Indicators

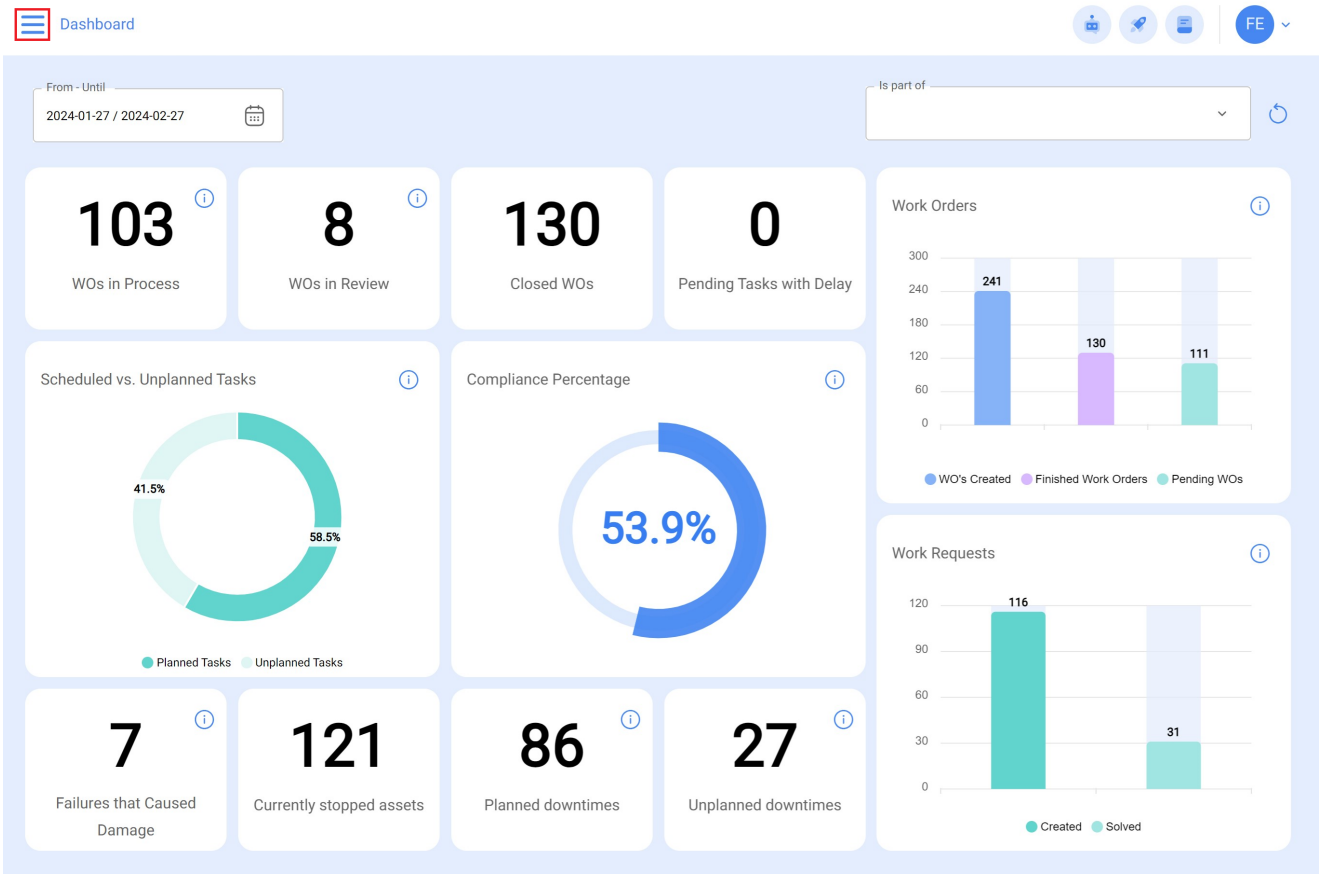
help.fracttal.com/hc/en-us/articles/24912122350093-Indicators

In Fracttal One 5.0 there are 4 types of fundamental indicators in all maintenance management:

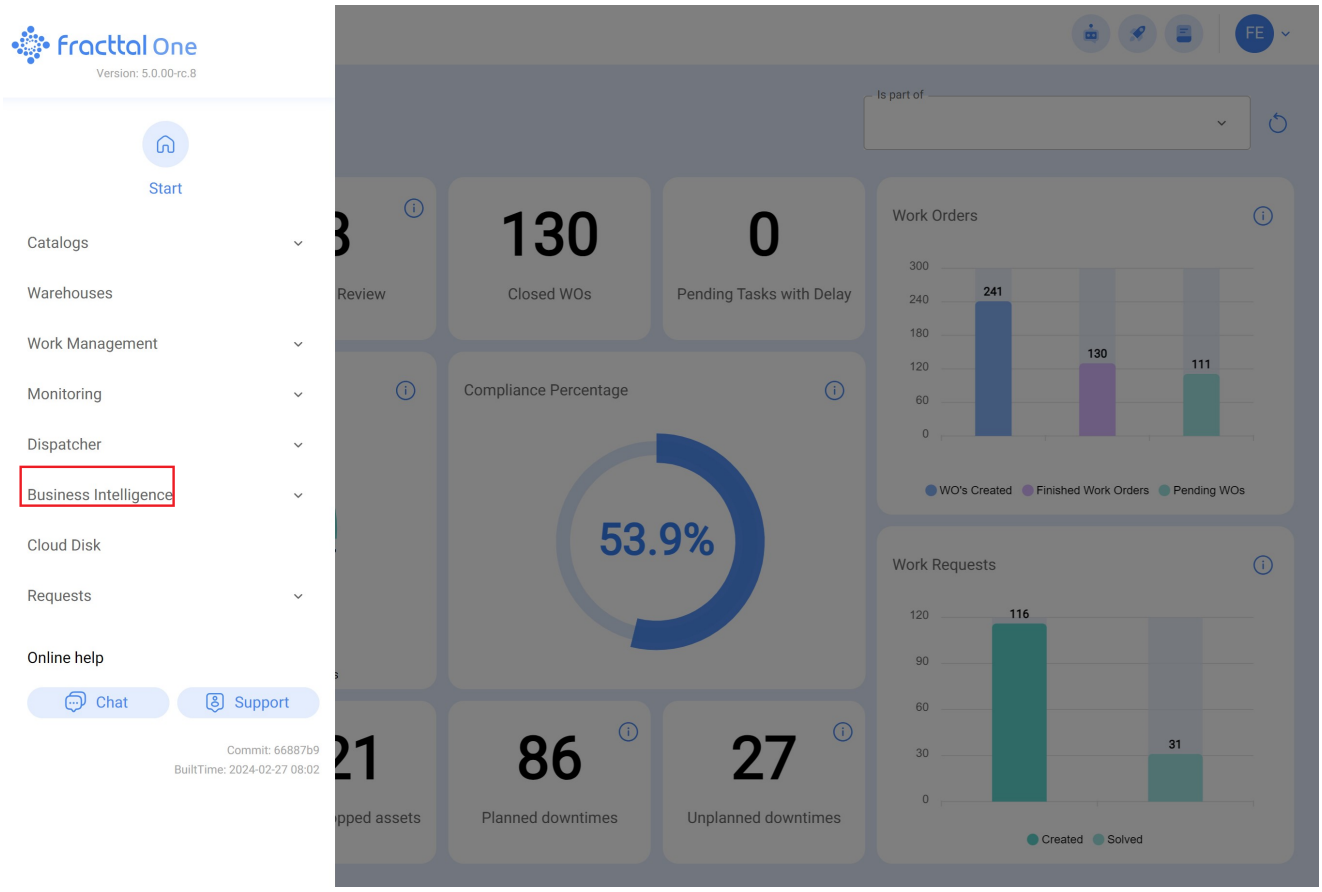
- **Maintenance availability:** The probability that a system, equipment or component will perform its intended function when required. It is expressed as a percentage and takes into account both the reliability and maintainability of the system.
- **Availability due to failures:** This is understood as the percentage of time during which a piece of equipment is fit for use and operational, but taking into account only the sum of the time due to unplanned shutdowns, failures and incidents of the equipment and physical assets.
- **Mean Time Between Failures MTBF (Mean Time Between Failures)**:It is a measure of the average time between consecutive failures of a repairable system or component and as its name says, it is calculated from the time a failure occurs until the time after the other one occurs, so it includes the uptime and downtime periods.
- **Mean Time To Repair MTTR (Mean Time To Repair):** Indicates the average time required to repair a system after a failure.A low MTTR is desirable, as it implies fast recovery and less downtime.

How do we place them in Fracttal One?

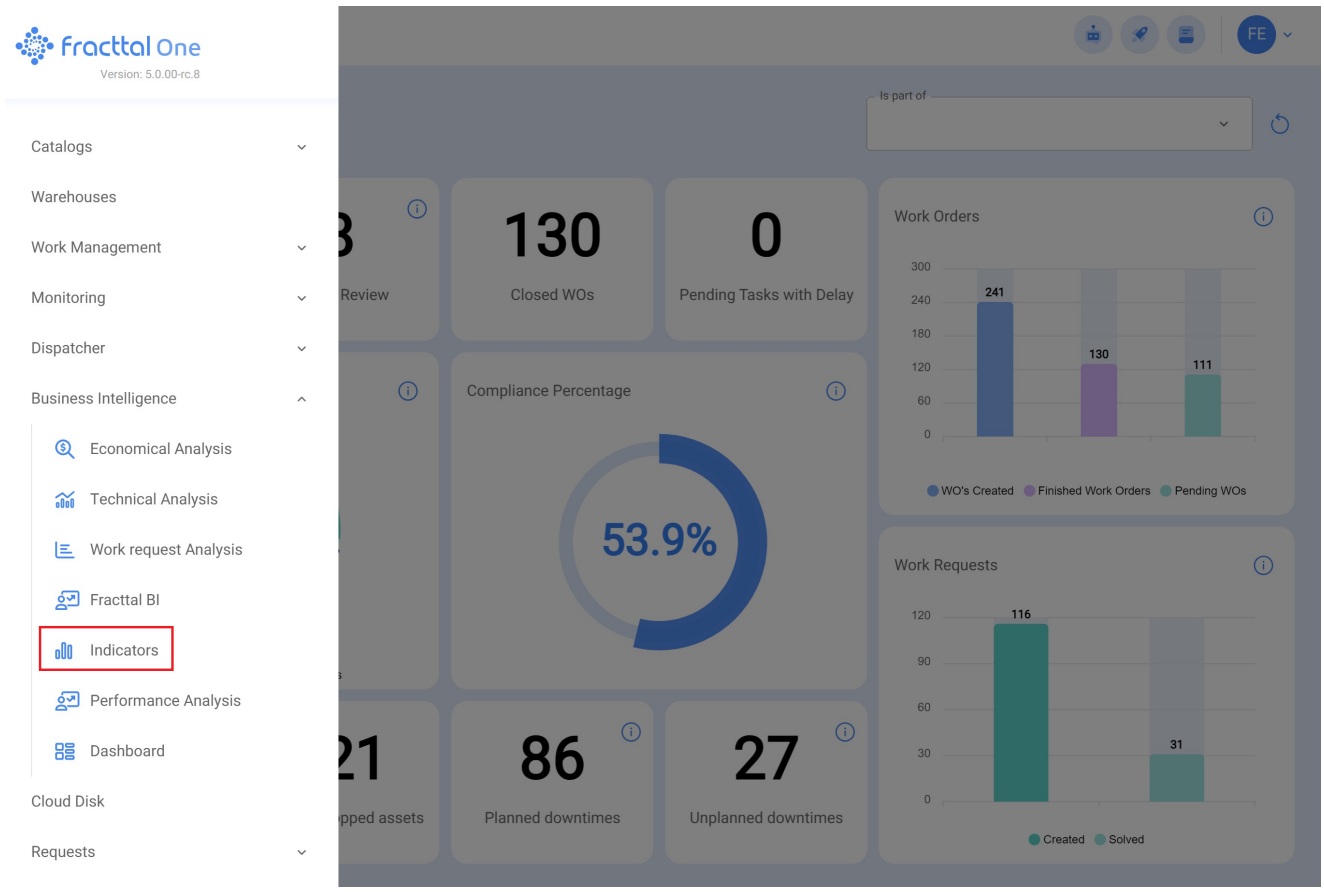
1. Click on main menu



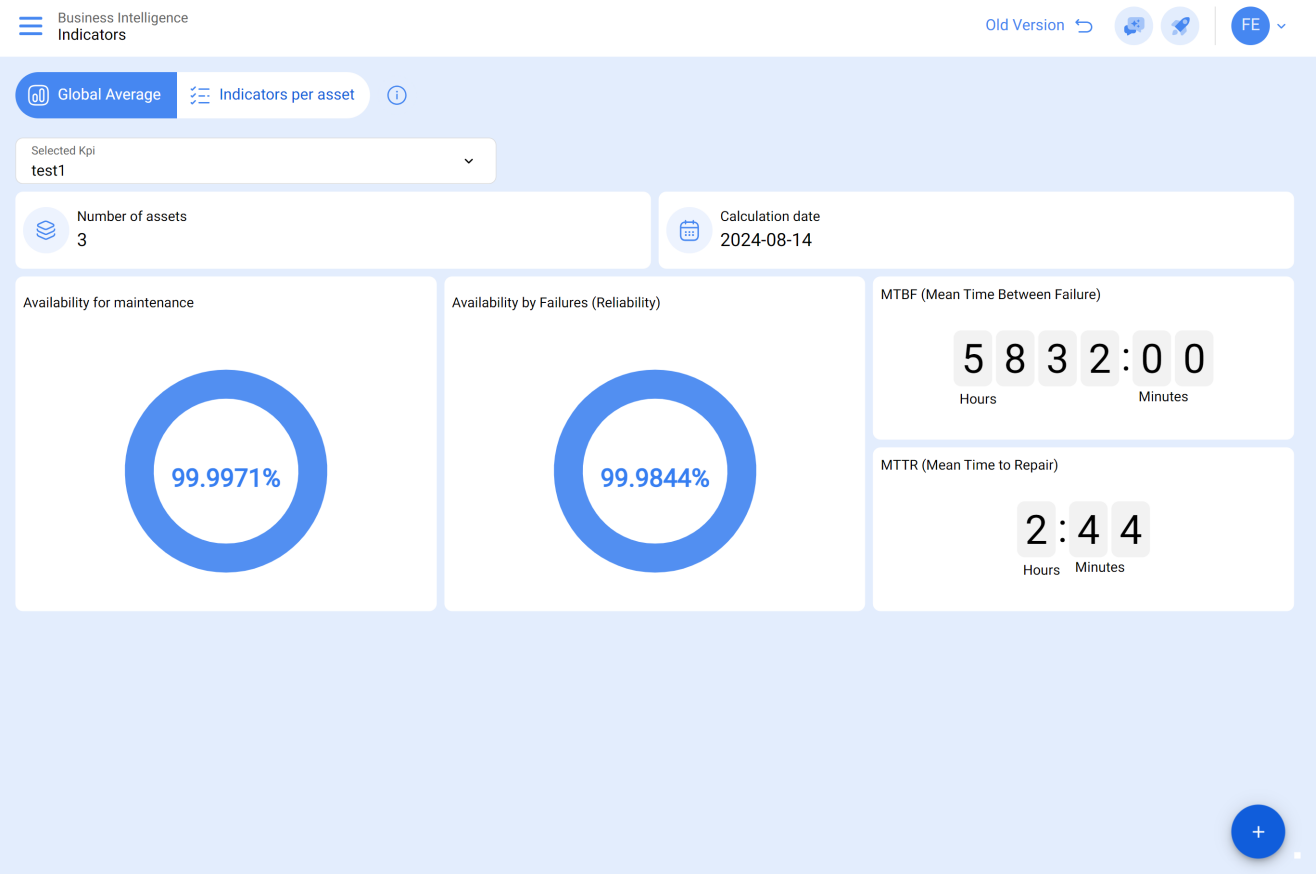
2. click on the business intelligence module



3.click on technical analysis



Here you will see the KPI interface

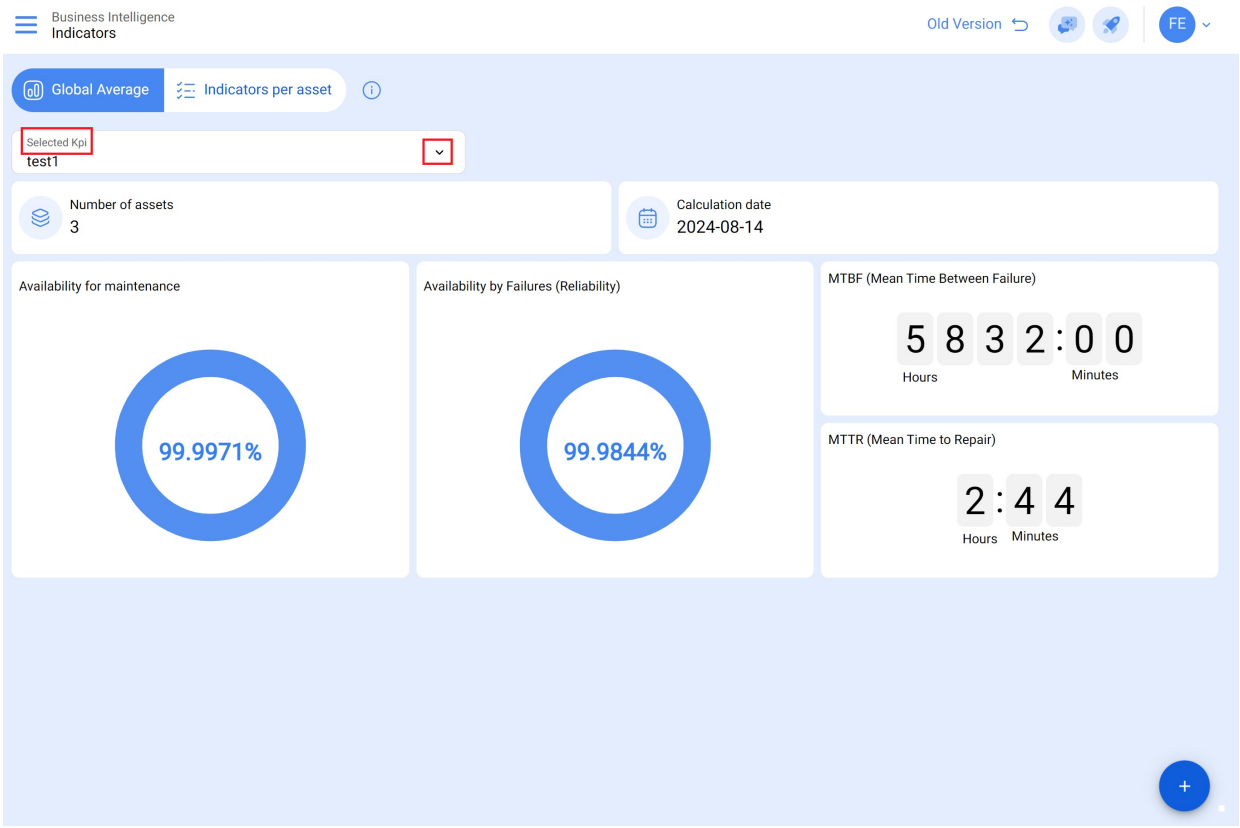


What can the user interact there?

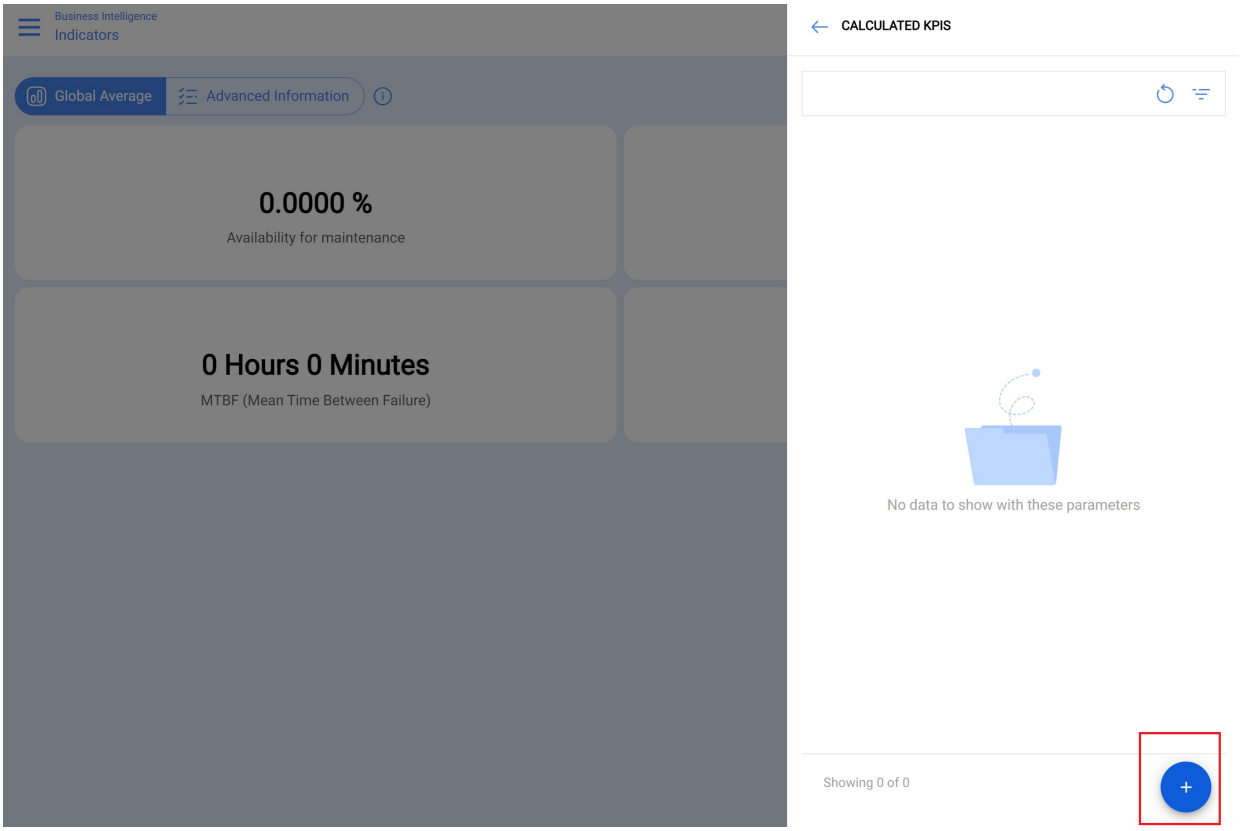
Calculated KPIs : In this space, users have the possibility to choose the date ranges to consult their KPIs. The highlight is the option to save these ranges for future queries, providing an even more efficient experience.

Step by Step: Configuring Calculated KPIs

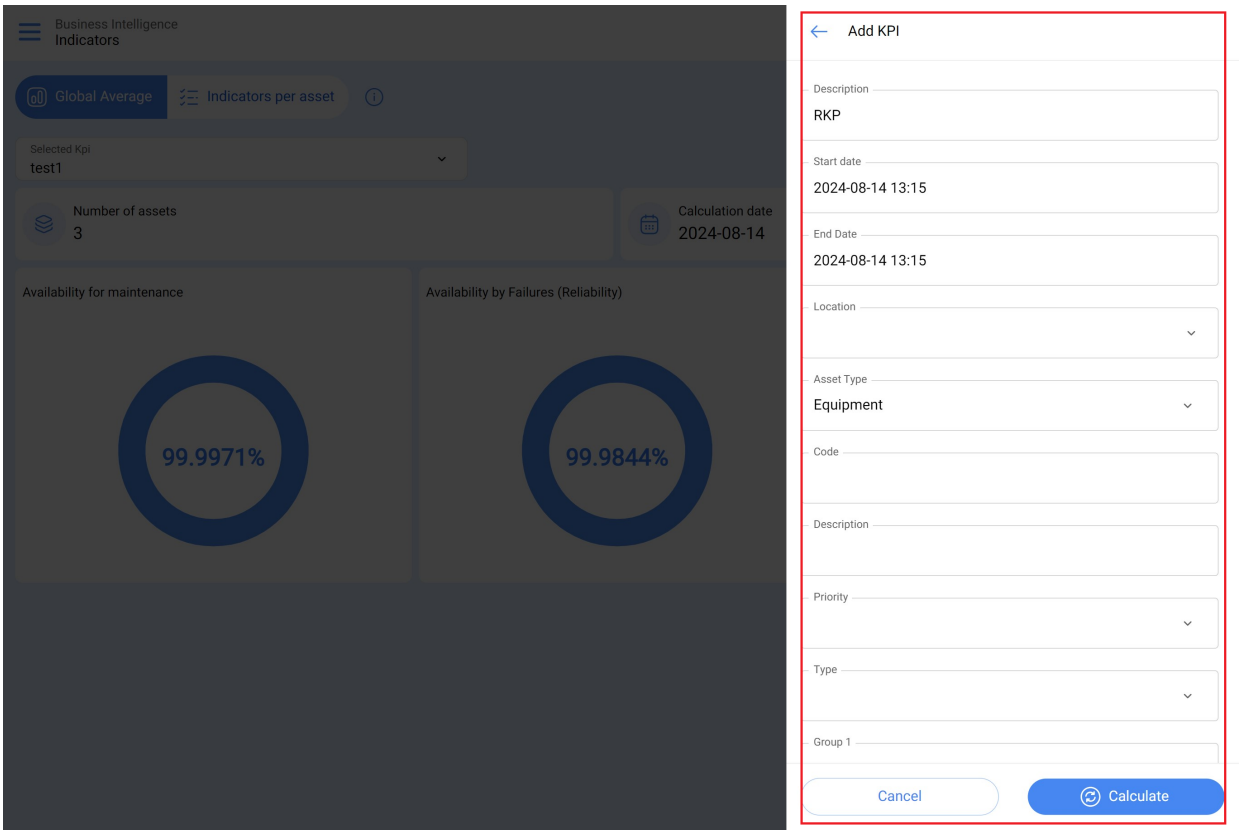
1. Click on "Calculated KPIs".



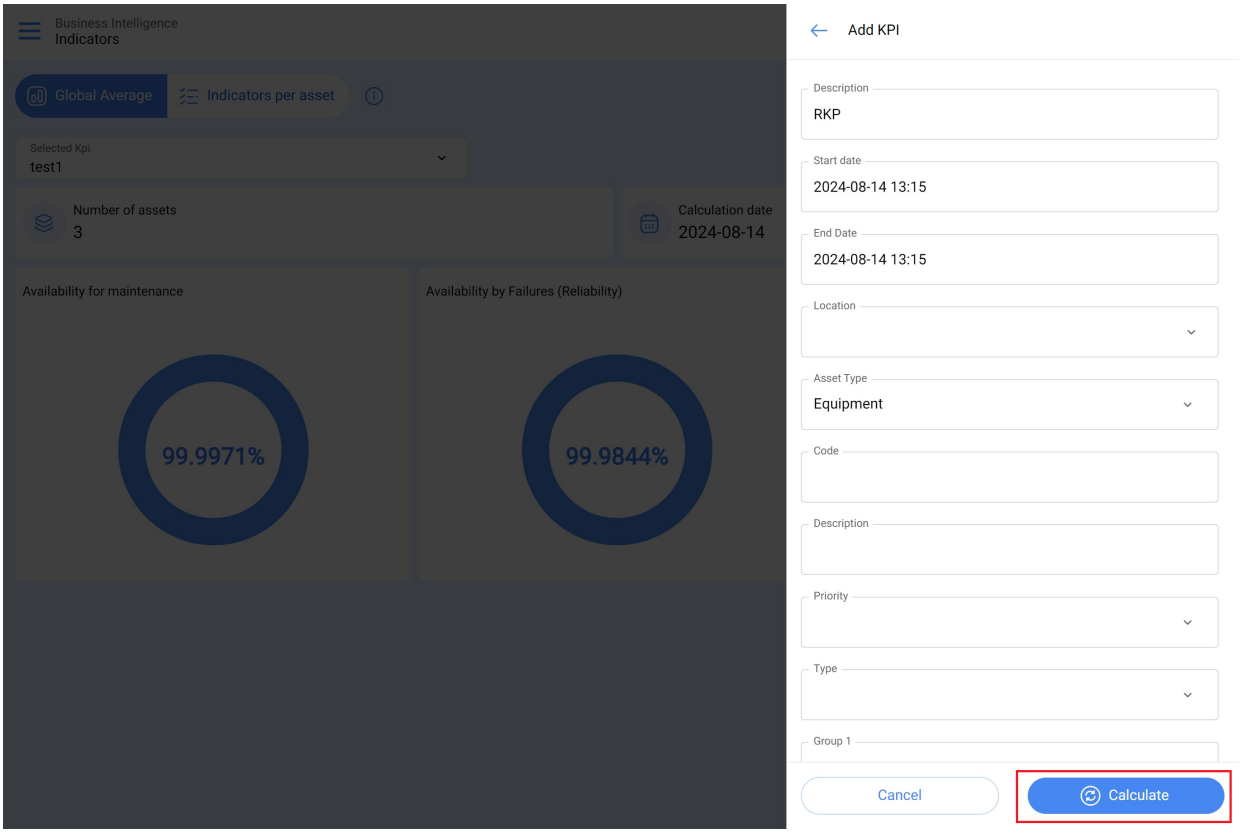
2. Then click on the "+" button.



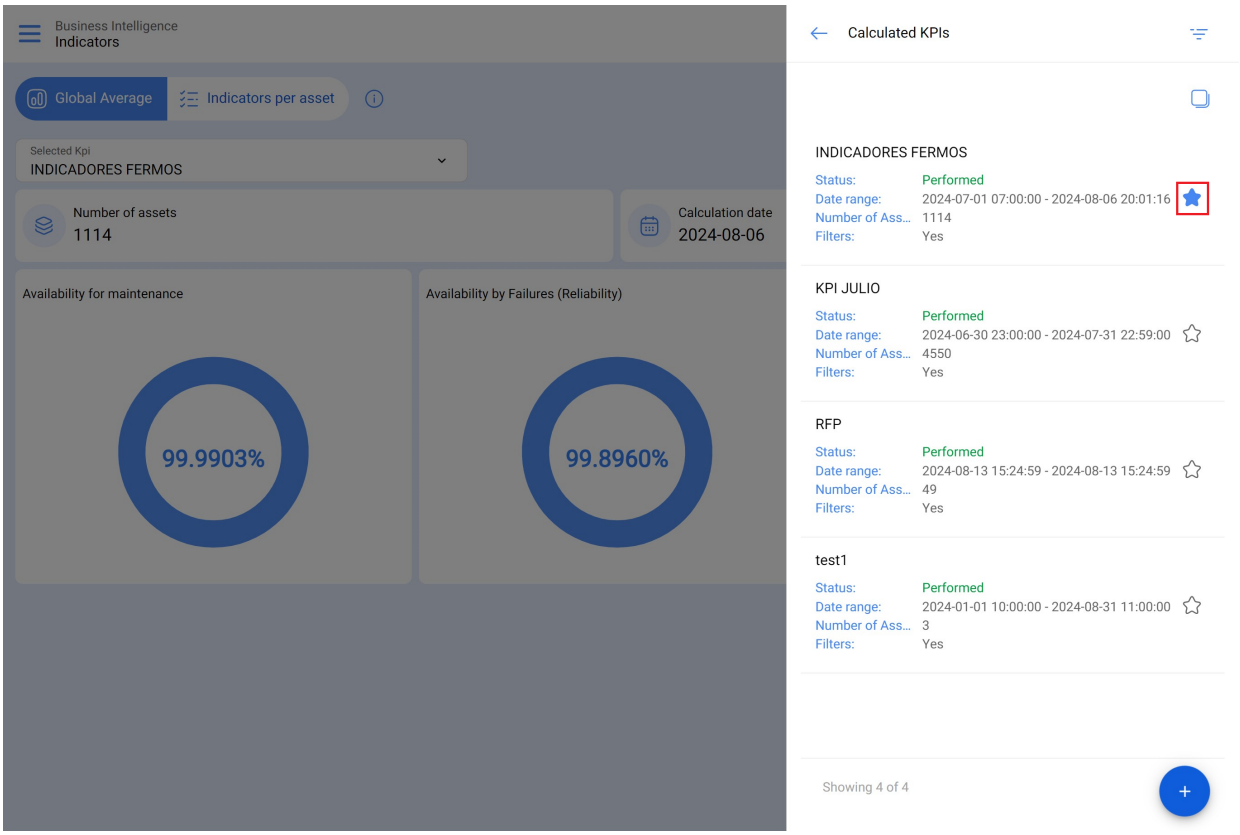
3. Dans la description, saisissez le nom que vous souhaitez utiliser pour identifier In the description, enter the name you want to use to identify your analysis. Then, select the date range you are interested in and complete the other fields to properly centralize your information, such as: location, asset type, code, description, cost center, and forms.



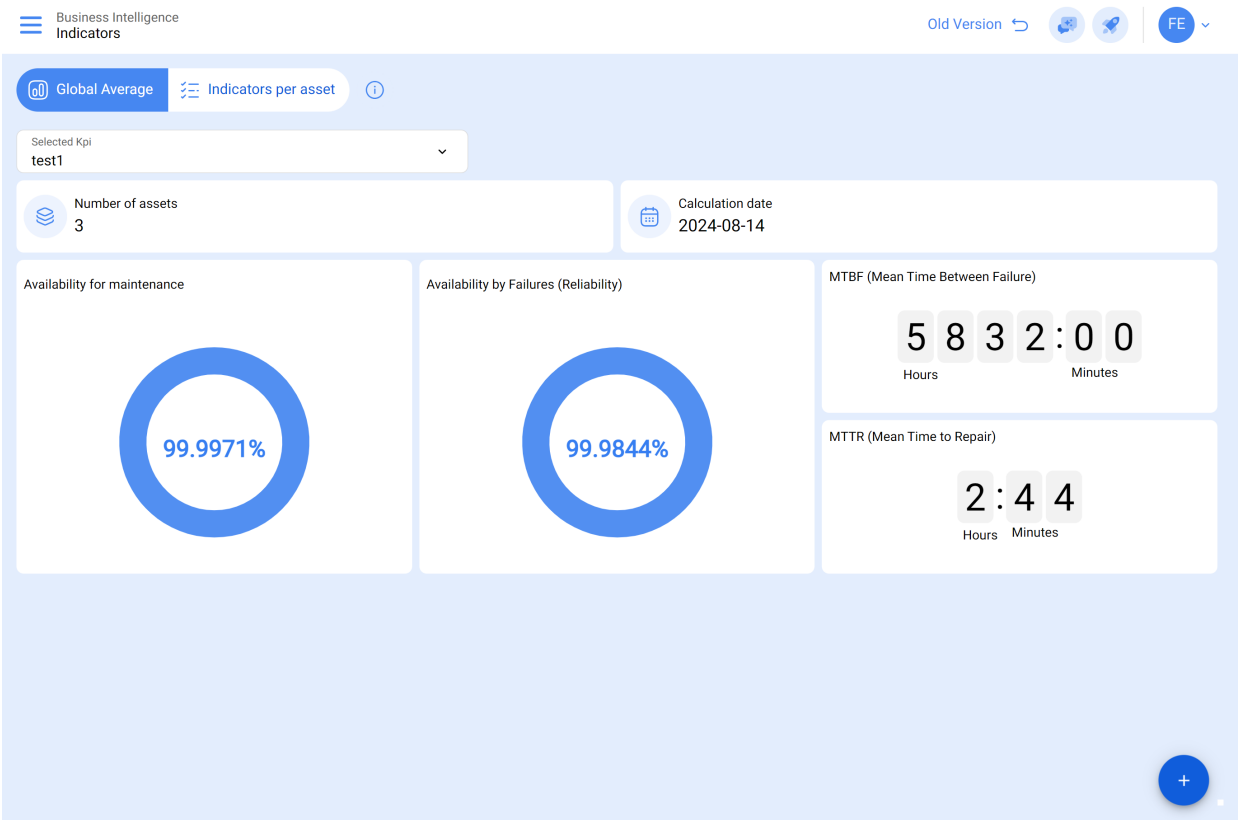
4. Click on "Calculate".



5. To select the analysis based on the assigned dates and data, click on the star next to the name until it turns blue, as shown in the image.

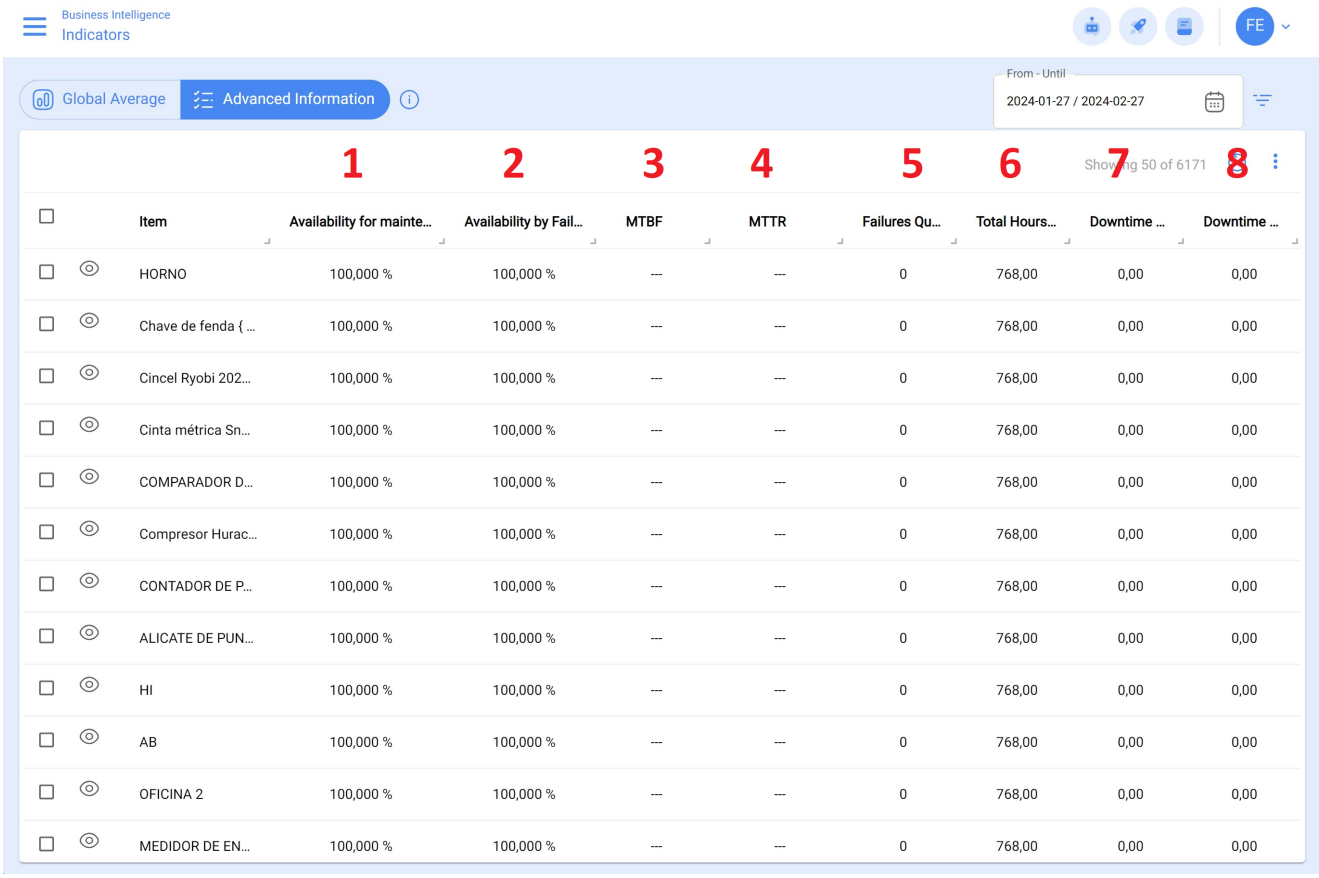


6. Once the information is loaded, you will be presented with the behavior of the indicators within the specified date range.



Global average: Commonly refers to the average calculation performed on the assets, taking into account that Fracttal One 5.0 contemplates an average of a certain number of assets to extract the variables or data available.s.

Advanced Information: In this section, we provide our users with a detailed explanation per asset, where the following aspects are evaluated



Item	Availability for mainte...	Availability by Fail...	MTBF	MTTR	Failures Qu...	Total Hours...	Downtime ...	Downtime ...
HORNO	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Chave de fenda { ...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Cincel Ryobi 202...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Cinta métrica Sn...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
COMPARADOR D...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Compresor Hurac...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
CONTADOR DE P...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
ALICATE DE PUN...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
HI	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
AB	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
OFICINA 2	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
MEDIDOR DE EN...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00

1. **Maintenance availability:** Maintenance availability refers to the time during which an asset is operational and available for use, excluding time spent on planned maintenance activities. In other words, it represents the fraction of time during which the asset is operational and not scheduled for maintenance. la que el activo está en funcionamiento y no está programado para mantenimiento.

2. **Availability due to failure (reliability):** Availability per failure, also known as reliability, indicates the ability of an asset to operate without interruption due to failures. It represents the percentage of time the asset is operational without experiencing problems or breakdowns.

3. **MTBF (Mean Time Between Failures):** MTBF is the abbreviation of Mean Time Between Failures. It is a measure of reliability that represents the average time between failures of an asset, indicating the expected reliability.

4. **MTTR (Mean Time To Repair):** MTTR is the abbreviation for Mean Time To Repair. It represents the average time required to repair an asset after it has experienced a failure.

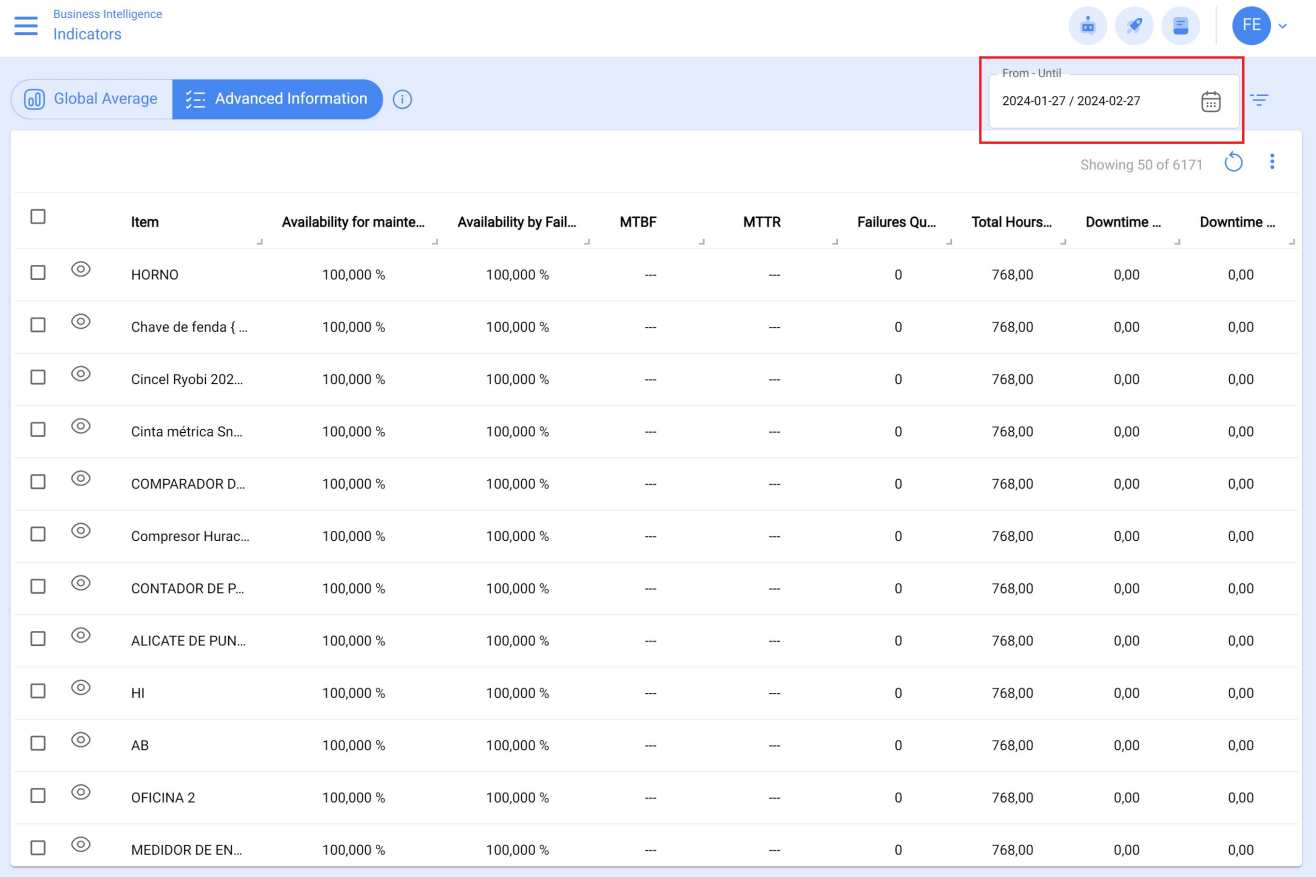
5. **Number of failures:** Refers to the total number of failures an asset has experienced in a specific period.

6. **Total hours:** This information serves as a basis for evaluating the performance of assets over a specific period.

7. **Total hours due to breakdowns:** Indicates the total number of hours in which assets are out of service due to breakdowns and corrective interventions.

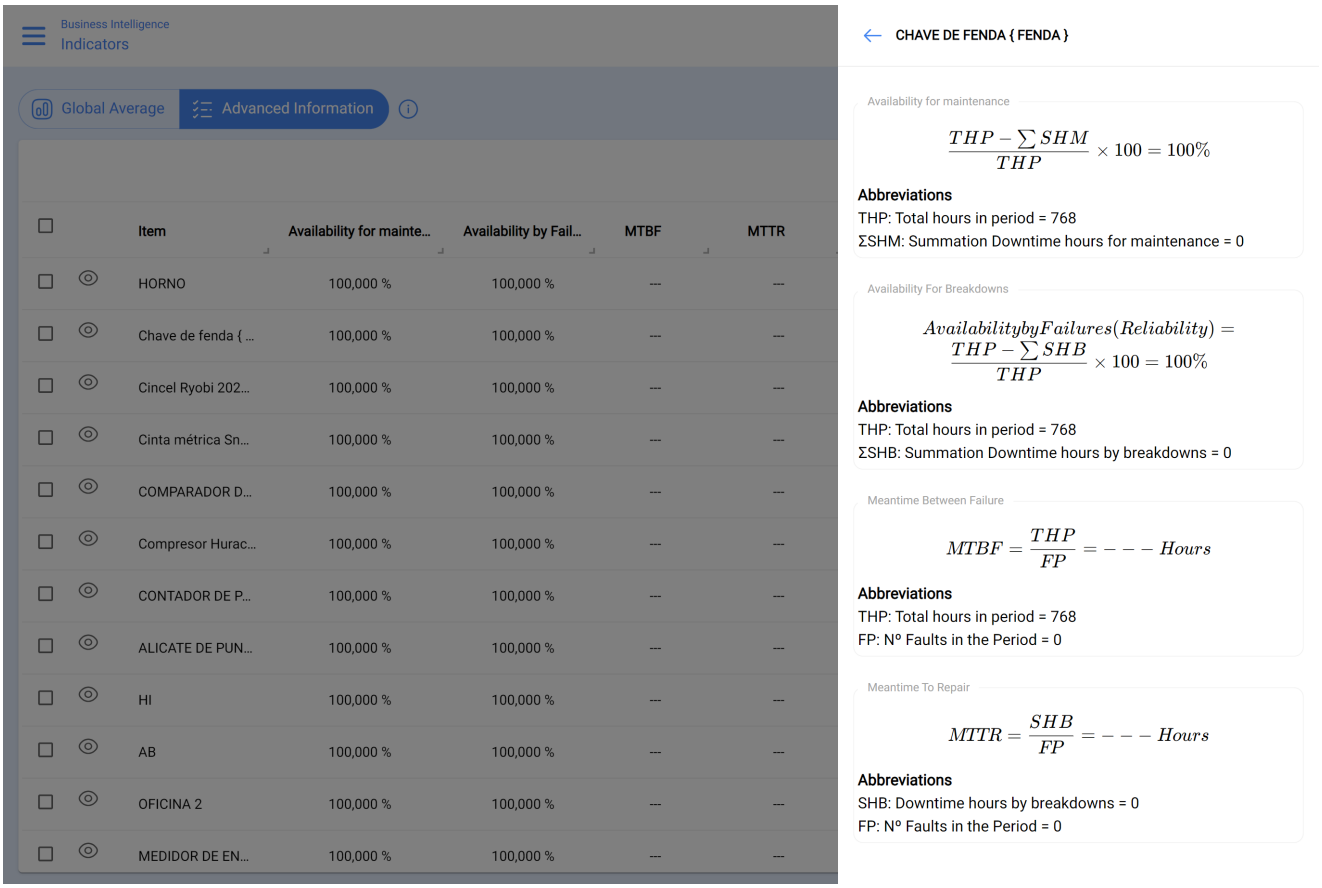
8. **Maintenance downtime hours:** Indicates the total number of hours in which assets are out of service due to planned maintenance activities.

Note: These indicators are evaluated under the date range selected at the top right of the interface.

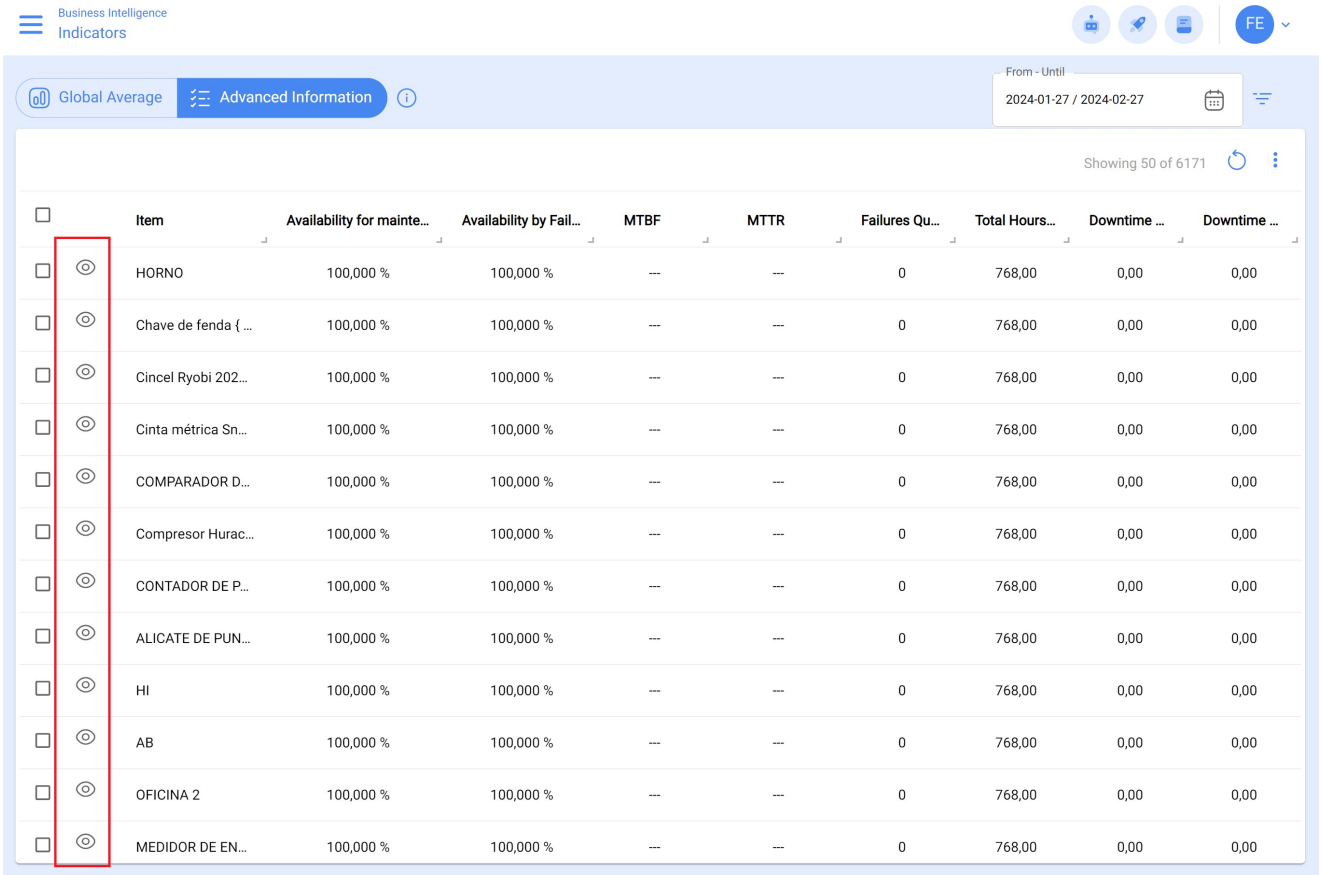


Item	Availability for mainte...	Availability by Fail...	MTBF	MTTR	Failures Qu...	Total Hours...	Downtime ...	Downtime ...
HORNO	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Chave de fenda { ...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Cincel Ryobi 202...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Cinta métrica Sn...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
COMPARADOR D...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Compresor Hurac...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
CONTADOR DE P...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
ALICATE DE PUN...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
HI	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
AB	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
OFICINA 2	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
MEDIDOR DE EN...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00

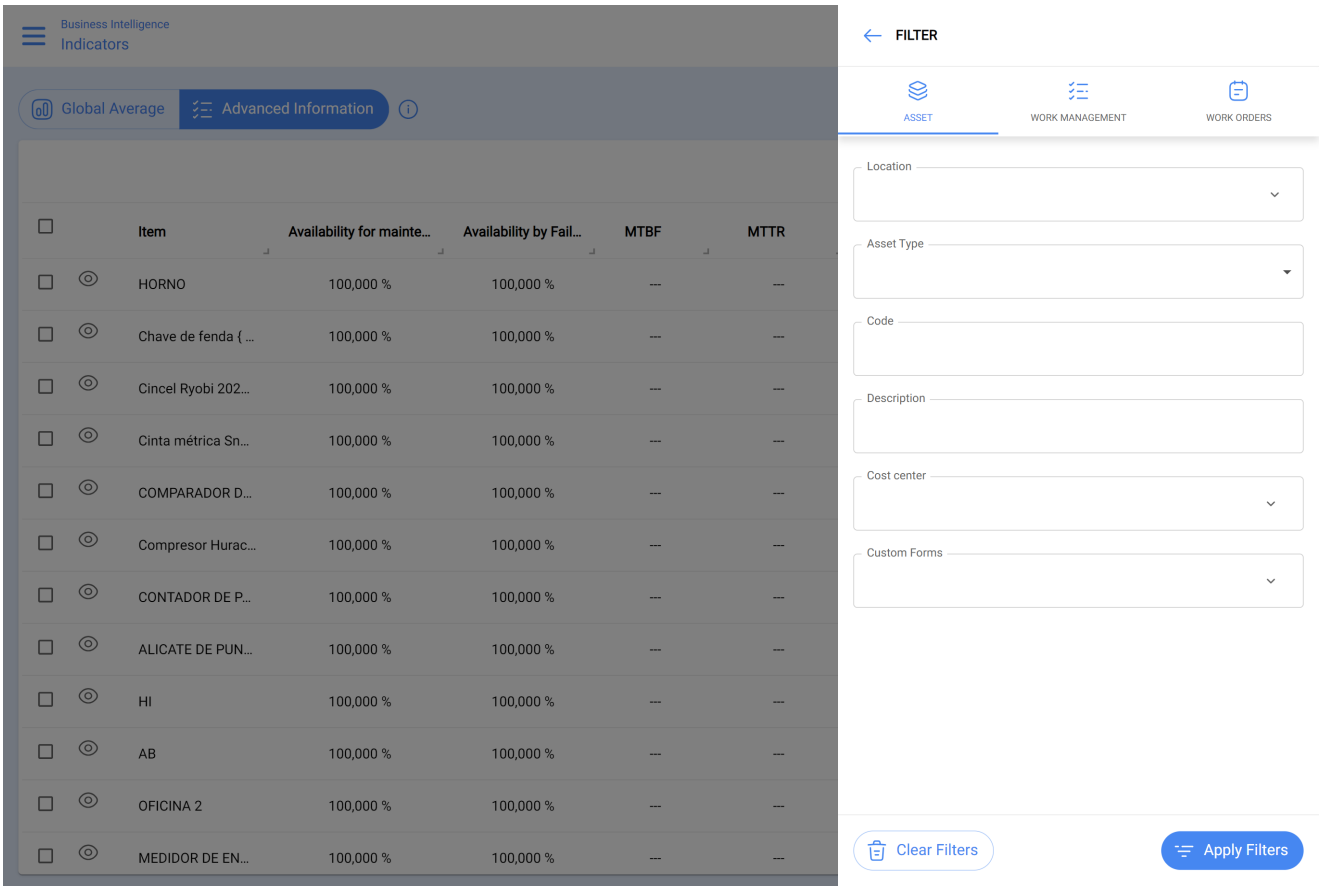
By clicking on each asset, users can access the specific formulas we have implemented to calculate the final results. This ensures that each formula is adjusted and customized according to the selected asset.



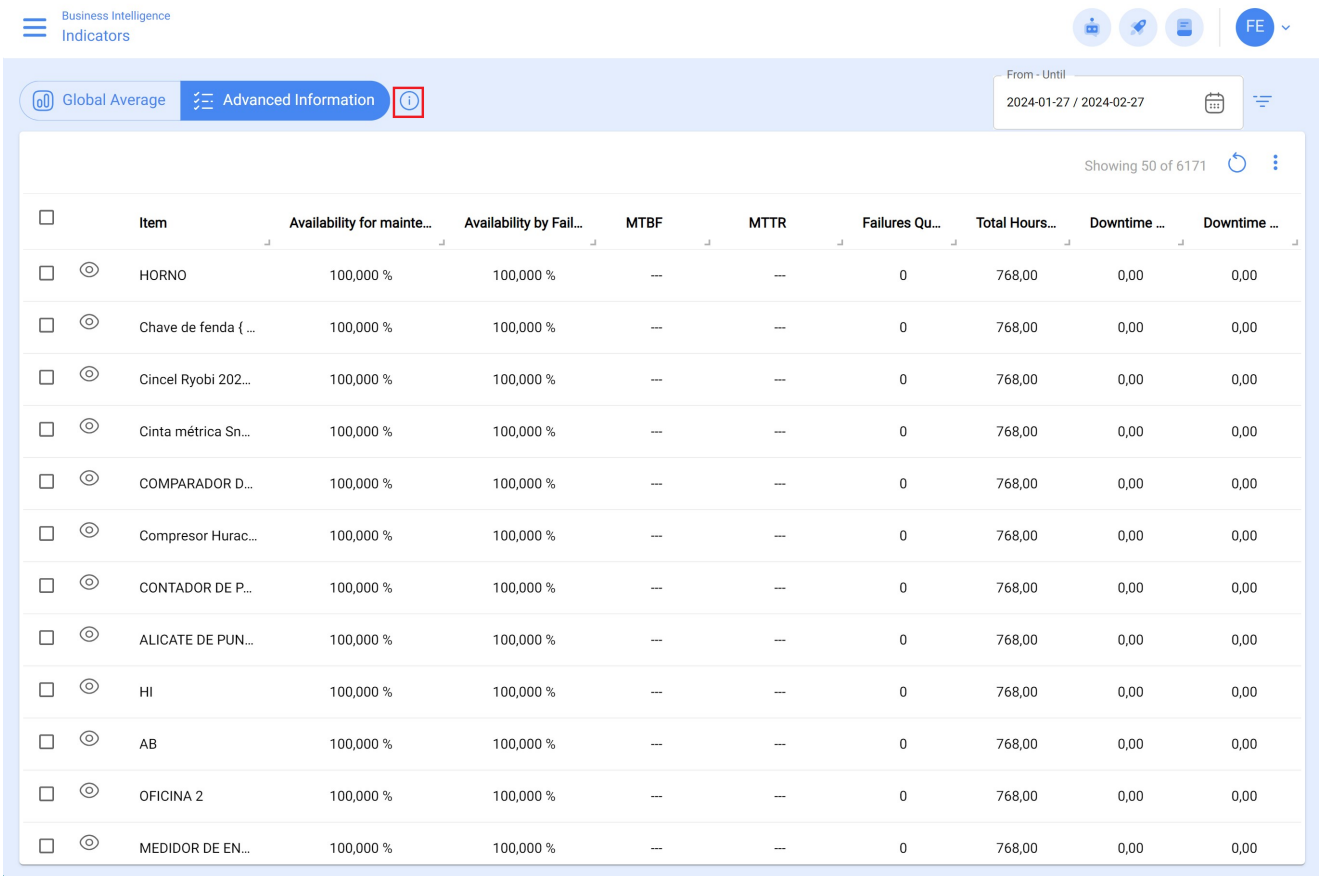
We also provide an icon that redirects promptly to detailed information on each asset.



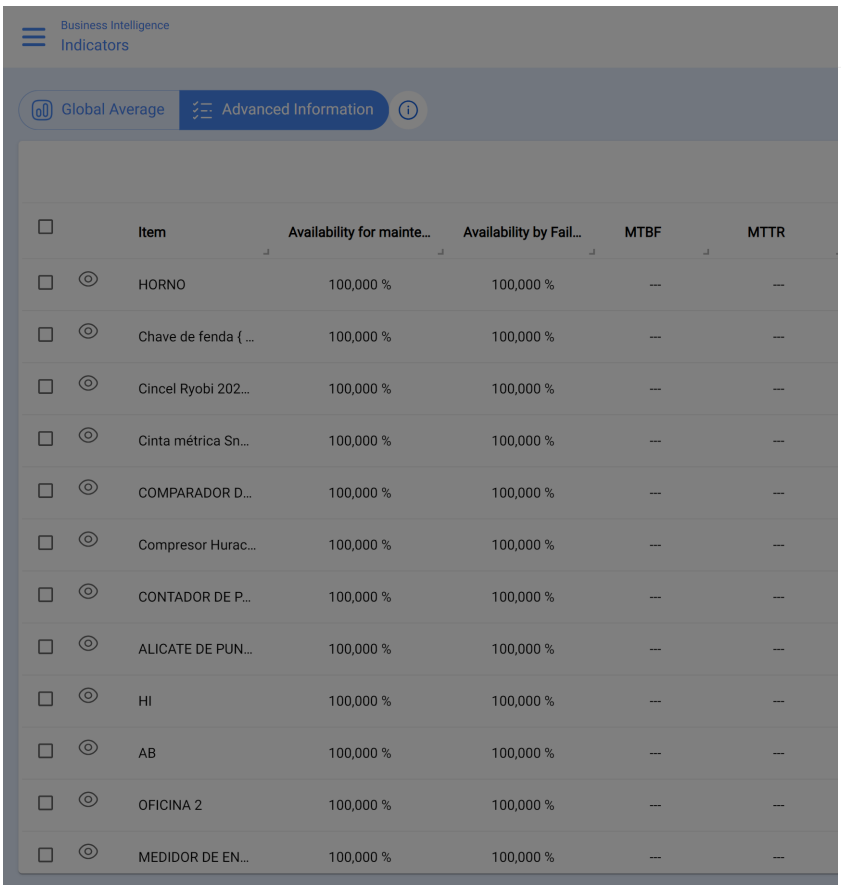
You can specifically filter by location, location, asset type, code, cost center or custom form.



General formula display icon: Here we provide our users with a detailed explanation of the various formulas we use to obtain the final results in a general way.



Item	Availability for mainte...	Availability by Fail...	MTBF	MTTR	Failures Qu...	Total Hours...	Downtime ...	Downtime ...
HORNO	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Chave de fenda { ...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Cincel Ryobi 202...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Cinta métrica Sn...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
COMPARADOR D...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Compresor Hurac...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
CONTADOR DE P...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
ALICATE DE PUN...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
HI	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
AB	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
OFICINA 2	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
MEDIDOR DE EN...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00



Item	Availability for mainte...	Availability by Fail...	MTBF	MTTR
HORNO	100,000 %	100,000 %	---	---
Chave de fenda { ...	100,000 %	100,000 %	---	---
Cincel Ryobi 202...	100,000 %	100,000 %	---	---
Cinta métrica Sn...	100,000 %	100,000 %	---	---
COMPARADOR D...	100,000 %	100,000 %	---	---
Compresor Hurac...	100,000 %	100,000 %	---	---
CONTADOR DE P...	100,000 %	100,000 %	---	---
ALICATE DE PUN...	100,000 %	100,000 %	---	---
HI	100,000 %	100,000 %	---	---
AB	100,000 %	100,000 %	---	---
OFICINA 2	100,000 %	100,000 %	---	---
MEDIDOR DE EN...	100,000 %	100,000 %	---	---

FORMULA

Availability for maintenance

$$Availability = \frac{THP - \sum SHM}{THP} \times 100$$

Abbreviations
THP: Total hours in period
ΣSHM: Summation Downtime hours for maintenance

Availability For Breakdowns

$$AvailabilitybyFailures(Reliability) = \frac{THP - \sum SHB}{THP} \times 100$$

Abbreviations
THP: Total hours in period
ΣSHB: Summation Downtime hours by breakdowns

Meantime Between Failure

$$MTBF = \frac{THP}{FP}$$

Abbreviations
THP: Total hours in period
FP: Nº Faults in the Period

Meantime To Repair

$$MTTR = \frac{SHB}{FP}$$

Abbreviations
SHB: Downtime hours by breakdowns
FP: Nº Faults in the Period

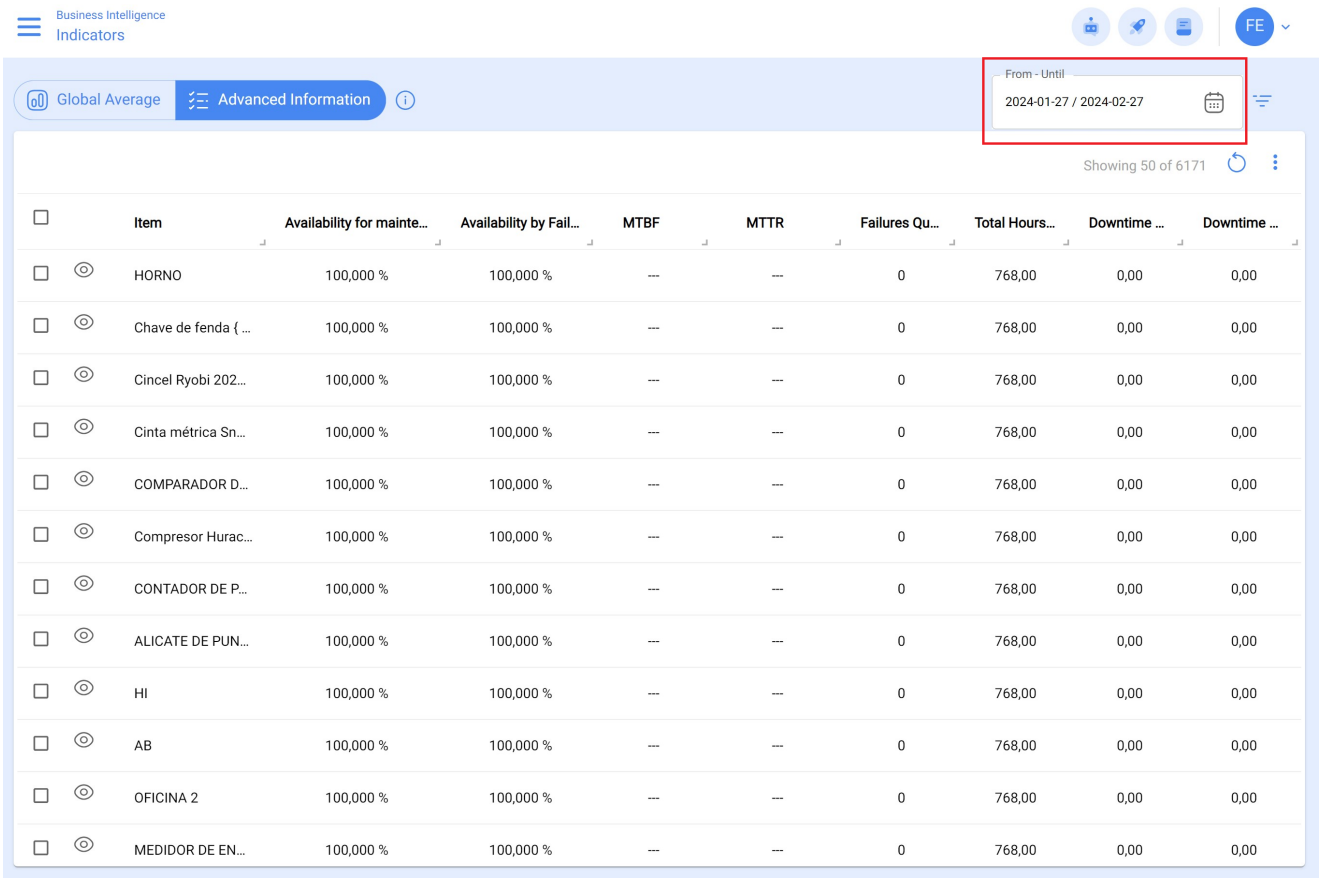
Let us understand the formulas in detail:

1.What are the total hours in the period (HTP):

It corresponds to the total hours evaluated in the period of time (this data comes out of the filter by date range) in which the indicator is being evaluated (Image A) by the number of hours of average daily use of the assets evaluated (Image B).

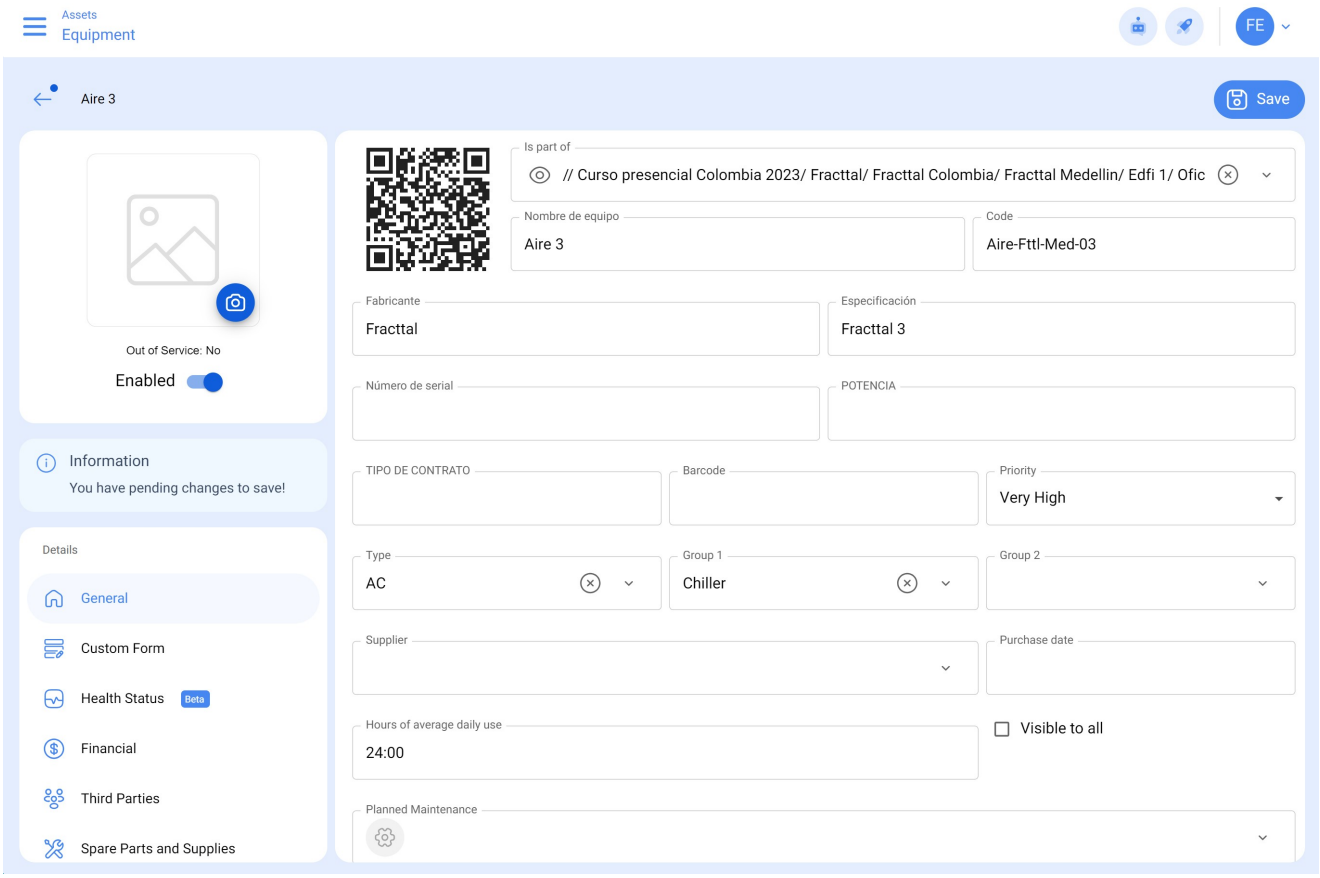
Where do we find the above in Fracttal One?

Time period evaluated (Image A)



Item	Availability for mainte...	Availability by Fail...	MTBF	MTTR	Failures Qu...	Total Hours...	Downtime ...	Downtime ...
HORNO	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Chave de fenda { ...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Cincel Ryobi 202...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Cinta métrica Sn...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
COMPARADOR D...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
Compresor Hurac...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
CONTADOR DE P...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
ALICATE DE PUN...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
HI	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
AB	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
OFICINA 2	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00
MEDIDOR DE EN...	100,000 %	100,000 %	---	---	0	768,00	0,00	0,00

Number of hours of average daily use of the asset (Image B)



Recommendations:

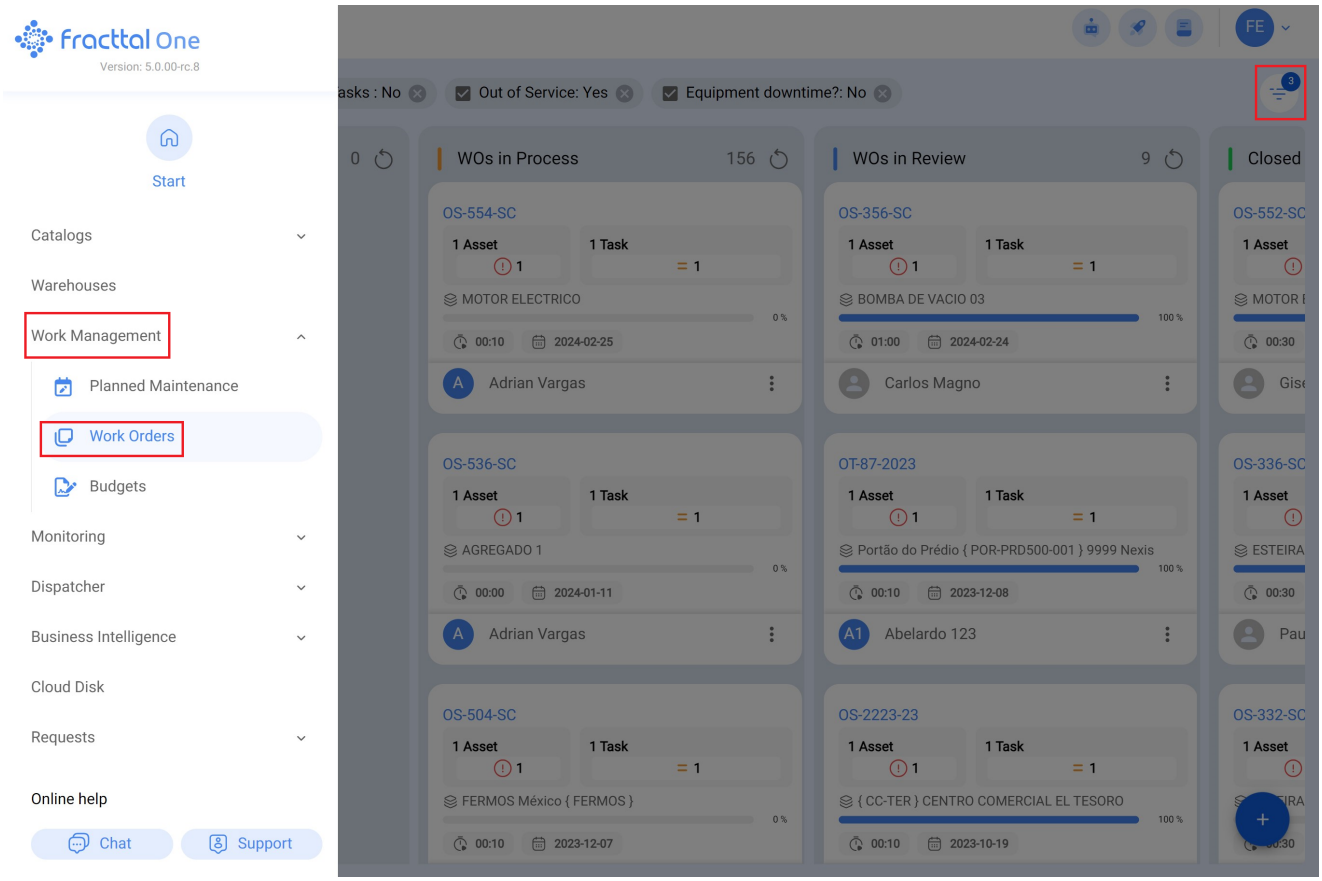
It is essential to avoid setting the "Average Daily Hours of Use" field to zero, as this setting could have a direct impact on the Total Hours in Period (TTH) and, consequently, on the KPIs. Maintaining a non-zero value in this field is essential to ensure the integrity of the calculations and the accuracy of the associated indicators.

2.What is the sum of maintenance downtime hours (HPM)?

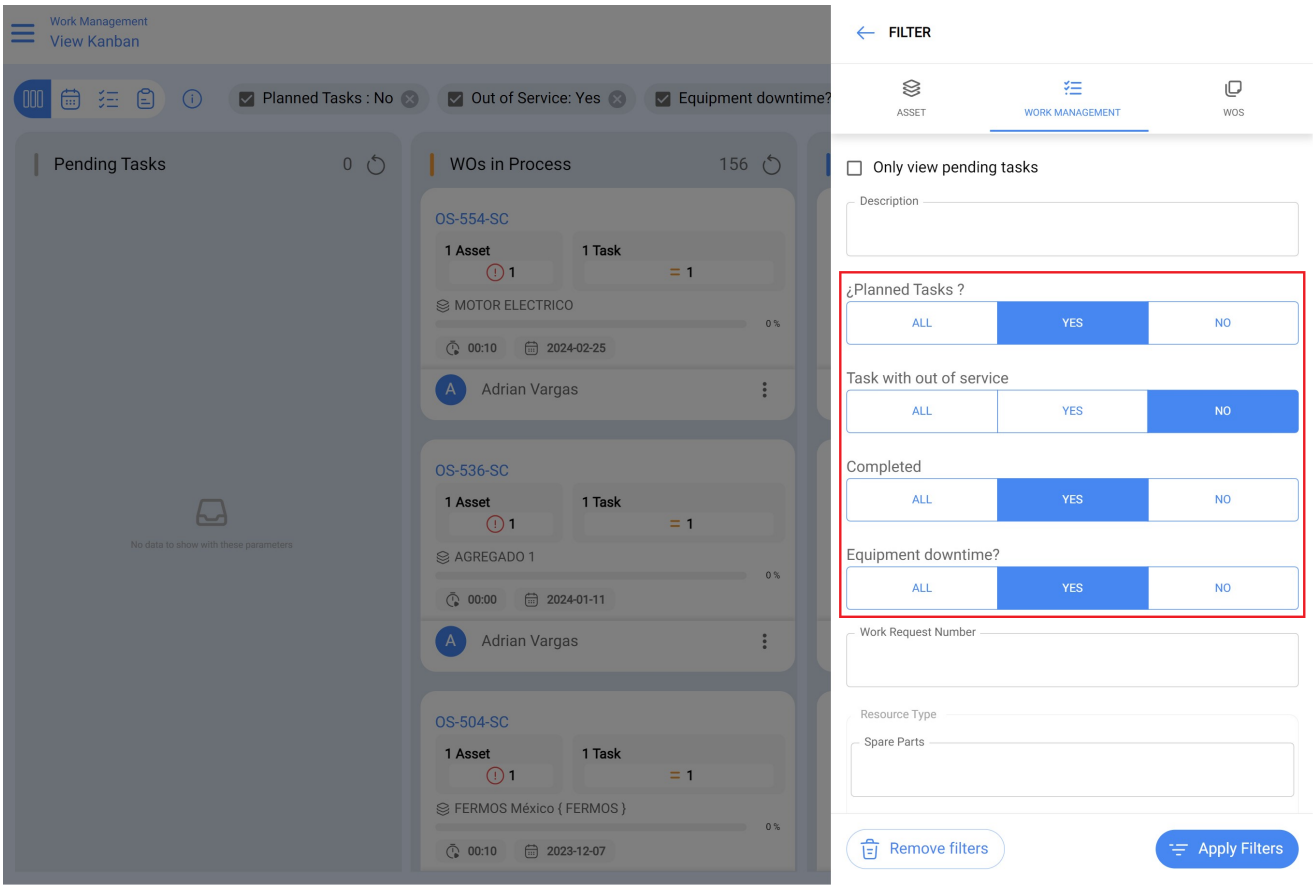
Corresponds to the actual downtime of the asset that is recorded in the Planned TOs.

Where do we find the above in Fracttal One?

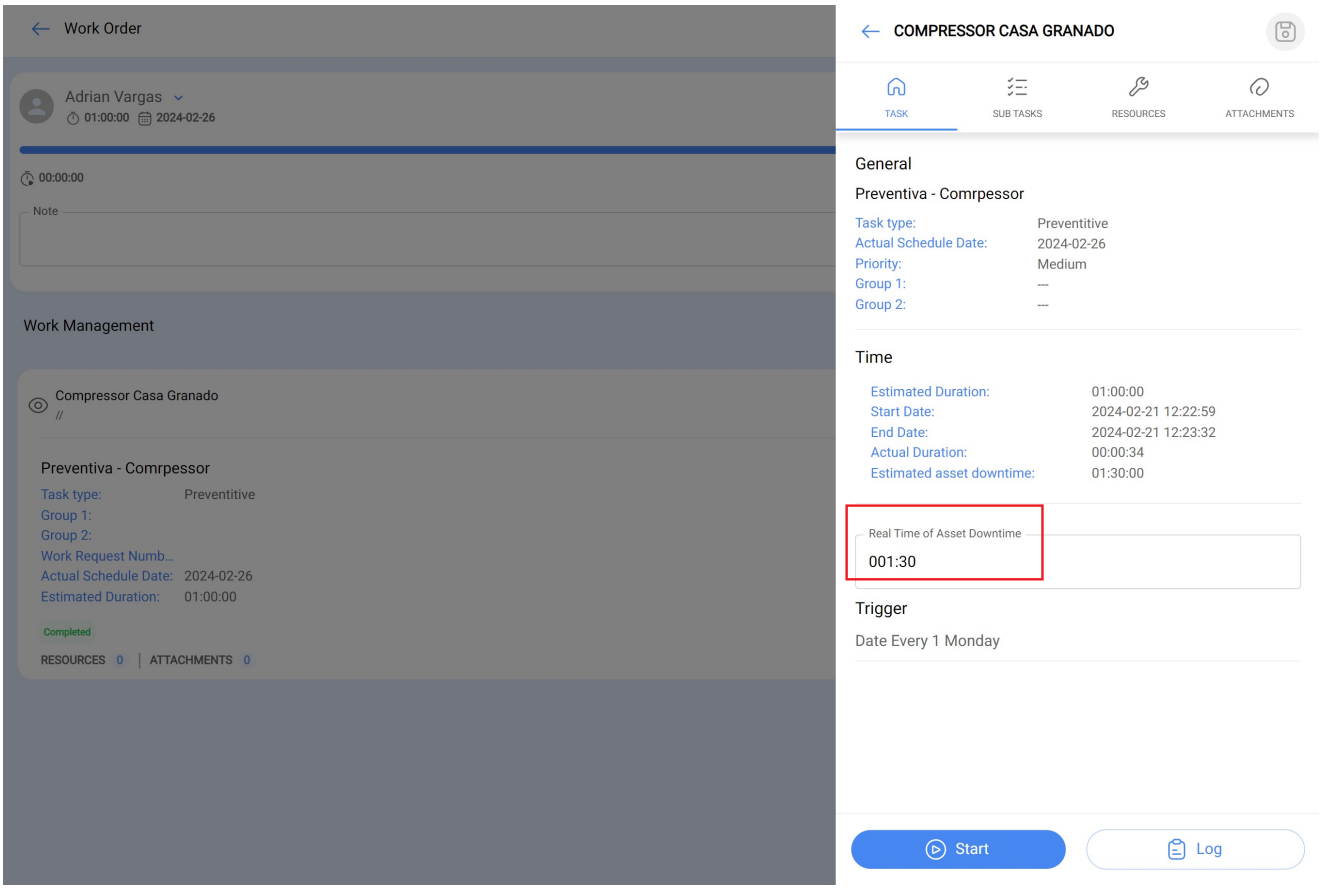
To find the above information in Fracttal One, first go to the main menu and select the "Tasks" module and then "Work Orders" as shown below:



Then, filter by selecting the "Tasks" option and in the planning type box choose "Planned tasks", as shown in the following image:



Each task that we observe after applying the filter will contain a specific field, as shown in the image:



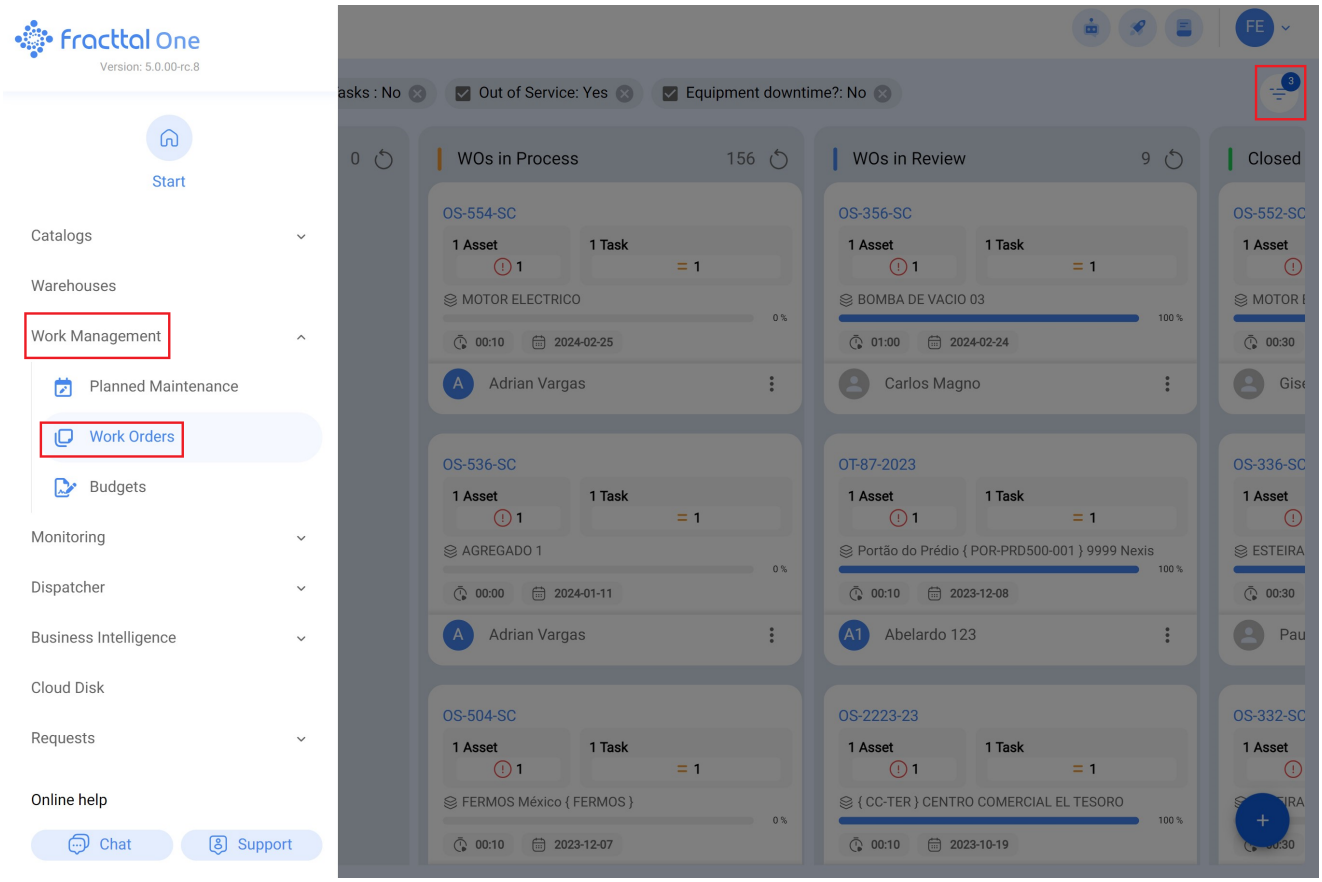
It is in this field where the downtime of the asset during each maintenance must be completed. This responsibility falls directly on the technician in charge of executing the planned task, and in turn, on the planner or supervisor, who must ensure that the information is properly recorded.

3.What is the Sum of downtime hours due to breakdown?

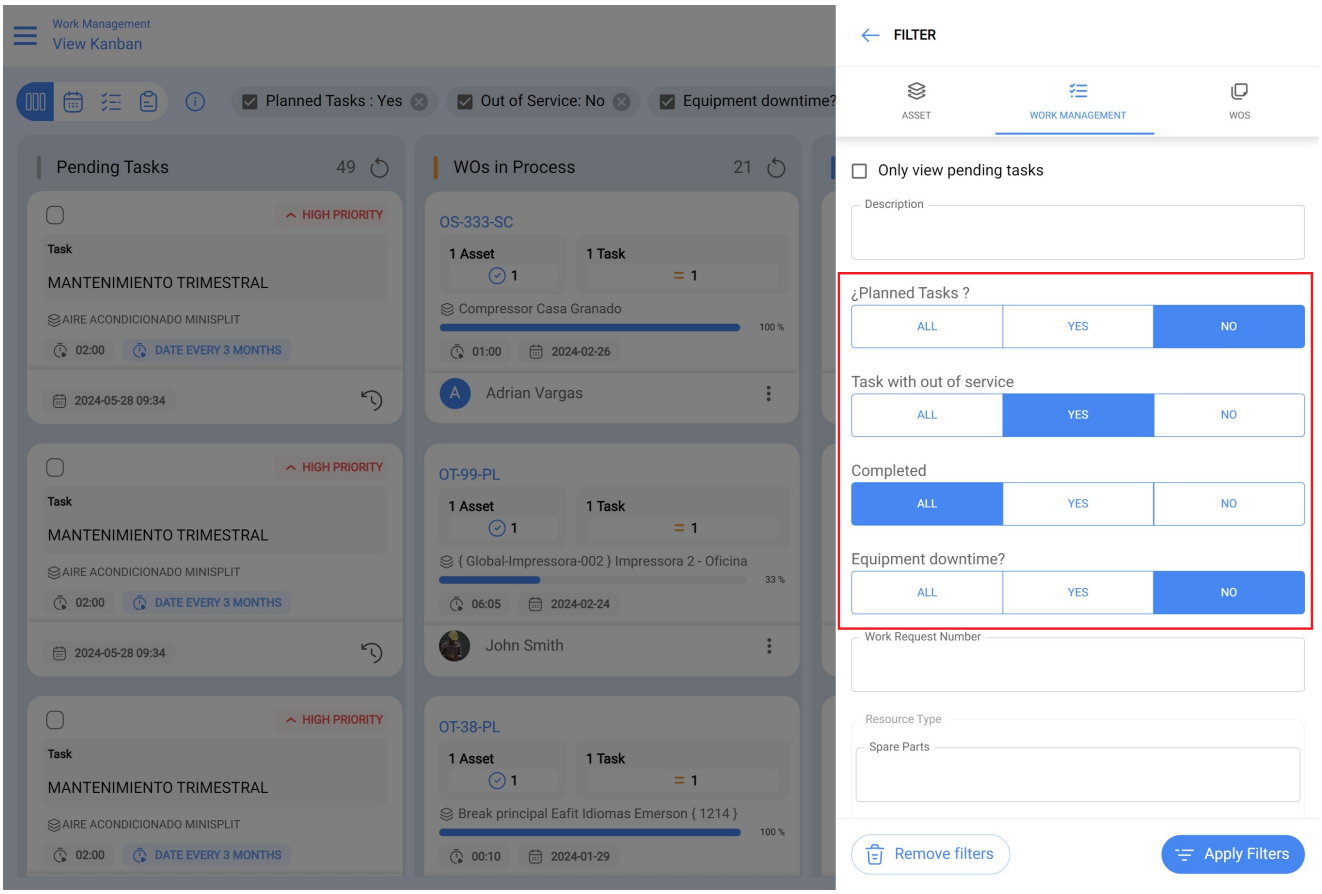
Corresponds to the out-of-service time recorded in the Unplanned tasks.

Where do we find the above in Fracttal One?

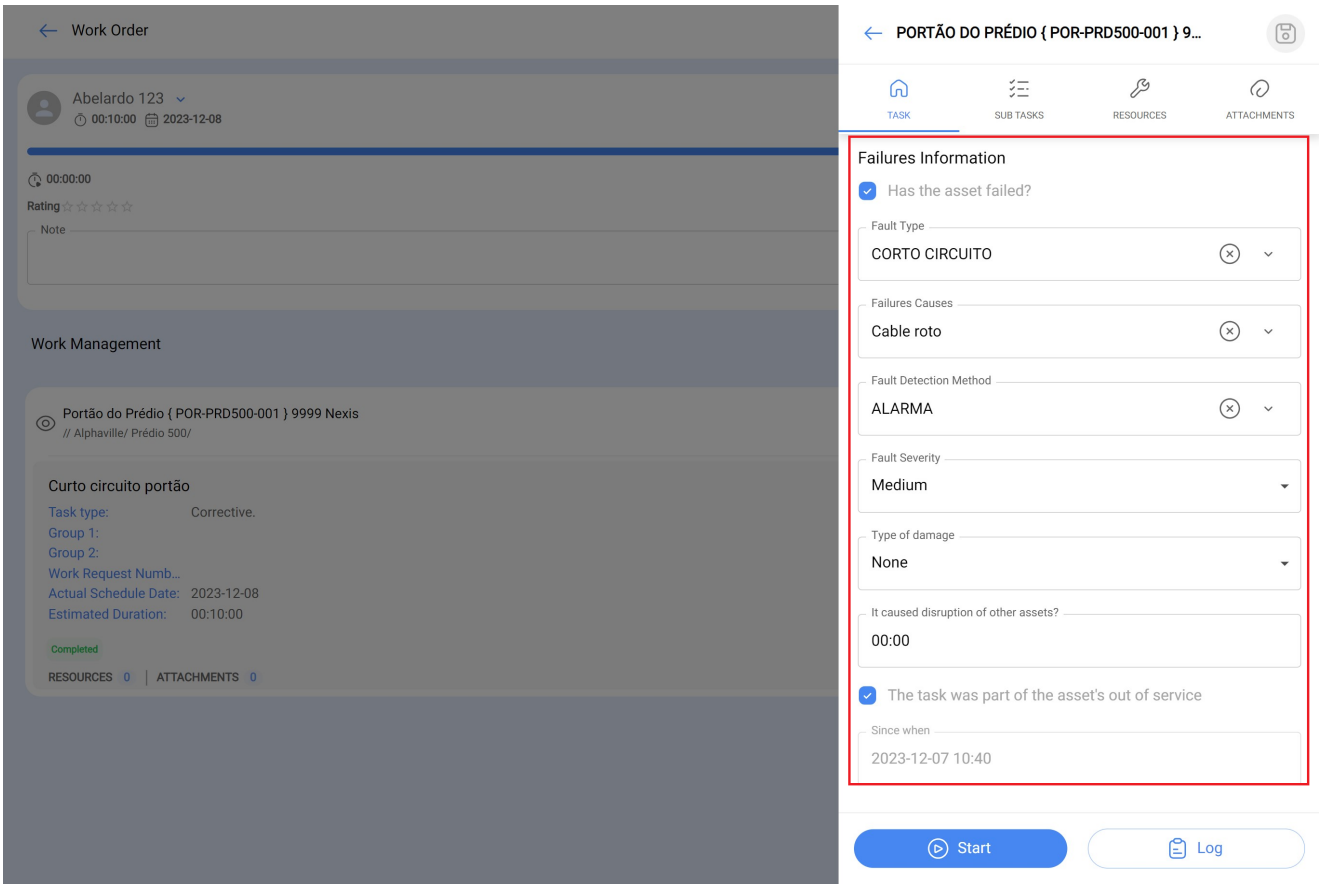
To find the above information in Fracttal One, first go to the main menu and select the "Tasks" module and then "Work Orders" as shown below:



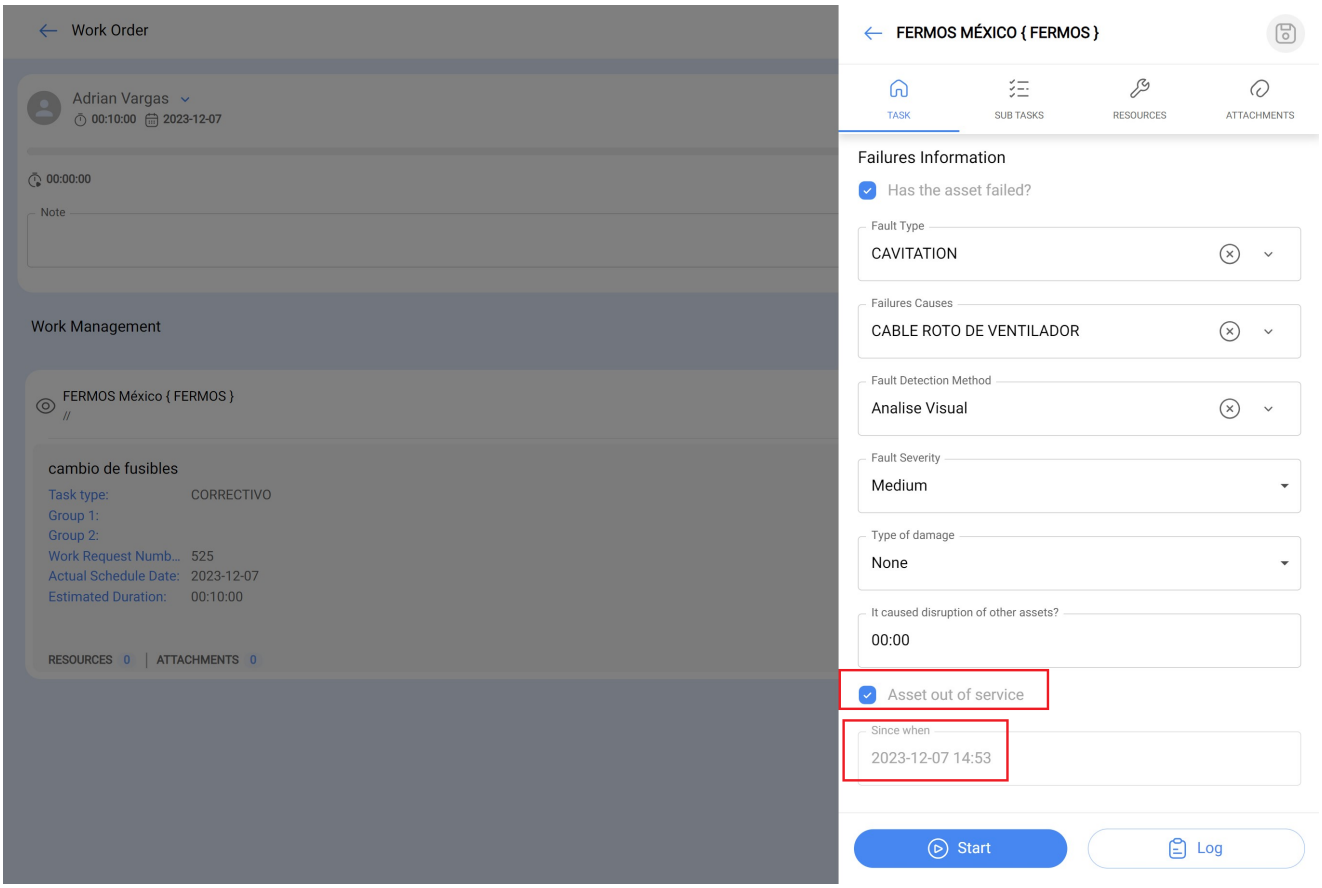
Then, make a filter by selecting the "Tasks" option and in the planning type box choose "NO" in "Planned tasks", and choose the "YES" option in ""Task with out of order" as shown in the following image:



Each task we identify after applying the filter will display specific fields, as shown in the image. It is essential to complete all these fields and, above all, to check the 'Failed active?' box.

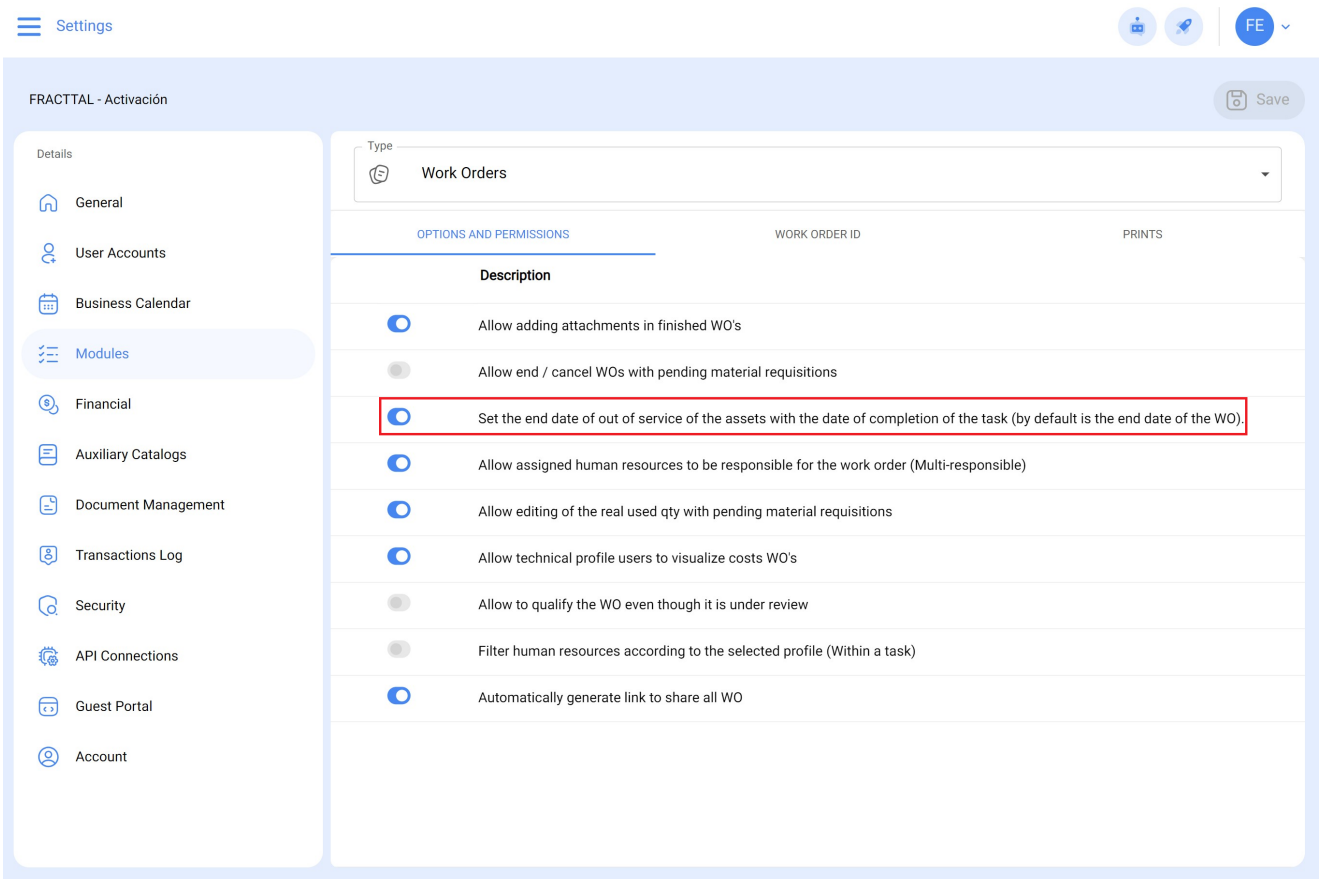


If the equipment is out of service, it is necessary to check the box 'Active Out of Service' and then record the date and time when the equipment started to be out of service, as illustrated in the image.



These fields must be completed for each corrective maintenance. This responsibility falls directly on the technician in charge of executing the corrective task, and in turn, on the planner or supervisor, who must ensure that the information is properly recorded.

On the other hand, you should check in the configuration module, option Modules, specifically in the Work Orders section, that the option that indicates 'Set the out of service end date of the files with the task end date' is activated and appears in green, as shown in the image.


Settings
FE
FRACTTAL - Activación
Save
Details
General
User Accounts
Business Calendar
Modules
Financial
Auxiliary Catalogs
Document Management
Transactions Log
Security
API Connections
Guest Portal
Account
Type
Work Orders
OPTIONS AND PERMISSIONS
WORK ORDER ID
PRINTS
Description
Allow adding attachments in finished WO's
Allow end / cancel WOs with pending material requisitions
Set the end date of out of service of the assets with the date of completion of the task (by default is the end date of the WO).
Allow assigned human resources to be responsible for the work order (Multi-responsible)
Allow editing of the real used qty with pending material requisitions
Allow technical profile users to visualize costs WO's
Allow to qualify the WO even though it is under review
Filter human resources according to the selected profile (Within a task)
Automatically generate link to share all WO