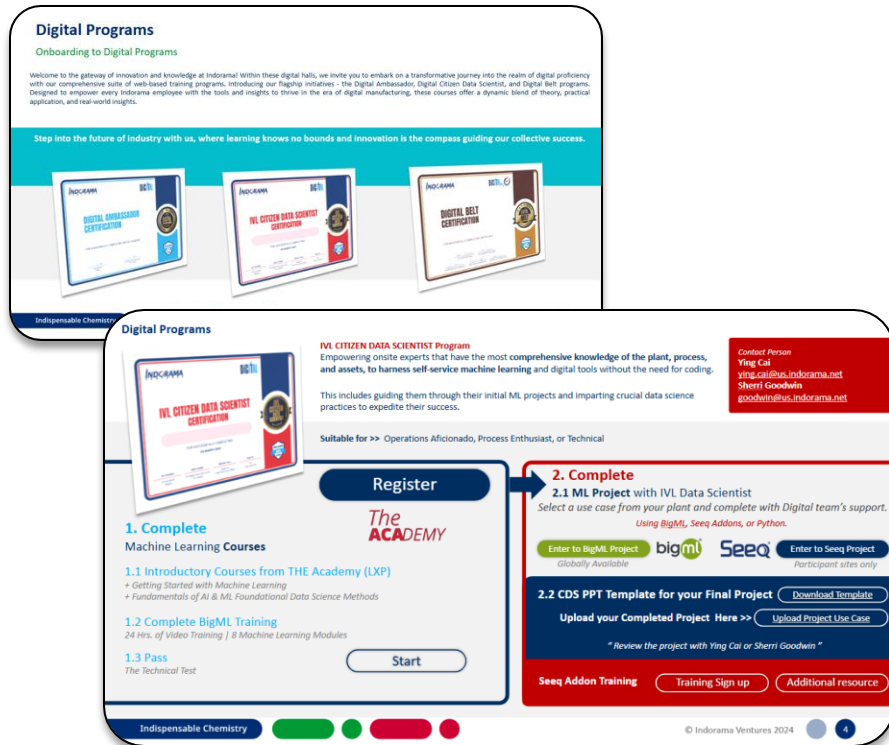
Leadership Support

- Transformation initiative was enabled by the transformation vision.
- Providing the Resources to continue to support at a broader scale



Building a Culture of Continuous & Higher Learning Opportunities

Adding Seeq Add-on's as part of the Citizen Data Scientist (CDS) Academy



New Data Literacy Course being Constructed: From Raw Data to Actionable Insights to Deep Technical Understanding (ML/DS)



By Joao Ganhao

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Optimizing Data Science Deployment with



Driving Results with Limited Resources: A Structured Path Forward

CHALLENGE

Small number of Data Scientists with expanding Seeq usage and challenges for fast value delivery. Driving forward fast, lean team, Big Impact

SOLUTION

Add framework to utilize value/alignment structure
Do initial solution and then make add-on
Solve Once & Share with ALL Indorama Ventures

RESULTS

Availability of the solutions to all Seeq users with minimal impact on Data Science team time. Value increased for entire company.

Scaling Smart Support: SeeqATHon as a Catalyst for Adoption

Year 2 | Data Scientist Program + IVEX Tools

Need Something More that you Don't See? Feature Request Portal

Additional Feature Request - SeeqATHon

Handle multiple requests by organized approach

Limited team needs structured approach

Seeq User w/ Idea



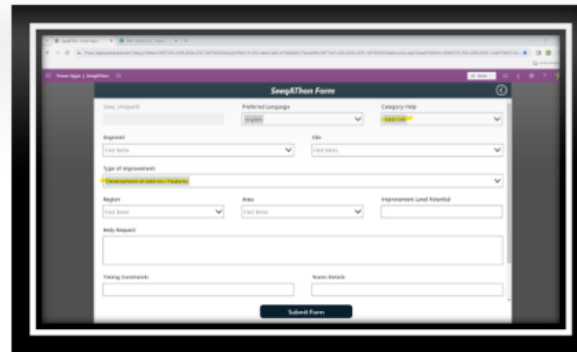
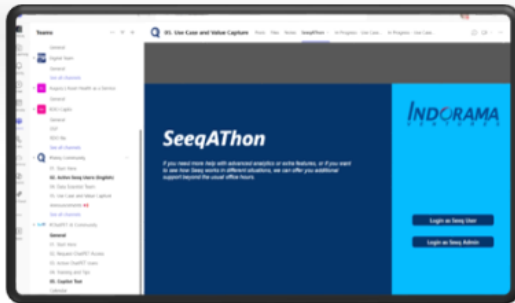
Feature Request Portal

Request ID	Request	Date	Status	Category	Comments
Req 1	FE	1/15/24	REQ	Feature Req	Enhance/Improve - IT
Req 2	MT	1/17/24	REQ	Workflow/Process	Change/Improve - Support
Req 3	FE	1/17/24	REQ	Feature Req	Design/Improve - IT
Req 4	FE	1/18/24	REQ	Feature Req	Development/Improve - IT
Req 5	FE	1/18/24	REQ	Feature Req	Development/Improve - IT
Req 6	FE	1/18/24	REQ	Feature Req	Development/Improve - IT
Req 7	FE	1/18/24	REQ	Feature Req	Development/Improve - IT
Req 8	FE	1/18/24	REQ	Feature Req	Development/Improve - IT
Req 9	FE	1/18/24	REQ	Feature Req	Development/Improve - IT
Req 10	FE	1/18/24	REQ	Feature Req	Development/Improve - IT

Review SeeqATHon Request in Power BI (Coming Soon)

1. Request
2. Review
3. Prioritize

Prioritize Request based on value and scalability



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New IVEX Tools Being Released May 2025

SPC Accelerator (Seeq add-on)
Create Statistical Process Control (SPC) control charts and apply run rules

Variance Inflation Factor
Analyze the VIF of the independent variables

Process Capability for Asset Trees
Calculates and graphs process capability for structured asset trees set up in workbench

One-way ANOVA
One-way ANOVA, Normality test, and more

Nested Gage Study
Measurement repeatability study

See Krissy Key's Presentation: Scaling Lean Six Sigma Tools Across An Enterprise to see these in Action

ML in our Data Scientist (DS) Community

Solve Once & Share with ALL Indorama – Delivery V2V@Scale

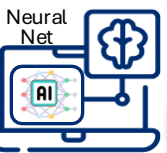


AMER – Digital

Data Scientist using their skills to Scale value across IVL



Senior Data Scientist



Data Science Engineer

AIA's Data Scientist Community is Growing!

One Data Scientist can now reach ALL of IVL, through deployed Apps

Right Predictive Model - Deployment
Deploy your Right model as an app to reach all users

Right Predictive Model - Modeling
Use the Right, Right, to create predictive models

IVL

Fueling Innovation, Accelerating Success

- Rafael Limones Ayllon – IVQ (4CBA Optimizer)
- José Francisco Cazares Marroquin – IVPM (CLPM Control Valve)

No-Code user View: SHAP & PDP Chart

1. SHAP Chart & Modeling: Released

Beta Stage of Release

2. Forest Anomaly Detection: Sept 2024

3. Seeq to Big ML back to Seeq: Beta Stage - Faster ML capabilities

4. Variance Inflation Factor & Correlation Analysis

Alpha Stage - Faster ML capabilities

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Non-Data Scientist Members

Fueled by their Passion for Data Analytics making Advanced Models



Process Experts

With a Working knowledge of



Process Experts

& a Passion for making a bigger change @ IVL through Data!

We recognize this group of extraordinary talent elevating us with more complex models & Add-ons inside our AIA Platform!

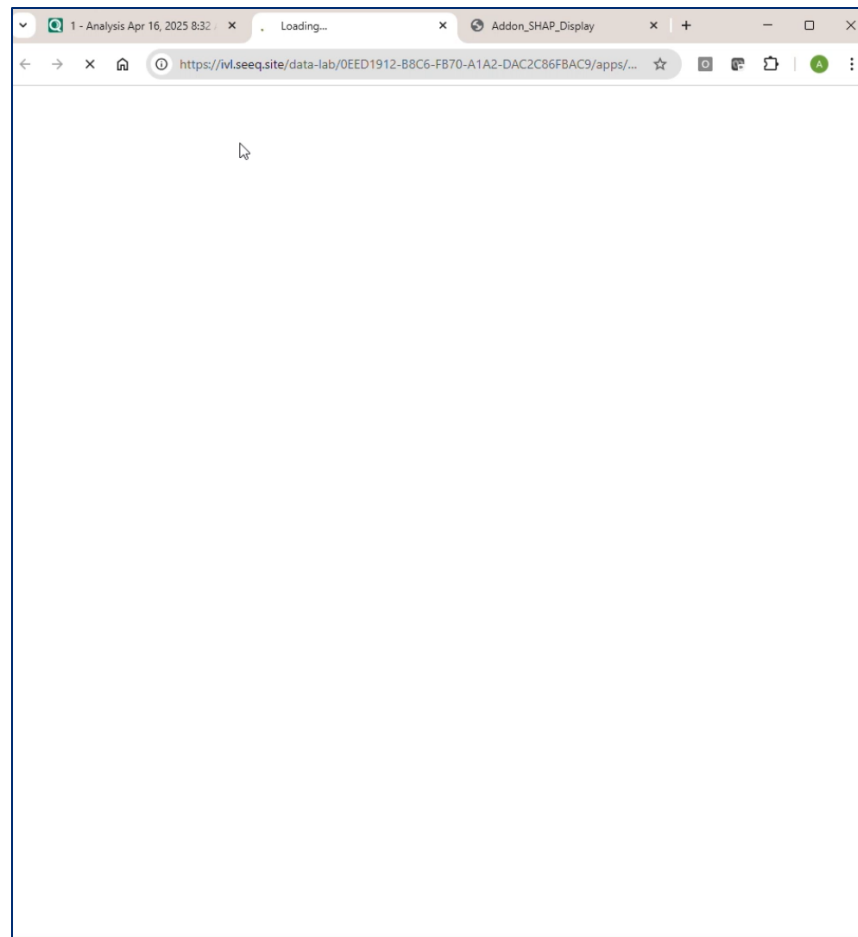
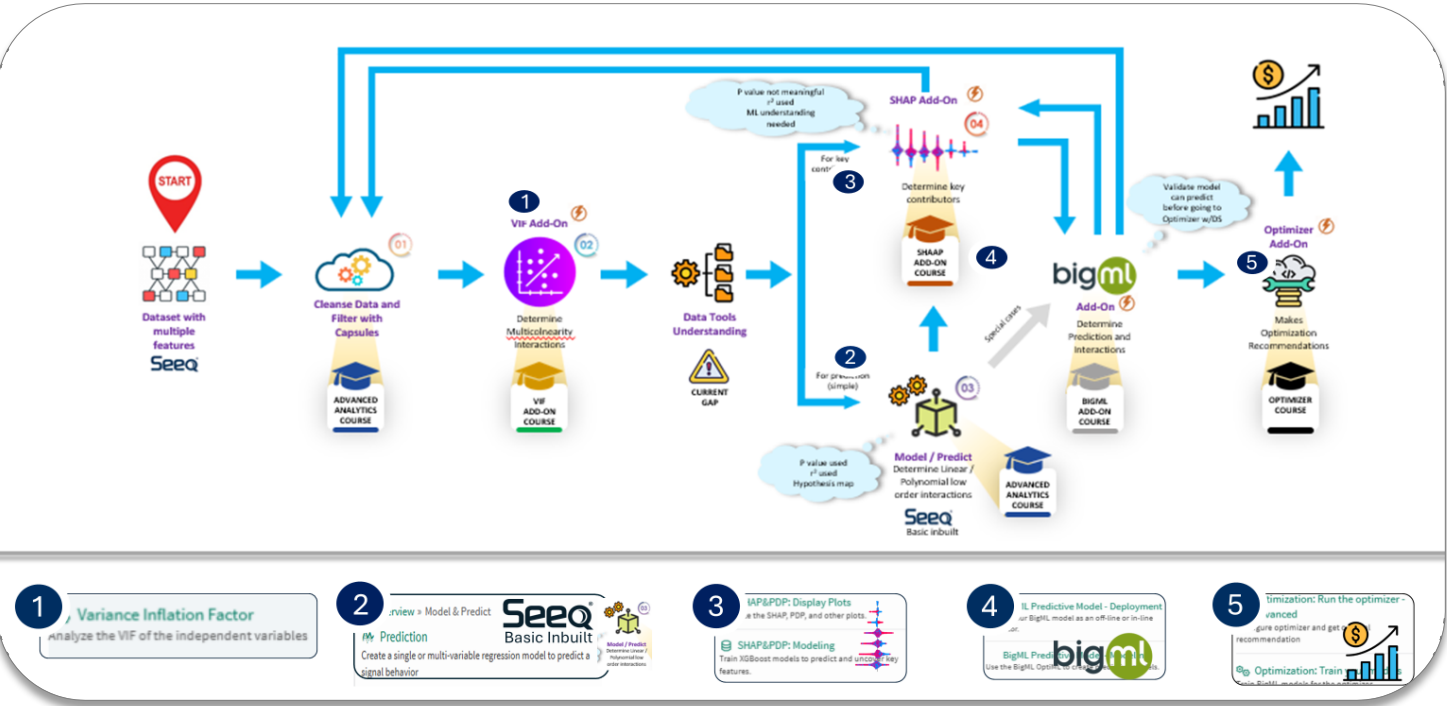
Progression for Data Analytic Toolbox | Add-on Selection

Selection Manual Snapshot: Choosing the Right Tool at the Right Time

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IAP&PDP: Display Plots
are the SHAP, PDP, and other plots.

SHAP&PDP: Modeling
Train XGBoost models to predict and uncover key features.

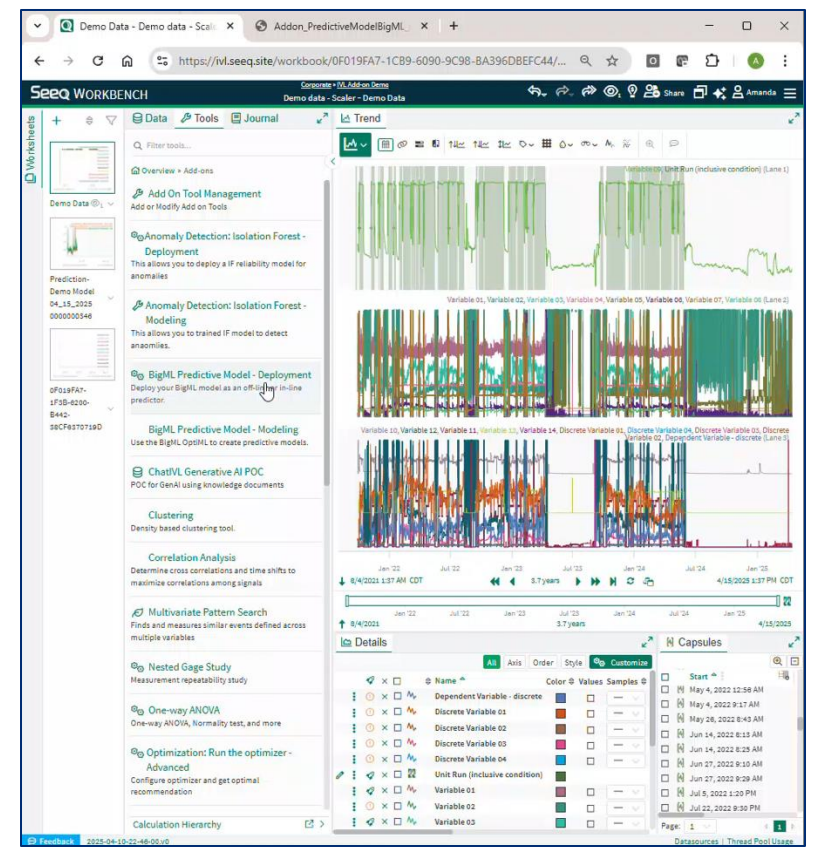
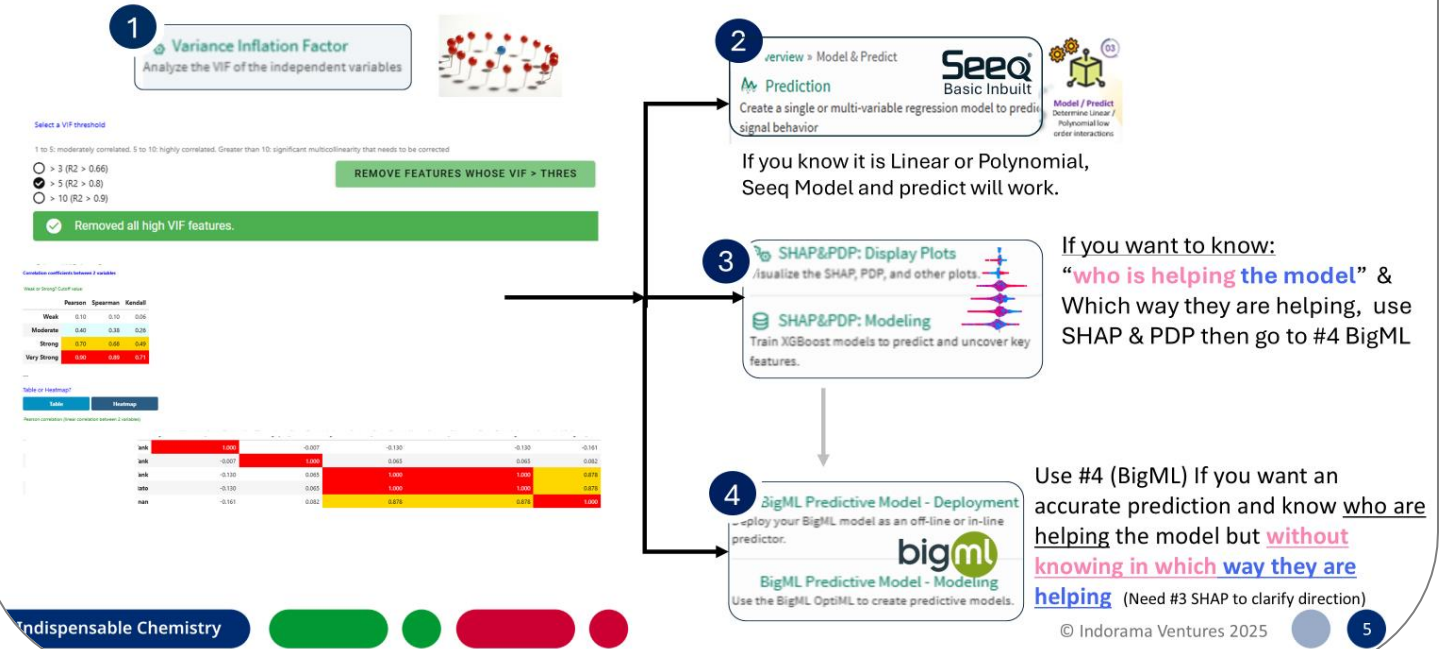


Guidance for Non-Data Scientists on ML Tools

Selection Manual Snapshot: Choosing the Right Tool at the Right Time

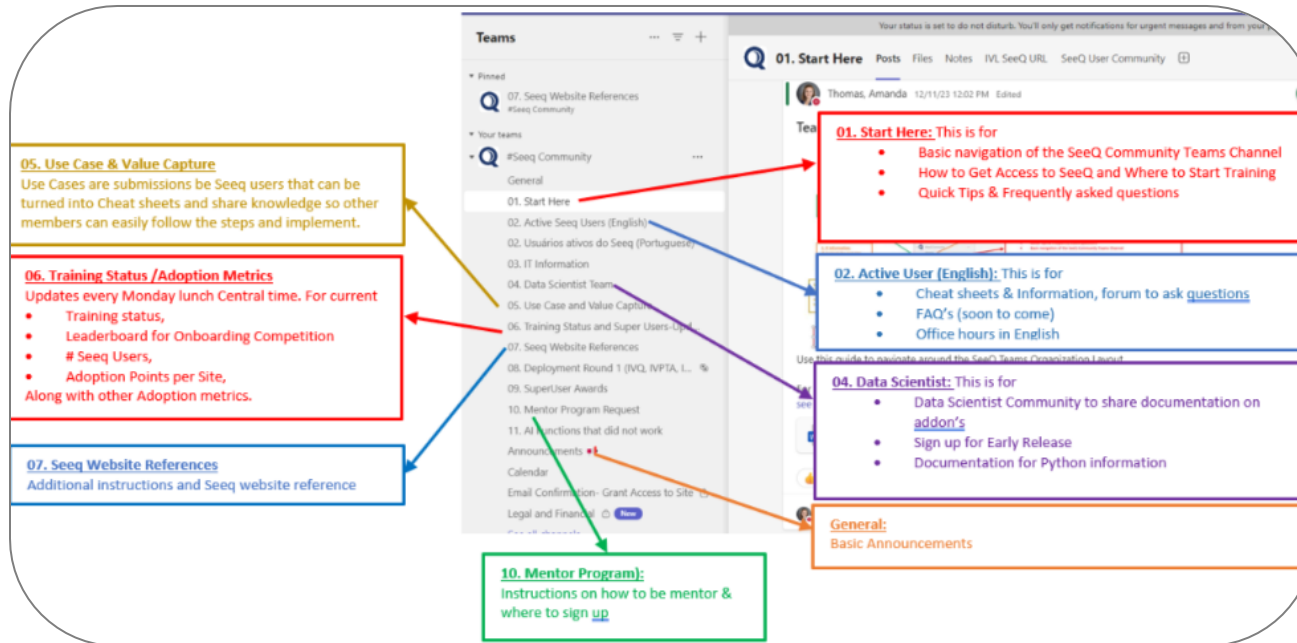
Selection: From ViF to Next Step


Progression of Data Analytics Toolbox | Data Scientist Addition




Organization & Cross Sharing

Goal: Minimize impromptu emails, team chats, and unplanned “jump on a call for support”



- Upload final code templates (ensuring we always think of the long-term reusability) 

- Self-service video - & training for add-ons 

- Office hours for data scientists 

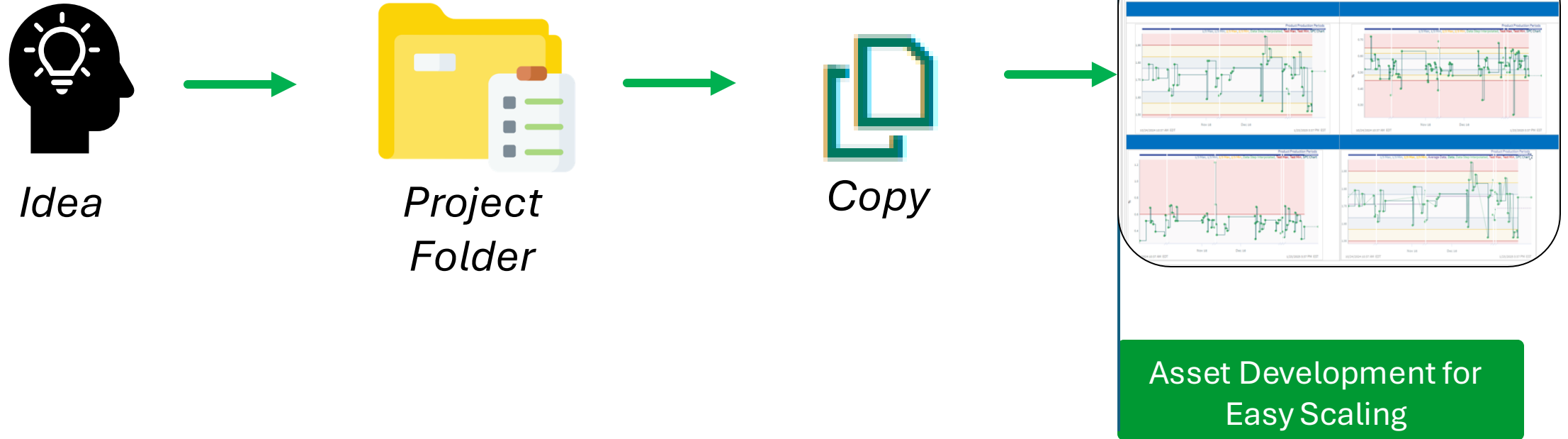
- Team communication during project (Group Chats and Project folders) 

Allowing our Data scientist team to have “less interrupted work time”

- Communicating and reaching out globally to other users that are programming
- Phased deployment of Add-on's

Scaling Existing Solutions: SPC Asset Script from Original User then modified for Next Site

Solve Once & Replicate: Practicing Lean manufacturing in Every Aspect of our working



See Krissy Key's Presentation: Scaling Lean Six Sigma Tools Across An Enterprise to see these in Action

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Part 1 | Engineering precision meets Data Science collaboration

Site Wide: Optimizer for Several Units with dynamic constraints (Linear Model Solver)



Idea

Seeq®



Approved



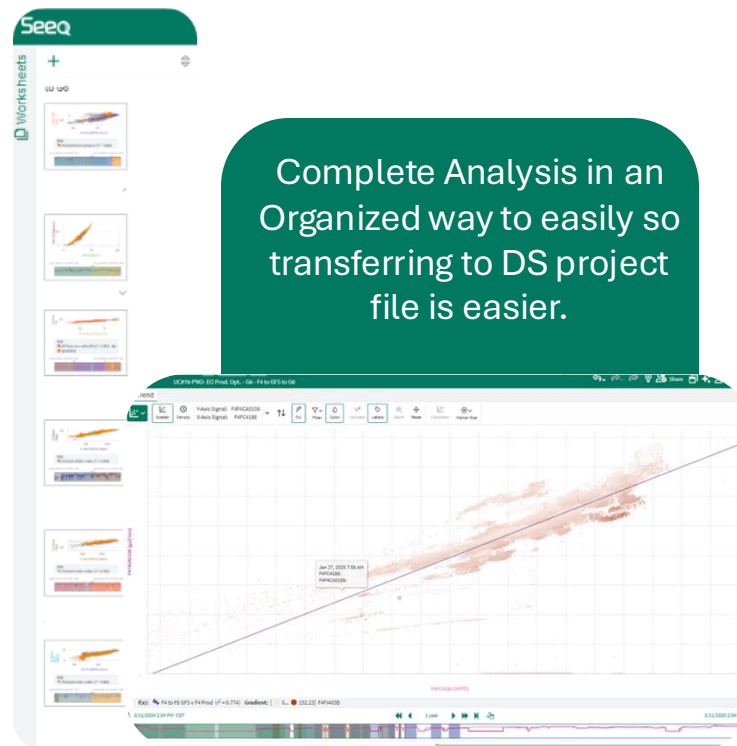
Project
Folder



DS



Process
Expert





Part 2 | Linear Programming Project

Find the maximum overall efficiency of several equipment

The key is the relationships between the variables built in Seeq by the Seeq Champion. This allows the validity of the output.

1. Easy Operator Interface for Access:

2. Back-end constraints (by Eng.) work with daily averages to build recommended conditions

Comparing Efficiency Point Before & After



The Program Results

Empowering & Connecting our Great Assets >> **Our People**

Connecting our Teams around the world & building internal Capability!



12,560+

Hours in Seeq
(2024)
Excluding training time

690+

AIA Users
@ IVL.Seeq.Site

22

Sites
Deployed

950+

ML Models by
Non-Data Scientist
Members & counting

139

Members Training
in AIA Advanced Analytics
(+18 hrs.)

16

Months
of Deployment

749

Members Training
in AIA Foundations
(9 hrs.)

45


Super
Users

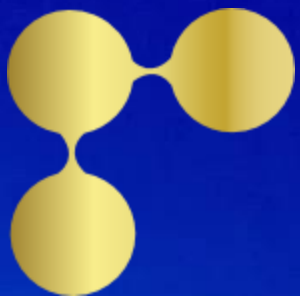
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ML Tools
being Deployed to
No Code Users

And this is **JUST** the beginning!

Thank You
&
Let's Connect

 Presenter: Sherri Goodwin
[linkedin.com/in/sherri-goodwin](https://www.linkedin.com/in/sherri-goodwin)

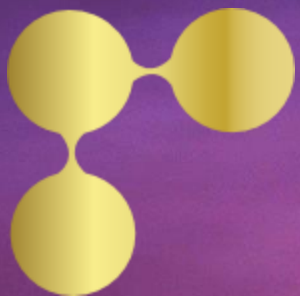


SeeQ®

connect

Thank You





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