

# TrendMiner Live Training Session

- Beyond Value-Based Search:
- Counting Events with
- Formulas in TrendMiner



# Housekeeping



Listen Only  
Mode



Use Question Box!

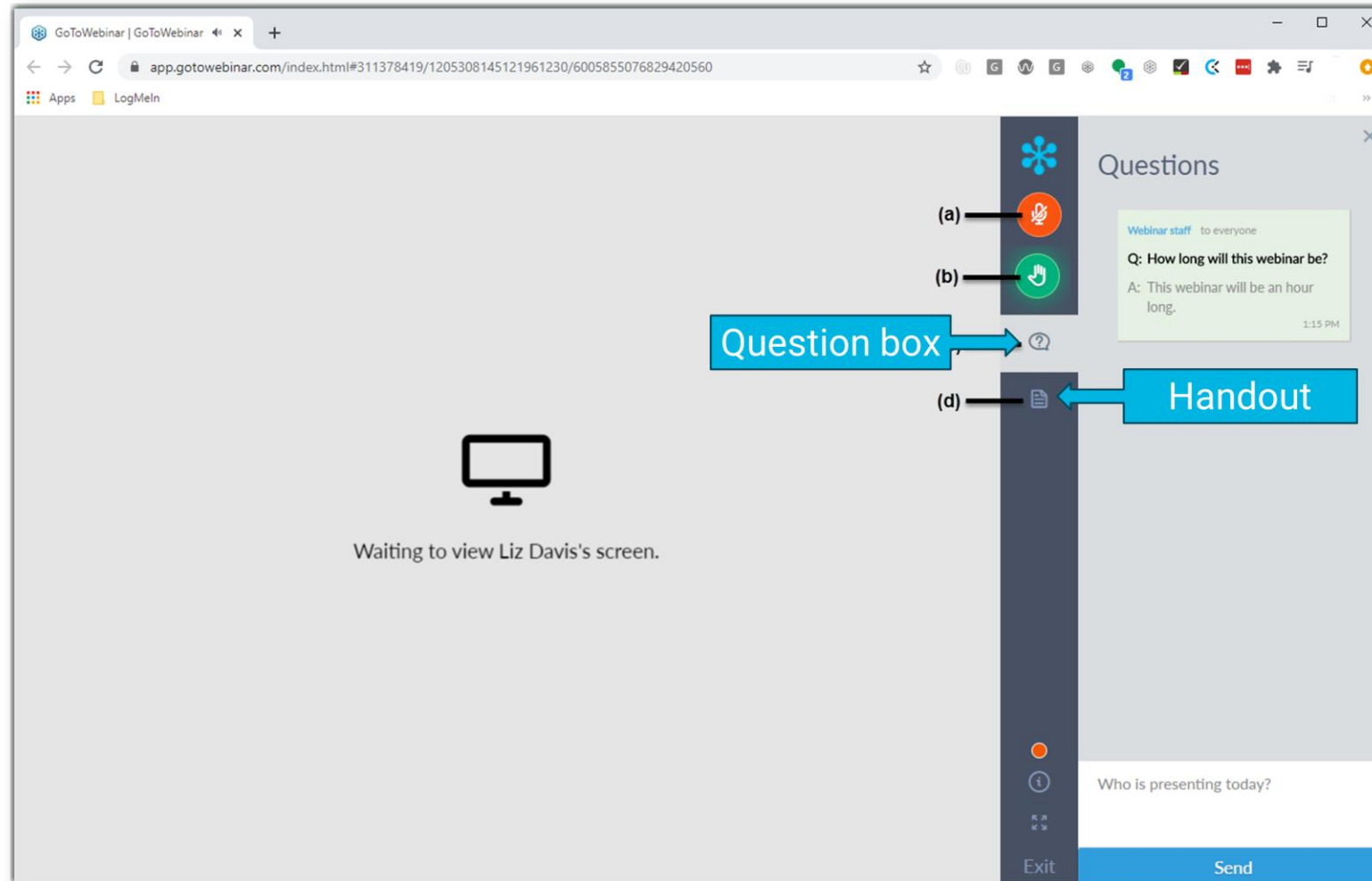


Recording and  
Handout will be  
provided!

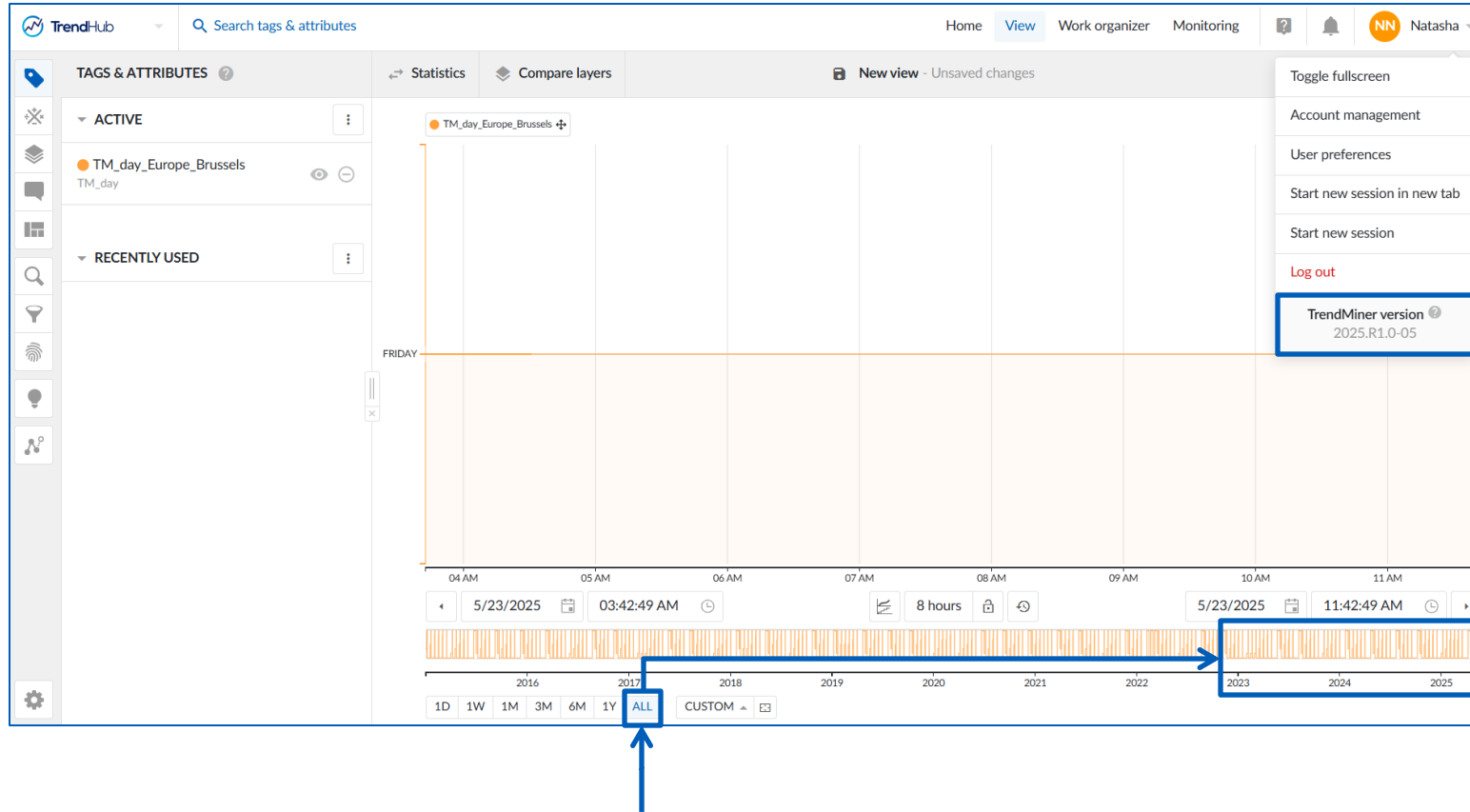
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Online training includes exercises.  
You may log in to your own TrendMiner account using Firefox or Chrome if possible.

# GoTo Webinar – Question box & handout



# Do you need a training account?



2 After clicking on "ALL", your data will be available until at least 01.01.2024.

1 2 You can complete this training with your own account.

1 Version 2025.R3 or newer

✗ If one of the requirements is not met, ask for an account in the question box.

# **Introduction & Today's goals**

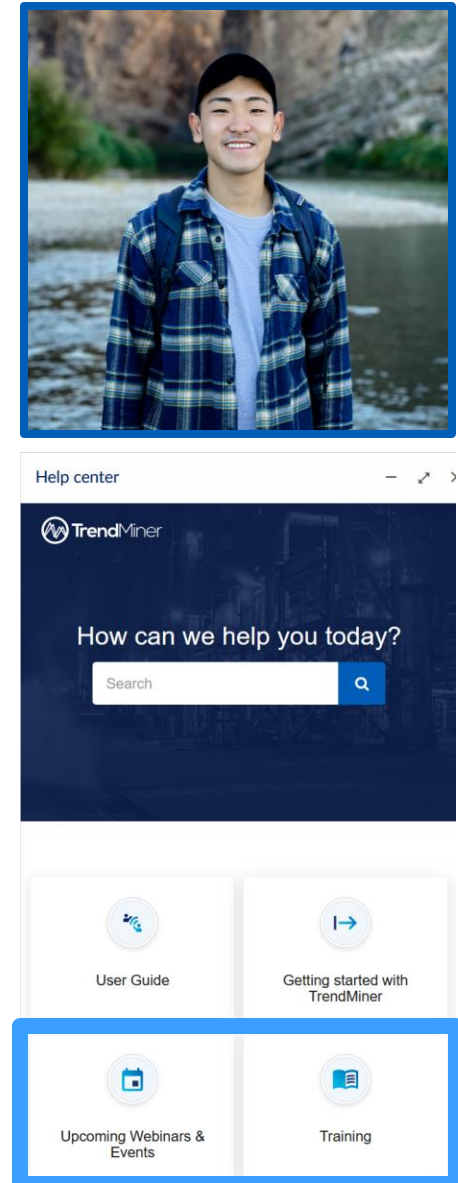


## Kevin Li, Data Analytics Engineer

- Support customers reaching value with self-service analytics
- Tackling more advanced use cases
- Support users in their analytics journey

**POLL** about the users:

What is your current level of TrendMiner knowledge?



# Today's goals

## 1. Exercise 1 – Count the number of events using formula & statistics table

- Find a way to count events directly from the focus chart.

## 2. Exercise 2 – Count the number of events within another event

- How often did a pressure drop occur per batch?
- How to analyze which product grade had the most pressure drops?

## 3. Exercise 3 – Determine the number of events by month

- How can we determine the total number of batches with a pressure drop by month?

# **Exercise 1 – Number of events from statistics table**



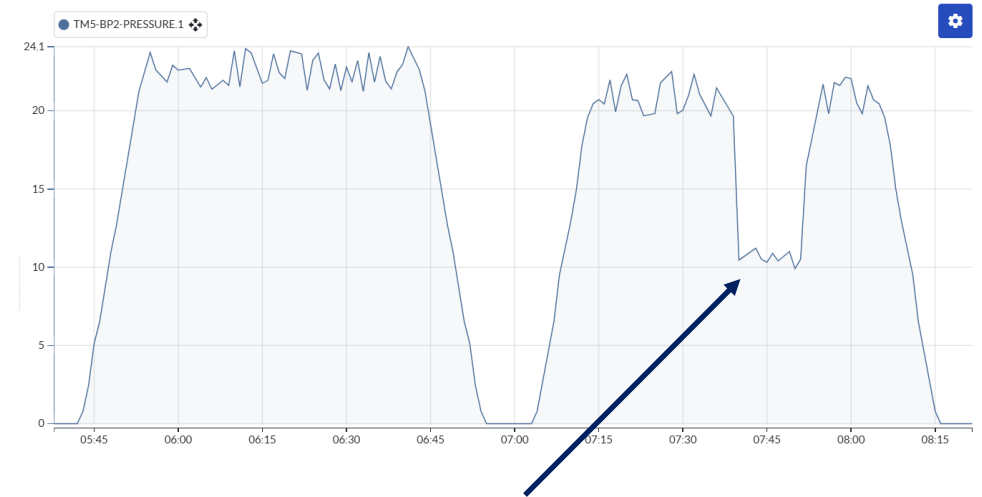
# Number of events from statistics table

## Background:

- A batch process produces different product grades. Normally, the pressure should remain at a constant level during a batch, but in the past, pressure drops have occurred. Your colleague asks you if you can help him find a way to quickly count pressure drops.

## Goals:

- Find a way to count the events directly from the focus chart.



Process anomaly: Pressure drop

# Number of events from statistics table

## Steps

|    |                           |                                                                                                                                                                              |                                                                                      |
|----|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1. | Load tags                 | TM5-BP2-TEMP.1 // TM5-BP2-PRESSURE.1 // TM5-BP2-PRODUCT.1                                                                                                                    |                                                                                      |
| 2. | Set context & focus chart | 01/01/2024   12:00:00 AM – 02/11/2024   12:00:00 AM                                                                                                                          |                                                                                      |
| 3. | Create a new formula      | Formula                                                                                                                                                                      | if(and(T>8, p1<15, p2>15), 60, 0)                                                    |
|    |                           | Map variables                                                                                                                                                                | T = TM5-BP2-TEMP.1<br>p1 = TM5-BP2-PRESSURE.1<br>p2 = TM5-BP2-PRESSURE.1 (shift: 1m) |
|    |                           | Formula name                                                                                                                                                                 | TM5-BP2-Pressure-Drop-Counter_username                                               |
| 4. | Open statistics table     | <b>Which operator can be used to count the events?</b><br>Each peak has a duration of 2 minutes and a maximum value of 60. The integral (/h) of one peak equals the value 1. |                                                                                      |
| 5. | Question                  | <b>How many pressure drops occurred in total?</b>                                                                                                                            |                                                                                      |
| 6. | Save view                 | As “Batch – Count pressure drops”                                                                                                                                            |                                                                                      |

# Number of events



## Pro tip

- Prove that the result of the formula is correct by starting a value-based search
- Benefit of the search
  - Easy to export as a report
- Benefit of the formula
  - Applicable for any period that is visualized in the focus chart

VALUE BASED SEARCH

TM-BP2-TEMP.1 > 8

AND

TM-BP2-PRESSURE.1 < 15

At minimum during 2m.

Edit search conditions

Add calculation

Save this search

<->

I< 1/1/2019 12:00:00 AM

>I 2/11/2019 12:00:00 AM

Search

RESULTS (76)

February

22

January

54



Coming with TrendMiner 2026.R2: the maximum formula nesting level increases from 2 to 20 – enabling much more complex, multi-layered calculations!

## **Exercise 2 – Number of events within another event**

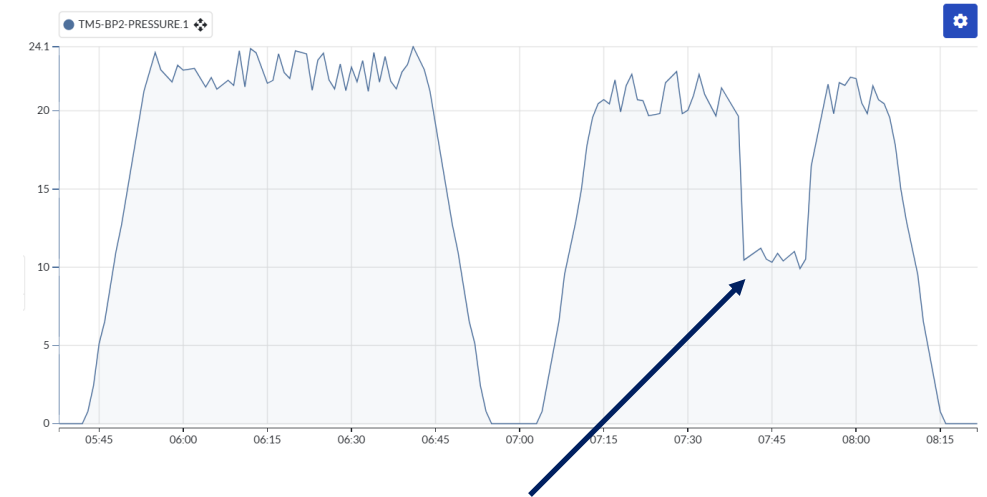
# Number of events within another event

## Background:

- We now know how to count the events using the statistics table and the value-based search. However, we are interested in how often this has occurred within a batch. In addition, your colleague would like to find a way to analyze which product type has experienced the most pressure drops.

## Goals:

- How often did a pressure drop occur per batch?
- How to analyze which product grade had the most pressure drops?



# Number of events within another event

## Steps

|    |                                    |                                                                                                                                                                               |               |
|----|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1. | Continue from                      | Exercise 1                                                                                                                                                                    |               |
| 2. | Start a new value-based search     | TM5-BP2-PRODUCT.1                                                                                                                                                             | constant      |
|    |                                    | Minimum duration                                                                                                                                                              | 2m            |
| 3. | Add calculations                   | TM5-BP2-Pressure-Drop-Counter_username                                                                                                                                        | Integral (/h) |
|    |                                    | TM5-BP2-PRODUCT.1                                                                                                                                                             | End value     |
| 4. | Refine search results              | <b>How often did a pressure drop occur per batch?</b><br>Examine the histogram of the integral calculation. Select the batches whose value is NOT zero.<br>Apply refinements. |               |
| 5. | Sort search results by calculation | And select the End-value (TM-BP2-PRODUCT.1)<br><b>How many pressure drops occurred for each product grade?</b>                                                                |               |

# Number of events within another event

Create a formula for string tags

## Prp tip



- For string tags, e.g. A valve has opened:
- Formula: **if**(**and**(**A**="OPEN", **A**=**B**, **C**<>**A**), 60, 0)
  - Variable mapping:
    - A** = Event tag
    - B** = Event tag, shifted by 1m
    - C** = Event tag, shifted by 2m
  - This detects the exact transition into "OPEN": A=B confirms it just stayed open, C≠A confirms it wasn't open before → one short spike per new open-event
- A search can be performed and the integral for each search result can be determined
- It is also possible to use the statistics table to get the number of events directly from the integral

## **Exercise 3 – Determine the number of events by month**



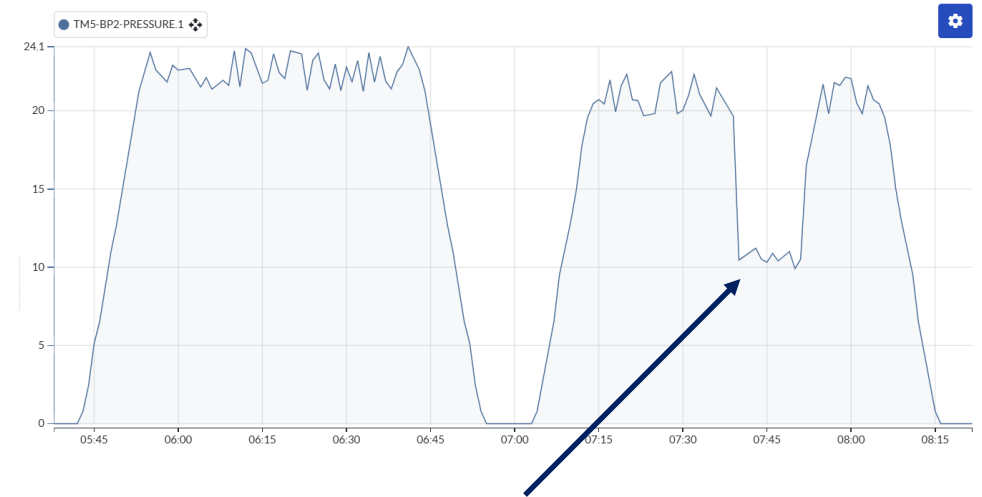
# Determine the number of events by month

## Background:

- Our plant must submit an overall equipment effectiveness (OEE) report at the end of each month. Because the pressure drops result in a low-quality product, which is accounted for as a quality loss, we need to know the total occurrences for each respective month.

## Goals:

- How can we determine the total number of batches with a pressure drop by month?



Process anomaly: Pressure drop

# Determine the number of events by month

## Steps

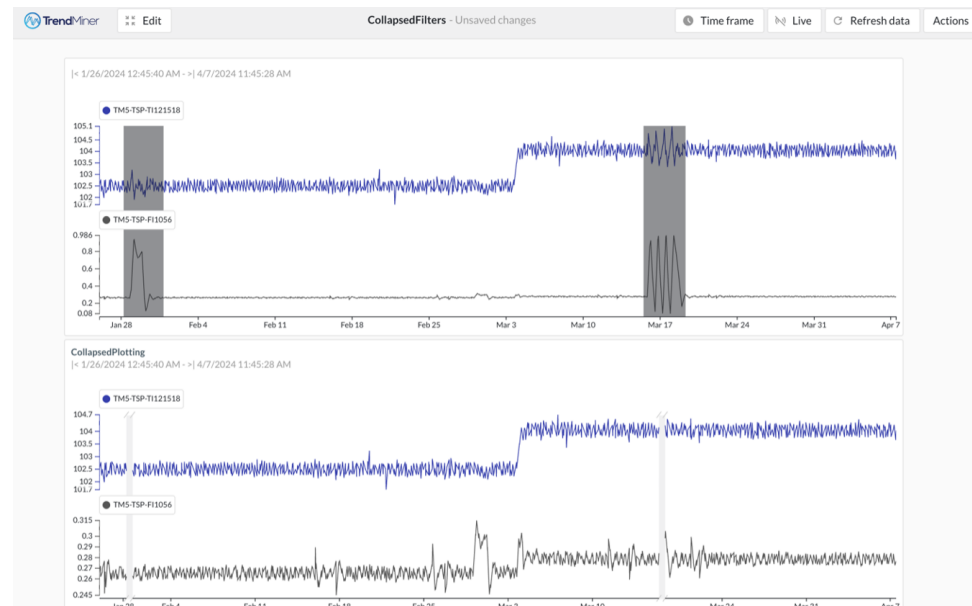
|    |                                |                                                                                    |          |
|----|--------------------------------|------------------------------------------------------------------------------------|----------|
| 1. | Continue from                  | Exercise 2                                                                         |          |
| 2. | Create a filter                | Filter out all batches without a pressure drop. To do this, select "Keep results". |          |
| 3. | Load tag                       | TM_month_time zone                                                                 |          |
| 4. | Start a new value-based search | TM_month_time zone                                                                 | constant |
|    |                                | Minimum duration                                                                   | 2m       |
| 5. | Review results                 | How many pressure drops occurred in each month?                                    |          |

# Determine the number of events by month



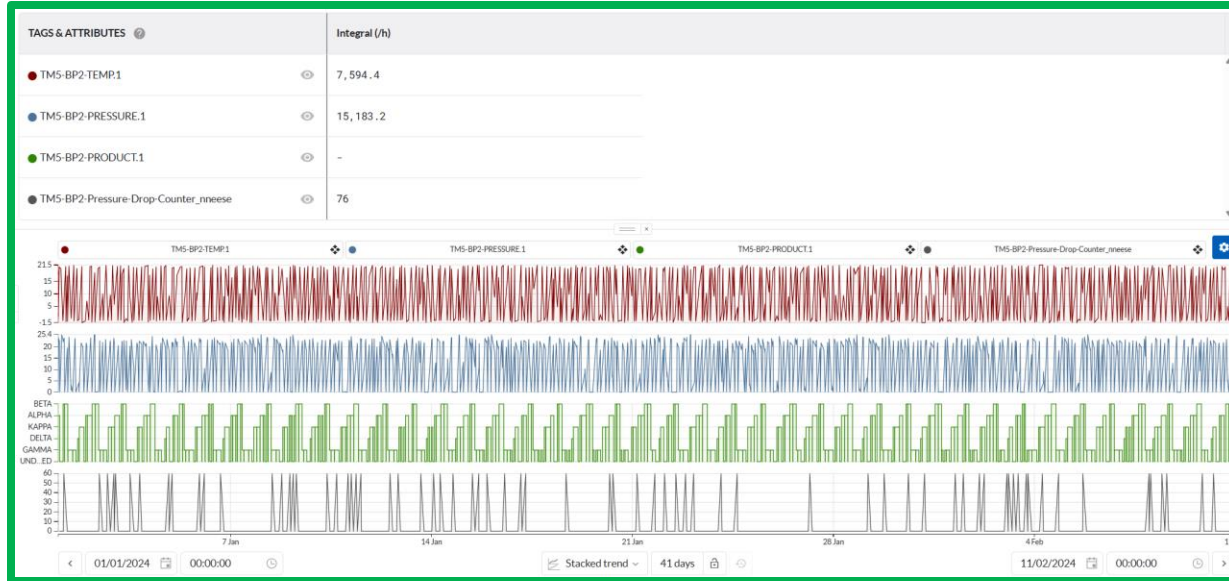
Pro tip

- [Smart with Time/Date Tags](#)
- Since TrendMiner version 2026.R1, the [collapsed plotting](#) feature was introduced. When filters are active, you can now collapse filtered periods on trend and stacked trend plots, stitching unfiltered data seamlessly together.



# Wrap-up

# Wrap-up



REFINED RESULTS (76/1457)

End value (TMS-BP2-PRODUCT.1)

| ALPHA | 16 |
|-------|----|
| BETA  | 10 |
| DELTA | 5  |
| GAMMA | 24 |
| KAPPA | 21 |

RESULTS (76)

| January  | 54 |
|----------|----|
| February | 22 |

1

- Count the number of events using a Formula & the statistics table

2

- Count the number of events within another event

3

- Determine the total events per month

# TRENDLAB 2026



**Europe**  
**Eindhoven, NL**



**Americas**  
**Houston, USA**

**Registration Link:** <https://community.trendminer.com/p/trendlab>



# Do you want to learn more?

## Intermediate Guides & Live Training Webinars

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## Intermediate Guides



### In this section

- [Get your process statistics \(Int\)](#)
- [Detect, warn & contextualize anomalies and process events \(Int\)](#)
- [Create your actionable dashboard \(Int\)](#)
- [Trouble shooting \(Int\)](#)
- [Create your own KPIs and Variables \(Int\)](#)

<https://userguide.trendminer.com/en/intermediate-guides.html>

### Here you can find all Live Training Webinars from the past years:

## Live trainings - English



1 - 12 of 40 [Toggle](#)



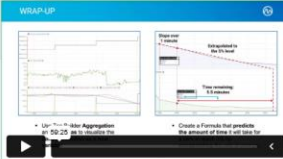
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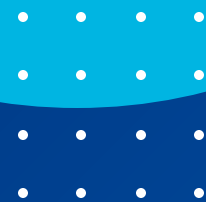
Post your questions in the Community and get answers from experts and peers!

New here? Sign up in seconds. Already a member? Just log in!

Select your role to discover the most relevant resources and insights

The screenshot shows the TrendMiner Community homepage. At the top, there's a navigation bar with links for Community, Product Ideas, News, Events, Groups, and TrendLab. A bell icon, a '+ Create new topic' button, and a 'LOGIN OR SIGN UP' button are on the right. Below the navigation bar is a large blue banner with the text 'Welcome to the TrendMiner Community!' and a search bar. Below the banner are five white boxes with icons and labels: 'Ask a Question', 'Share an Idea', 'Join Events', 'Provide Feedback', and 'Check Use Cases'. Below these boxes are two sections: 'Recently active' and 'Content by Role'. The 'Recently active' section shows a post by 'Shams92 Pioneer' asking a question about re-syncing context items. The 'Content by Role' section shows three buttons for 'TrendMiner User', 'Admin / IT', and 'Project Manager'.





**Thank you for your  
attention**

