

SeeQ®



connect

ORLANDO JUNE 1-3, 2026

Juliana Fidalgo's – Bio

Juliana is a Digital and Automation Engineer at Indorama Ventures, where she leads the advancement of data- and AI-driven industrial analytics across the South America Region. She has played a pivotal role in scaling advanced analytics capabilities and delivering high-impact digital initiatives, contributing to multi-million-dollar financial value at scale.

With an academic background in Chemical Engineering and experience rooted in R&D, Juliana bridges advanced modeling, process control, and industrial execution. She holds a Master's degree from PUC-Rio and is currently a Ph.D. candidate at COPPE-UFRJ, focusing on modeling and control of dynamic systems.



Abstract

Juliana

Indorama Ventures PLC | Camaçari
Site (Indovina Segment)



Title: Smart Monitoring: Where Analytics Meets Operational Discipline

While process stability is essential for margin optimization in the chemical industry, operational variability across shifts often constrains performance. Smart Monitoring addressed this challenge by standardizing operations through advanced analytics and frontline empowerment.

The initiative identified and monitored 72 critical variables in Seeq, established statistical control beyond traditional alarms, and introduced a new KPI, Operational Compliance, to assess adherence to optimal operating ranges. Real-time dashboards enabled proactive performance management by panel operators.

As a result, compliance increased by over 5% in 2025, variability was reduced, and most shifts exceeded targets, embedding stability into daily operations while delivering financial and sustainability value.



Smart Monitoring: Where Analytics Meets Operational Discipline

Indorama Ventures PLC | Camacari Site (Indovinya Segment)

By Juliana Fidalgo

Indorama Ventures: Who we are

OUR PURPOSE

Reimagining chemistry together to create a better world.

OUR VISION

To be a world-class sustainable chemical company producing indispensable chemistry that touches billions of lives every day.



Presence in
32 countries



Consolidated revenues of
\$15.6 billion
(FY2023)



Manufacturing facilities
114



Employees
25,000

Business segments



Combined PET
(CPET)



Indovinya



Fibers



#1

rPET producer globally



#1

ethoxylation
company globally



#1

in PET staple fiber
production in ASEAN



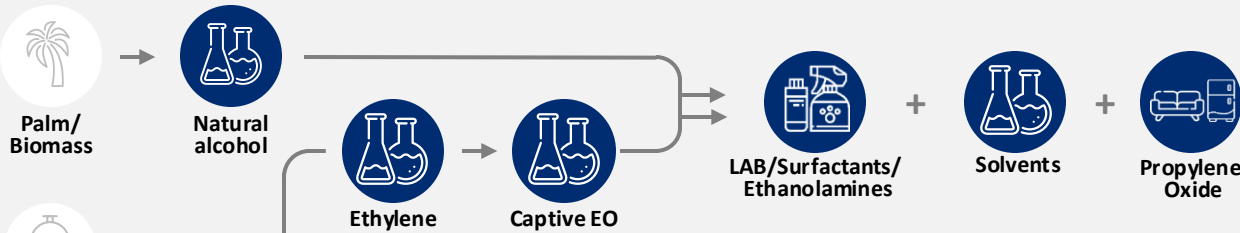
#2

in airbag yarn

Integrated value chain



Indovina



Example end markets



Home and personal Care



Crop solutions



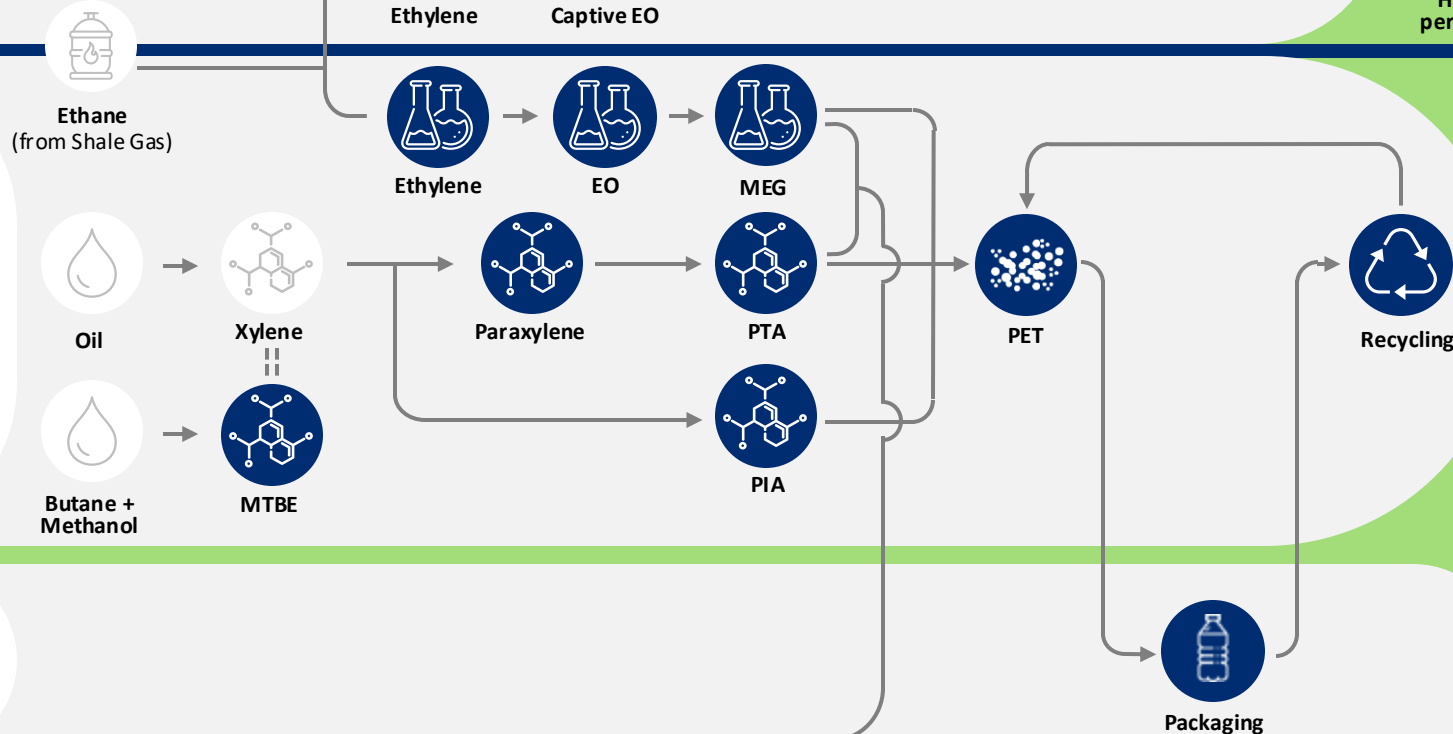
Coatings and construction



Energy and resources



CPET



Example end markets



Food and beverage packaging



Consumer goods packaging



Medical applications



Transportation fuels



Electrical and electronics

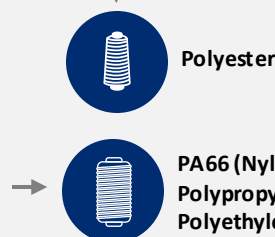


Indovida



Fibers

Feedstock



Example end markets

Lifestyle



Apparel



Home furnishings



Contract Textiles

Hygiene



Baby and personal care



Feminine care and adult incontinence



Medical air and liquid filtration

Mobility



Tires



Airbags



Industrial

Indovinya Company snapshot



Presence in

10

countries



15

manufacturing locations



3000

employees



10

R&D centers



INDORAMA VENTURES - INDOVINYA

Camaçari, Brazil



One of Indovinya's largest and most integrated manufacturing sites, producing ethylene oxide, alkoxyates, oleochemicals, and derivatives. Camaçari serves multiple end markets while anchoring scale, innovation, and sustainable manufacturing in the region.



Highlights



Chemical
Engineering



Ph.D. candidate on
Modeling and
Process Control



Digital &
Automation
Engineer

**Juliana Lima Guerhard
Fidalgo**

I'm passionate about data analytics and disruptive technologies, and I truly believe that engaging, sharing, and empowering people through knowledge is the path to transformation.

Experience – 10 Years

Chemical Engineering, M.Sc.
SAR AIA Leader (2 yr)
Digital Engineer - Engineering and Maintenance (4 yrs)
Data Scientist (4 yrs)
Chemical Engineer Researcher (3 yrs)

Advanced Industrial Analytics (Or AIA) For Everyone



Industrial
analytics early
adopter

Year 1 – Indorama
Champion Program

15 Months Seeq - User



Visionary
leader

Accelerating value
through strategic
execution, innovation,
and early success sharing
of the AIA Movement



Tech. Anchor
to scale
capabilities

Currently supporting
addition of AIA across
IVL sites across the
Globe

OVERVIEW



As Is

DESIGN



To Do

RESULTS



Frontline + Ownership

ENABLEMENT



Scale Value

OVERVIEW



As Is

DESIGN



To Do

RESULTS



Frontline + Ownership

ENABLEMENT



Scale Value

INDUSTRY CHALLENGE | The hidden tax of variability

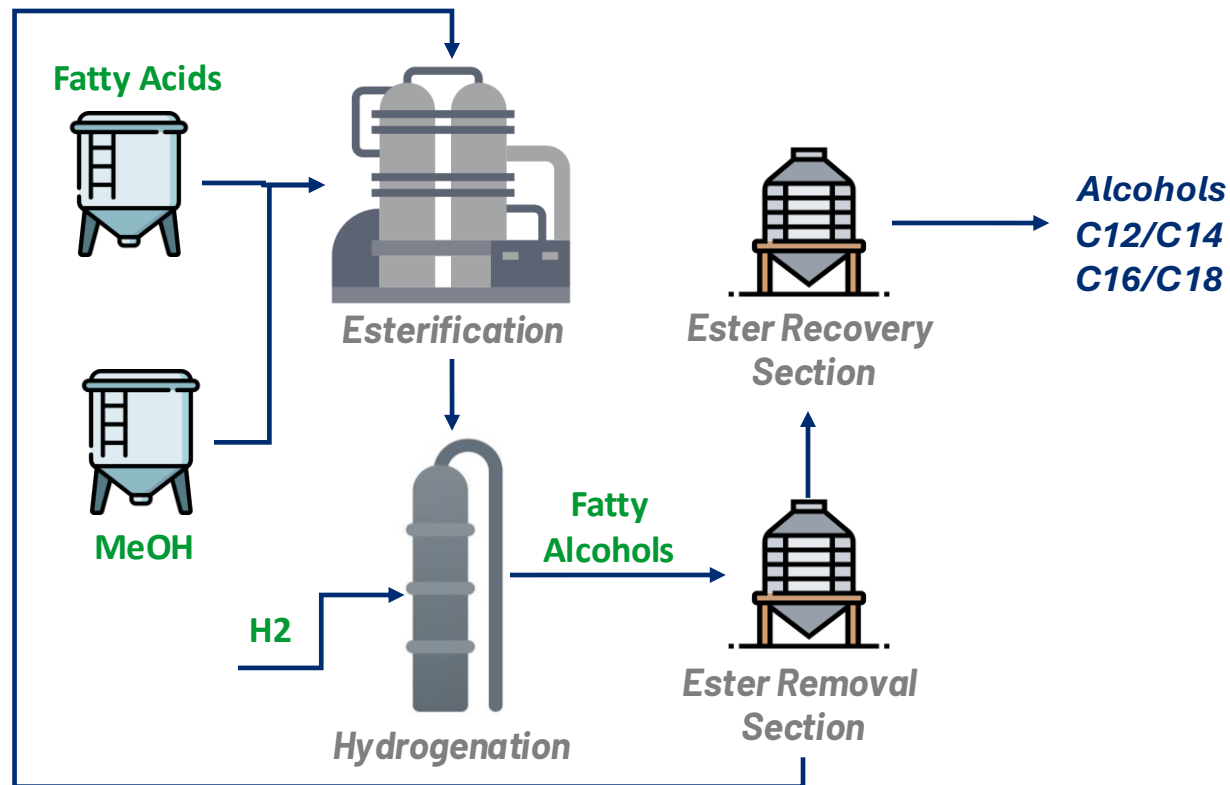


STABLE OPERATIONS are the foundation of **PREDICTABLE PERFORMANCE**.

When shift-to-shift variability is accepted as normal, organizations lose alignment, replacing disciplined execution with reactive decision-making. The result is performance that depends on the shift, not the system.

PROCESS BACKGROUND

Oleochemical – End-to-End Process Overview



PERSONAL
CARE



HOME CARE
AND I&I

Process Challenge:

Multiple reaction and separation steps, recycle streams and tight operating windows make the unit highly sensitive to operational variability, directly impacting:

- **Yield and product quality**
- **Energy efficiency**
- **Day-to-day operational discipline**

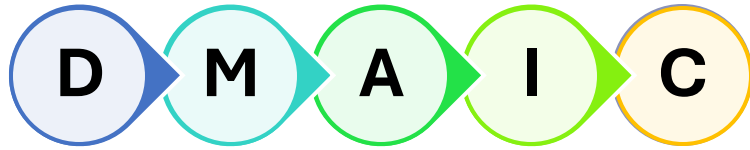
Why the process matters:

- High thermal and hydrogen intensity
- Strong integration between reaction, separation and recycle
- Stability is critical to product quality, energy efficiency and asset performance

Problem Statement:

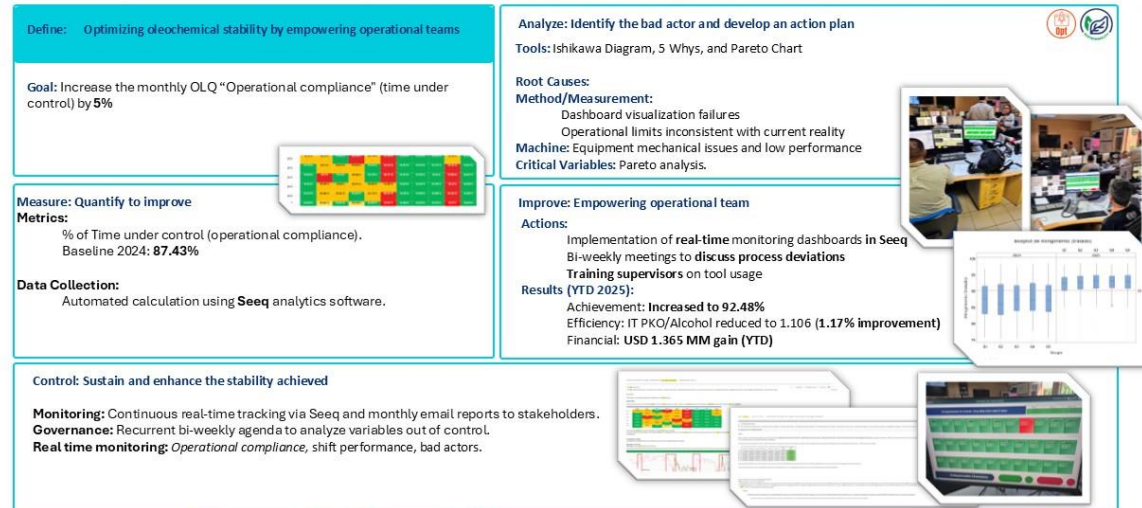
Operations were guided by **static procedures** and alarms but **lacked real-time visibility** into operational compliance. As a result, deviations were detected late, consistency varied by shift, and **stable performance depended more on experience than on data**.

CONNECTING TO CONTINUOUS IMPROVEMENT



1-Page Summary – **Process Optimization: Smart Monitoring to Enhance Oleochemical Stability and Performance**

Site : Oleochemical, Camaçari



Indispensable Chemistry

© Indorama Ventures

50

Stability does not come from reacting to notifications.

It comes from

DEFINING

MEASURING

CONTROLLING VARIABILITY

as a system.

OVERVIEW



As Is

DESIGN



To Do

RESULTS



Frontline + Ownership

ENABLEMENT



Scale Value

SOLUTION DESIGN FRAMEWORK

The Opportunity:

- Documentation (SOPs) analysis:
 - Safety Limits (Alarms and Interlocks)
 - Quality Assurance
- Performance:
 - Differences in unit performance across shifts.



Goals:

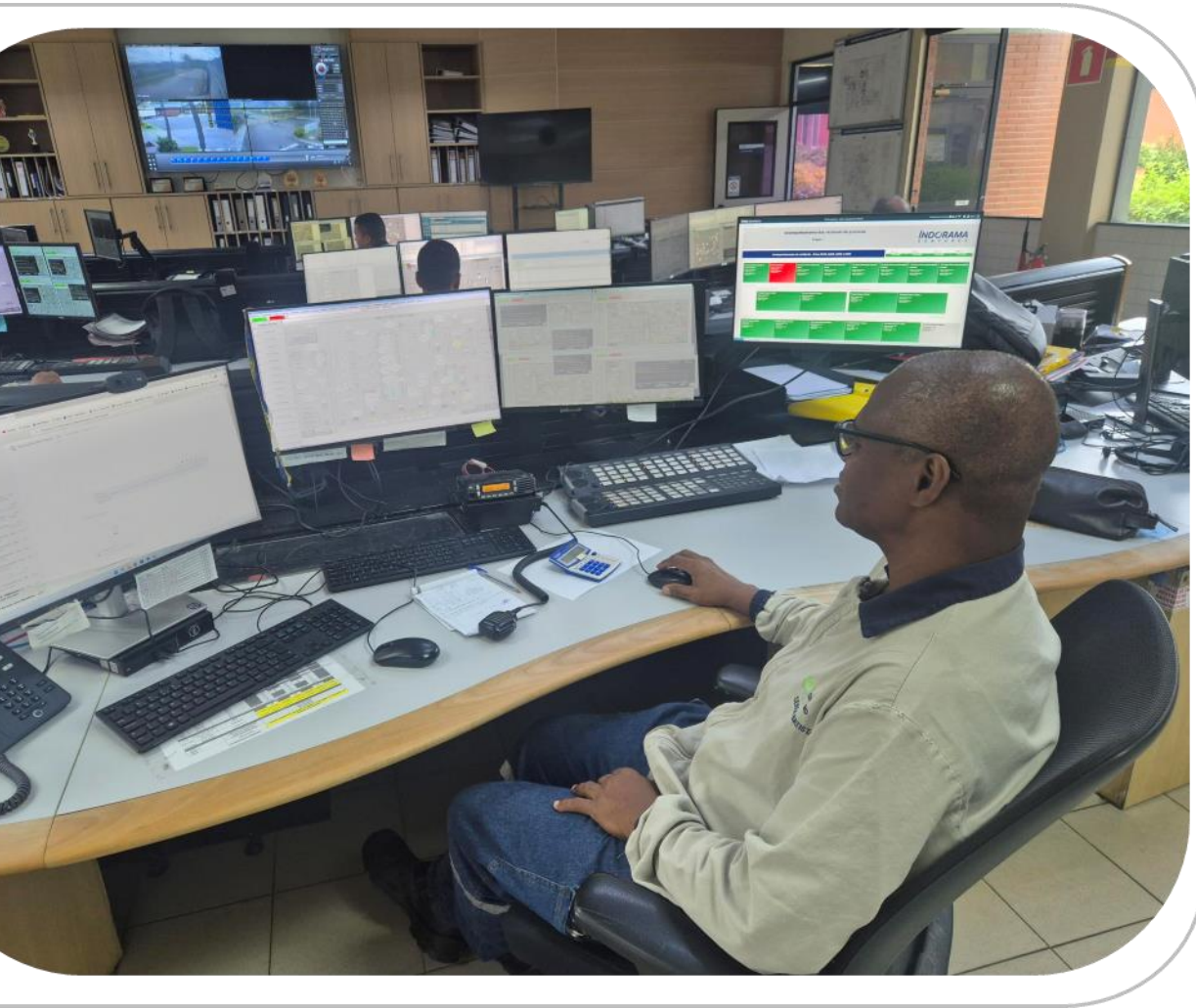
- Increase **operational compliance** by 5% compared to 2024;
- Evaluate each operational shift individually;
- Identify and promote best operational practices;
- Improve control of key process variables.

What did you do & how?

- Improvement of the Oleochemical:**
 - Real-time monitoring system for critical variables
 - 72** selected variables
 - 144** parameters tracked
 - Control chart to monitor process limits and visually alert operators.
- Development of the *Operational Compliance* metric**
 - Measure operational performance of each shift.

$$\text{Operational Compliance} = \left(\frac{\text{Time within limits (hr)}}{\text{Available time (hr)}} \right) * 100\%$$

SOLUTION DESIGN FRAMEWORK



What did you do & how?

▪ Critical variables:

- Review of **operational standards** (SOPs) through technical meetings with Engineering and;
- Historical evaluation to **optimize** and **narrow** operational ranges.

▪ The SEEQ implementation:

- **Asset trees** for visualization panels;
- Control charts for each variable (**scorecard metrics**);
- Performance calculation by shift (**formula tool**);
- Online dashboards for **real-time monitoring**.

“Solve, Simplify, Empower, Scale.”



Low code solution, using formula tool



Reports designed to facilitate monitoring and diagnosis



Frontline Empowerment and Daily Ownership

OVERVIEW



As Is

DESIGN



To Do

RESULTS



Frontline + Ownership

ENABLEMENT



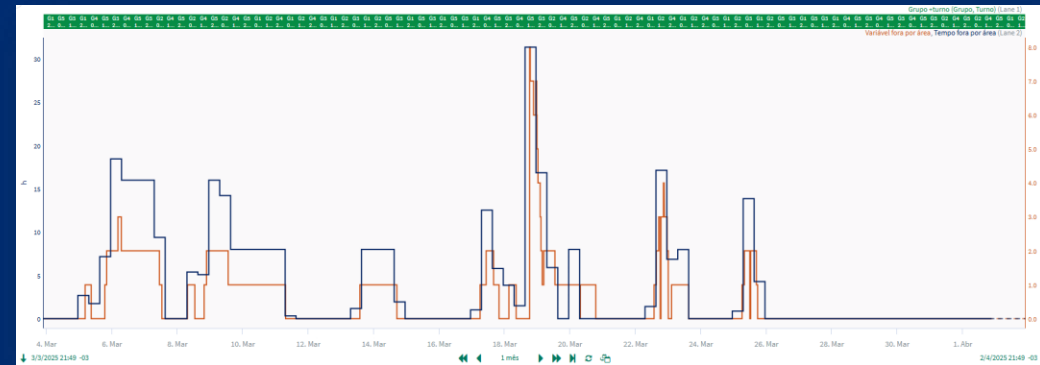
Scale Value

FRONT-LINE OWNERSHIP IN ACTION

- Control room enablement with dashboards and dedicated monitors for Fatty Acids and Fatty Alcohols



Sustained unit stability | Performance trends tracked by operational area



FRONT-LINE OWNERSHIP IN ACTION

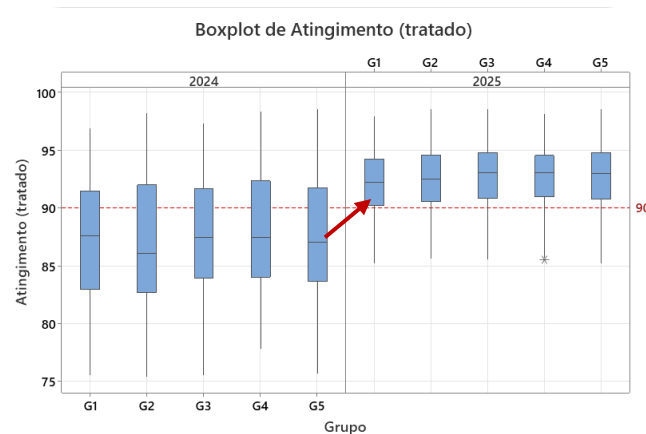
The project:

Operational compliance

↑ 5.77% vs 2024

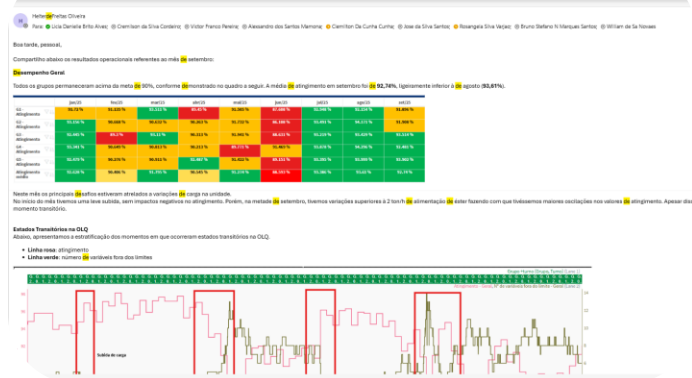
Cultural change:

- **Operational Compliance** established as an operational goal;
- Maintain variables within limits;
- **Biweekly** critical analysis and **technical report** to drive continuous improvement;
- Monthly report on overall performance;
- **Review of the 11 SOPs.**



Arquivo de painel: Ano

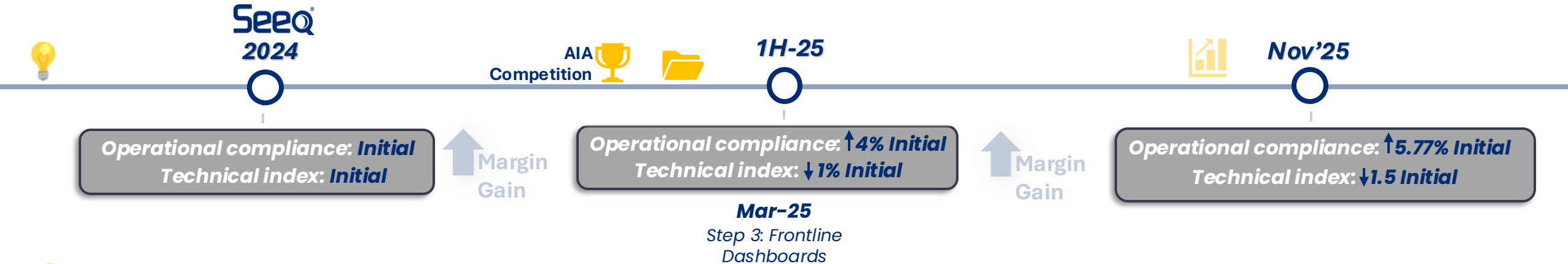
Monitoramento das variáveis de processo - Setembro/25



	jan/25	fev/25	mar/25	abr/25	mai/25	jun/25	jul/25	ago/25	set/25	out/25	nov/25
G1 - Atendimento	91.72 %	91.18 %	93.511 %	89.798 %	91.779 %	87.746 %	92.948 %	92.154 %	92.182 %	91.01 %	96.352 %
G2 - Atendimento	93.156 %	90.71 %	90.673 %	90.458 %	92.163 %	86.165 %	93.491 %	94.194 %	92.217 %	89.211 %	95.631 %
G3 - Atendimento	92.445 %	89.3 %	93.11 %	90.386 %	92.276 %	88.777 %	93.219 %	93.429 %	93.66 %	87.896 %	96.021 %
G4 - Atendimento	93.341 %	90.649 %	90.86 %	90.337 %	90.023 %	91.469 %	93.878 %	94.304 %	92.819 %	88.33 %	96.094 %
G5 - Atendimento	92.479 %	90.294 %	90.911 %	92.542 %	91.771 %	89.317 %	93.395 %	93.999 %	93.984 %	88.152 %	95.495 %
Atendimento médio	92.628 %	90.427 %	91.813 %	90.704 %	91.602 %	88.695 %	93.386 %	93.616 %	92.972 %	88.92 %	95.918 %

From a Dream to Daily Ownership

SAR Indovinya: Empowering Change From Leadership to Frontline



It started with a dream—

A belief that all levels of the organization could go **#ALL-IN** on data-driven decisions.



The Barrier Removed —



Seeq made **shift-level** KPIs automatic, real-time, and easy to act on.



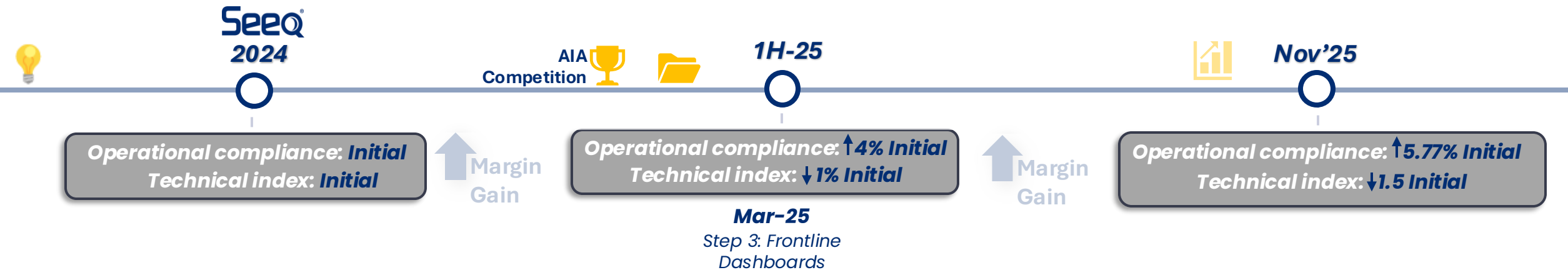
Active & Intentional Leadership Engaged —

Operation Owner's (Licia) Request for **KPI Dashboards for Front Line** supported actively by Site Head.

Formal Project Kick off – Oct. 2024: Initial technical achievement and baseline index .

From a Dream to Daily Ownership

SAR Indovinya: Empowering Change From Leadership to Frontline



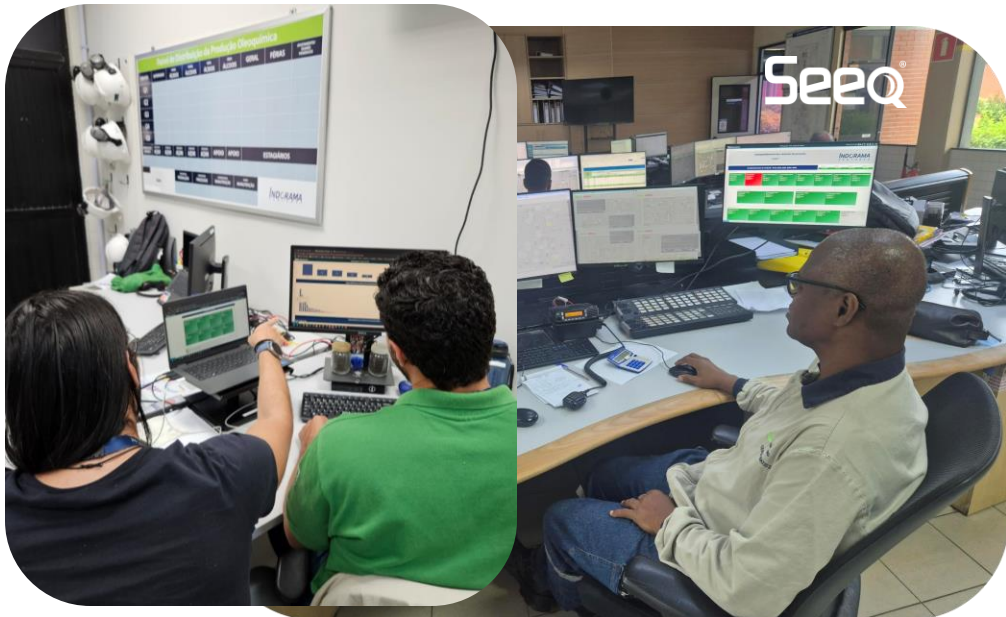
Real-time daily ownership at the shop floor 🧑‍🏭 — every shift, every operator, every decision.
Embedded into performance reviews at all levels, with clear daily handoffs of strategic, role based KPIs.



"I believed in this Project from the start, and the major breakthrough was unifying all shifts into one data-driven way of working — ensuring the best performance and practices regardless of which shift is operating."

Production Manager Oleochemical Operation

THE POWER OF FULL UNITY



Visual Dashboards at the Control board.



Action boards



Real-time ownership



Daily operational excellence

Active & Intentional Leadership + Frontline Engagement

- Promoting daily habits by using Action boards and linking front-line teams to data.
- Enabling New Projects with Measurable Financial Impact:
 - Technical index: Conversion from PKO (raw material) to alcohol (final product)
 - Methanol Consumption Reduction on Oleochemical plant
 - Reduction on catalyst DPT3

OVERVIEW



As Is

DESIGN



To Do

RESULTS



Frontline + Ownership

ENABLEMENT



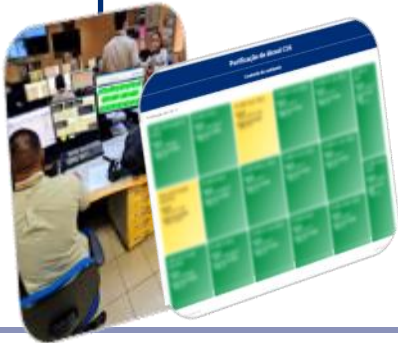
Scale Value

From Local Excellence to Scaled Value

CAM - Oleochemical

- Fatty Alcohols
- Fatty Acids
- Frontline
- Daily Operations Meeting
- KPI: Operational Compliance

5.77%
performance improvement



CAM - Petrochemical

- Oxides
- Amines
- Ethers
- Glycols
- Frontline
- Daily Operations Meeting

> 90 selected variables



SUZ - Sufation

- Frontline
- Daily Operations Meeting
- Campaign dependent variability

+ 81% Technical Index



SAR - Region

- Regional Templates
- Use Case
- Seeq Worksheet
- Seeq Organize



- Structured **Use Case** with defined steps
- **Standardized** Seeq Workbench & Organizer templates
- **OT governance** driving speed and scale through committee forums

Empowering Change From Leadership to Frontline

Visibility of Data

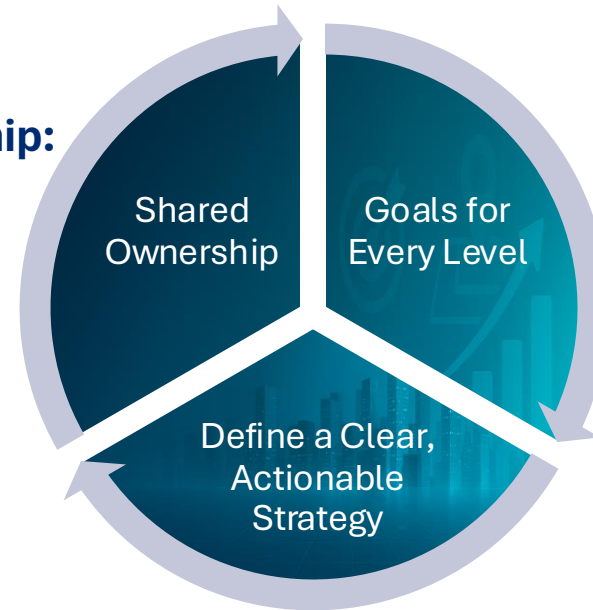
+

Ownership

*is how we win—when
Active & Intentional
Leadership meets “Real-
Time Ownership”*

Shared Ownership:

Role-based
expectations and
ownership



Goals for Every Level:

Leaders set clarity, expectations,
and reinforce daily habits

Actionable Strategy:

Shared Direction • Clear Priorities
• Measurable KPIs • Visible to
ALL Daily

Planning: Ideation → Execution → Sustaining Results

ACCOUNTABILITY



OWNERSHIP

IN CONCLUSION | From Insight to Operational Discipline



Smart Monitoring at Camaçari (The Proven Foundation)

- ✓ Critical variables defined
- ✓ Statistical control beyond alarms
- ✓ Frontline-enabled dashboards
- ✓ Operational Compliance KPI

*Turning
analytics
into an
operating
model*



SCALING THE MODEL | From CAMAÇARI to SA Region



- Solve once & replicate
- Cross-site learning
- Shared discipline framework
- Standard analytics templates

Operational Discipline | Where Analytics Meets Execution



- ✓ Shared operational windows
- ✓ Embedded routines (handover, daily, weekly)
- ✓ Clear ownership at the frontline
- ✓ Visual: ícone de loop, check ou control.

Measured Impact | Stability You Can Measure



- ✓ Operational Compliance
- ✓ Reduced variability
- ✓ Consistent shift performance
- ✓ Visual: KPI / chart simples (estilo executivo).

Smart Monitoring System Not a Tool, an Operating System



- ✓ Seeq as the analytics backbone
- ✓ Discipline as the control layer
- ✓ Stability as daily habit

AN INDISPENSABLE MEMBER OF
INDORAMA
VENTURES

indovinya
YOUR NEEDS, OUR CHEMISTRY



**Process
Engineer**



**Production Manager
Oleochemical Operation**



Plant Director



AIA Sponsor



IVEX Representative



***Thank you for your continued leadership
in empowering our frontline teams with
real-time insights, transforming
analytics into operational discipline and
lasting impact.***

Analytics in Every Hand. Impact at Every Level.

Thank You!

Digital x IVEX x Sustainability

**ADVANCED
INDUSTRIAL
ANALYTICS**

#All_IN Analytics in Every Hand.
Impact at Every Level. **2026**