

Project Dashboard

Documentation

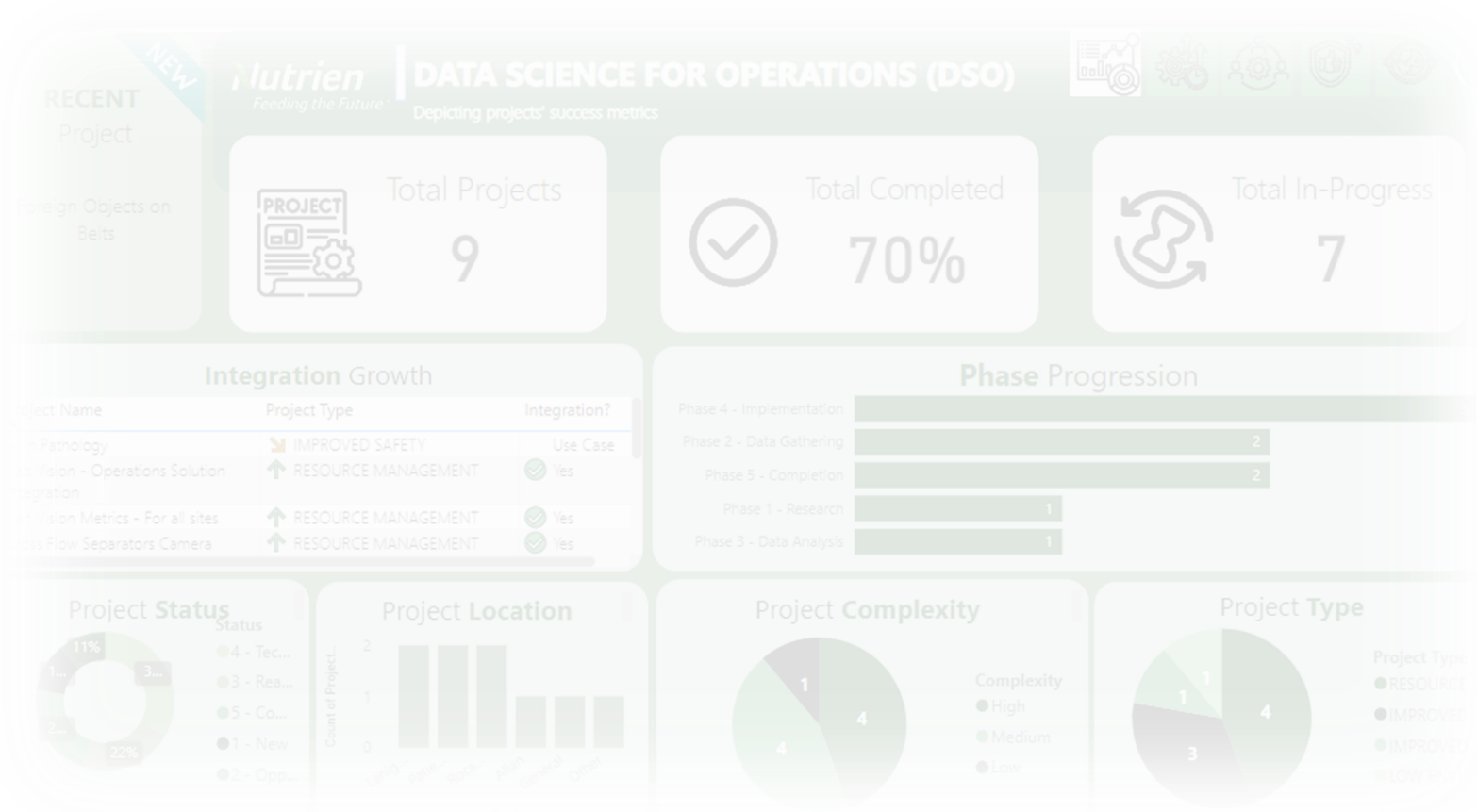


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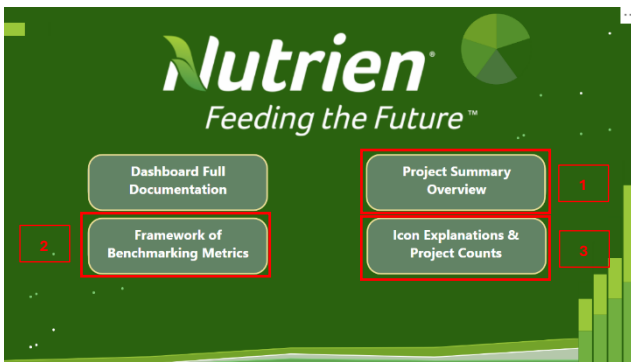
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Dashboard Documentation

This documentation is a brief overview of what the dashboard can do, and it uncovers some of its hidden features that you might miss when interacting with the dashboard. For those visiting the dashboard for the first time, this is a visual tool to help represent some of the data science projects, specifically in the Potash Business Unit. By making use of this visualization tool, you will be able to see the projects' performance metrics and overall growth. Hence, to ensure that you don't miss the features or the reasoning behind the elements, be sure to have a quick scan of this documentation at least once either before or after looking through the dashboard.

Main Page Overview

The first page you will find is the Main Page, comprising 4 interactive button elements. These are namely:



- Dashboard Full Documentation
- Project Summary Overview (1)
- Framework of Benchmarking Metrics (2)
- Icon Explanations and Project Counts (3)

Figure 1 The Main Page View of the Dashboard

The first button would lead you to this documentation that gives a concise, yet comprehensive overview of the dashboard created. Meanwhile, the other three buttons will lead you to three other pages inside our dashboard project that we will also investigate more deeply. For now, the three different pages are numbered (1), (2), and (3) respectively and we will utilize these three key numbering systems to identify them when we get to those pages in this documentation.

Icon Categorization

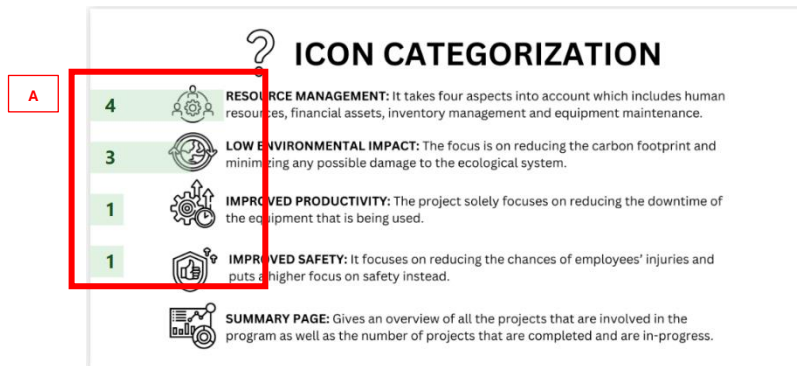


Figure 2 Icon Categorization Page of the Dashboard

This **Icon Categorization** page referred to as (2) numerically above refers to the icon symbols used throughout the dashboard and its significance. Every project is categorized specifically into one specific category in accordance with its focus. The **lighter-shade bar chart (A)** alongside its numerical values on the left indicates the number of projects falling under those specific categories. Every time the dataset is refreshed or altered with a different categorical name; the changes would appear in the numberings of those bar charts as well.

Some projects could fit in more than one category, but the idea is to place the project in a category that has it as its focus or main area of concentration. Here is some more explanation behind these categorizations that couldn't be fully described in the tooltip page itself:

- **Improved Safety:** Some projects focus solely on safety and security of the employees by focusing on their physical health while operating some of the equipment underground. With safety being one of the core values of Nutrien, a category is specifically dedicated to this to indicate its importance in the company and how our employees are valued in the community. These projects could be centered around reducing the hazardous environments such as slippery surfaces or preventing the atmospheric contamination that could cause irritation when inhaling.
- **Resource Management:** This category takes 4 main sub-ideas together which includes the number of human resources, financial assets, inventory management and equipment maintenance.
- **Low Environmental Impact:** A project is placed here when the focus of the solution is to reduce the overall damage to the environment caused by the existing system in place. This could be done by reducing the carbon footprint, wastage of natural resources and harm to the wildlife in certain cases.
- **Improved Productivity:** For certain projects, the existing system may cause a lot of unexpected downtimes, prolonged periods of repair and unnecessary travel time for the operators. Hence, the solutions produced by these projects aims to reduce all these negative impacts as much as possible to ensure that the company doesn't face harsh losses such as financial losses as a by-product to this.

Project Summary Page

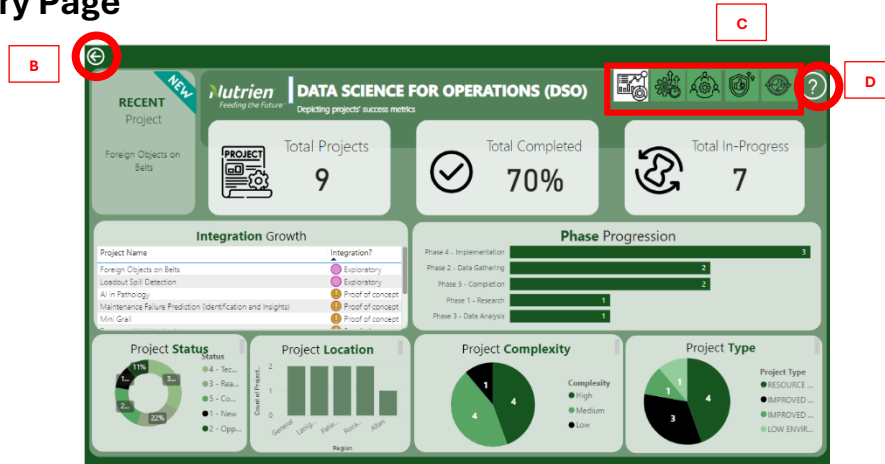


Figure 3 Project Summary Page of the Dashboard

This is the summary page that gives an overview of all the data science projects in the Potash Business Unit. A few important features that you might miss are:

- The Back Page Button (B) on the top left-hand corner of the dashboard
- The Icons (C) on the top right-hand corner of the dashboard indicates the four categories that the projects are divided into – for detailed explanation, read *Section Icon Categorization*
- The Help Button (D) will display the *Icon Categorization* tooltip page in the case when the user may be unsure of what those icons may be an indication of

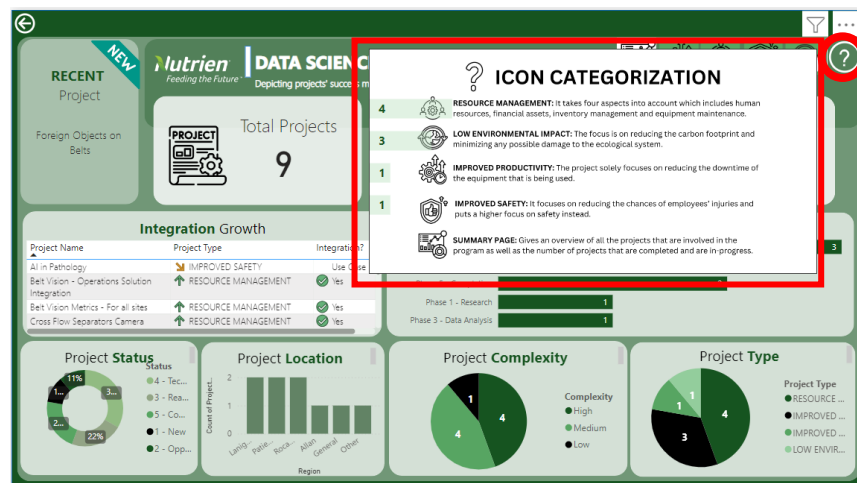


Figure 4 The display of the Summary Page when the Help Icon is clicked

Category Individual Page

Each of the different projects are divided into the 4 major categories which includes

- 1) Resource Management
- 2) Low Environmental Impact
- 3) Improved Productivity
- 4) Improved Safety

The projects are placed into the respective categories depending on what the projects' main focuses are. When more projects are added into the DSO program, it will eventually stabilize the system and make certain categories more informative in terms of their data presentation. For now, we could investigate a specific category namely "Improved Safety."



Figure 5 Dashboard View for "Improved Safety" category

Dashboards as such involves information about the project. By default, it contains the first project under the category and displays information regarding that project while comparing its metrics with other projects in the category. Other 3 categories are also identical in design as this, and it involves some important tooltips that a user should be aware of.

- E) Metrics Framework: This tooltip page will involve suggested formulas and diagrams that explains how various metrics were calculated. These formulas can be taken as an inspiration that could be used to calculate the metrics.
- F) Complexity Framework: A checklist representation to reason the reasoning behind the complexity state level that the project has reached. It covers of the list of elements that would be necessary to classify a project's complexity as either low, medium, or high.
- G) Icon on the bar alongside the name of the project: Incorporates important relevant pieces of information about the project. This is only activated once an object is selected from the checklist on the right-hand side. If a project is not selected, it will produce "No Information" on each of the item mentioned in the tooltip.
- H) Question mark icon: A tooltip to explain the formal written explanation alongside the visual representation of the icon as it was shown in the previous section of the "Summary Page".

Upon clicking (E) with Ctrl, it will lead the user to a tooltip page that incorporates the details of each metric involved in all the projects and what they mean. Beside the detailed table, a suggested formula table is included for users that they could use to calculate the metric of the project.

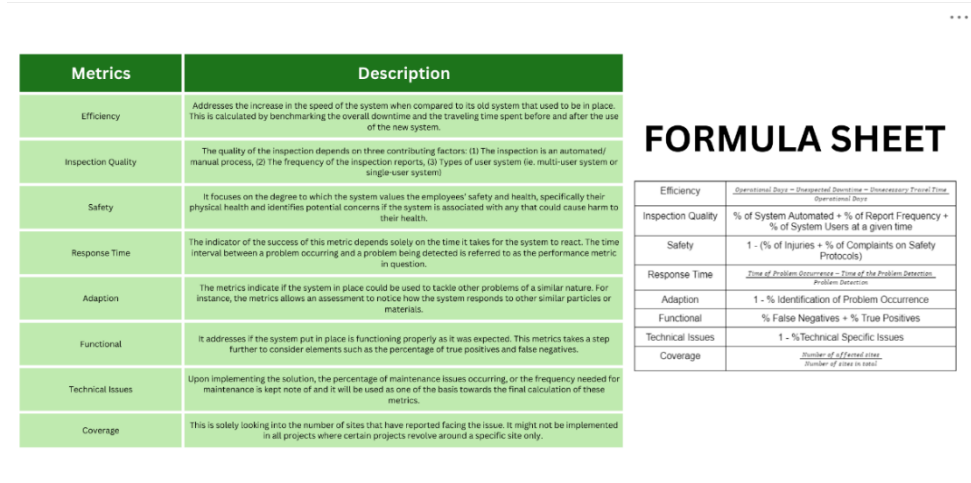


Figure 6 The Metrics Framework page indicating the suggested formulas of the metrics and their description as well.

Going back to display (I), when a project is selected from the checkbox on the top left-hand corner of the display, details of the project can be verified with the help of the tooltip (G). This is depicted with the Figure 7 as we have picked a project named “Loadout Spill Detection” from our list (J). This tooltip allows the user to have basic information about the project which includes the project name, the project type, the business unit, use case champion, data scientist and the leader involved. The green bolded text includes the brief description of the project in a concise manner.

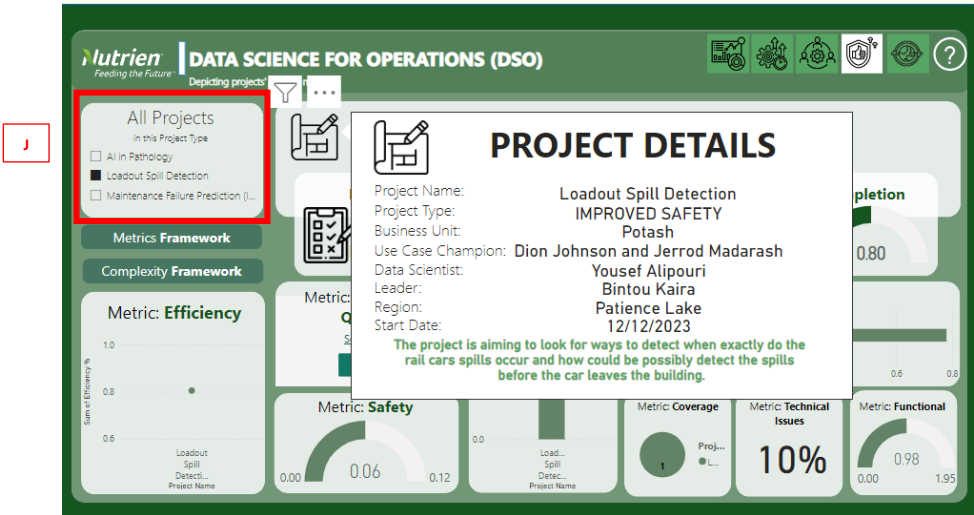


Figure 7 The display of (I) upon hovering on the icon to generate a visual display of tooltip (G).

When no project is selected from display (J), the project title on the top will be the first project in the checkbox list of that specific category. In this case, our first project is “AI in Pathology” and upon selecting no project, that will be the name of the project that will would be able to see. Now, if we chose to click our display (G), it will not show us any information about any specific project since we haven’t picked any project from that checklist. This display of the dashboard in this situation can be noticed in Figure 8.



Figure 8 Project Title will display the first project that is in that specific category.

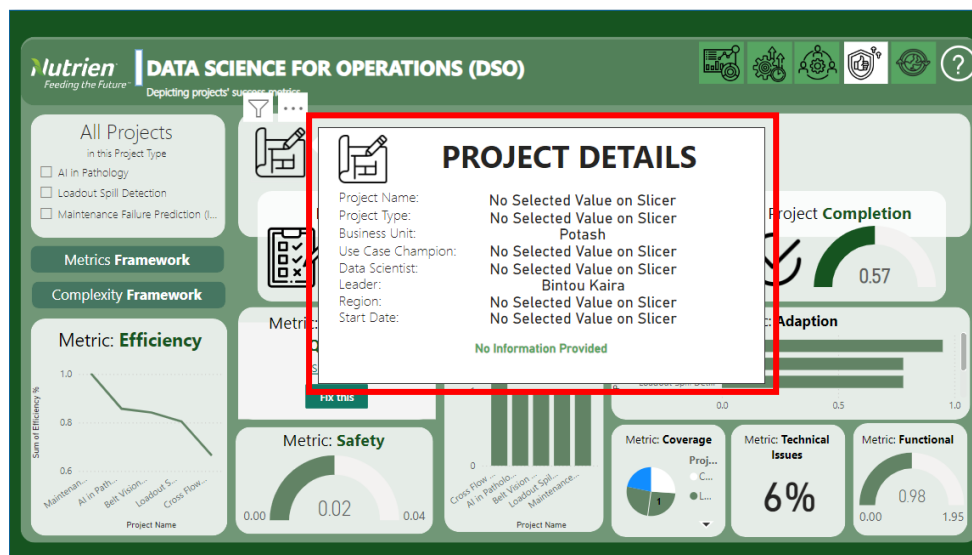


Figure 9 The tooltip page display when no specific project is selected from the checklist box on the top left of the dashboard display.

Display (H) is identical to display (D) in the previous section. The reason why it has been reiterated once again is to highlight that this feature is present in all of the pages of the dashboard to provide the users with the flexibility to make use of the feature without having to return back to the “Project Summary” page.

By clicking Ctrl + Display (F), it will lead the user to the complexity framework page. It is another tooltip page that is segregated into three parts namely low, medium, and high complexity. Each of these sections has a checklist that was used to classify the projects in the dashboard and the user is advised to make use of the checklist to classify future projects in those categories. When making the complexity framework checklist, vast selection of areas was taken into consideration which includes the pre-existing use case in another site, number of subject matter experts involved, the timeframe of the project, and data sources required for the project to succeed successfully. There is a possibility that the project might not best fit into one specific complexity category but it is classified based on the largest number of checkmarks into the complexity category.

LOW COMPLEXITY

- ☐ Proof-of-concept already exists for other sites
- ☐ Data sources exists and access will be provided
- ☐ The duration of the project was short and successful
- ☐ A few subject matter experts are involved
- ☐ Definite method of knowing how one succeeds in the project

HIGH COMPLEXITY ...

- ☐ Only the concept card exists
- ☐ Data sources doesn't exist and has to be made
- ☐ The duration of the project is going to be long and just commenced
- ☐ Many subject matter experts are involved
- ☐ No method of knowing how one succeeds in the project

MEDIUM COMPLEXITY

- ☐ Proof-of-concept partially exists
- ☐ Data sources needs to be retrieved
- ☐ The duration of the project was slightly long and in-progress
- ☐ Several subject matter experts are involved
- ☐ Somewhat simple method of knowing how one succeeds in the project

Figure 10 Checklist that was used to classify the projects into low, medium, and high complexity.

Data Model

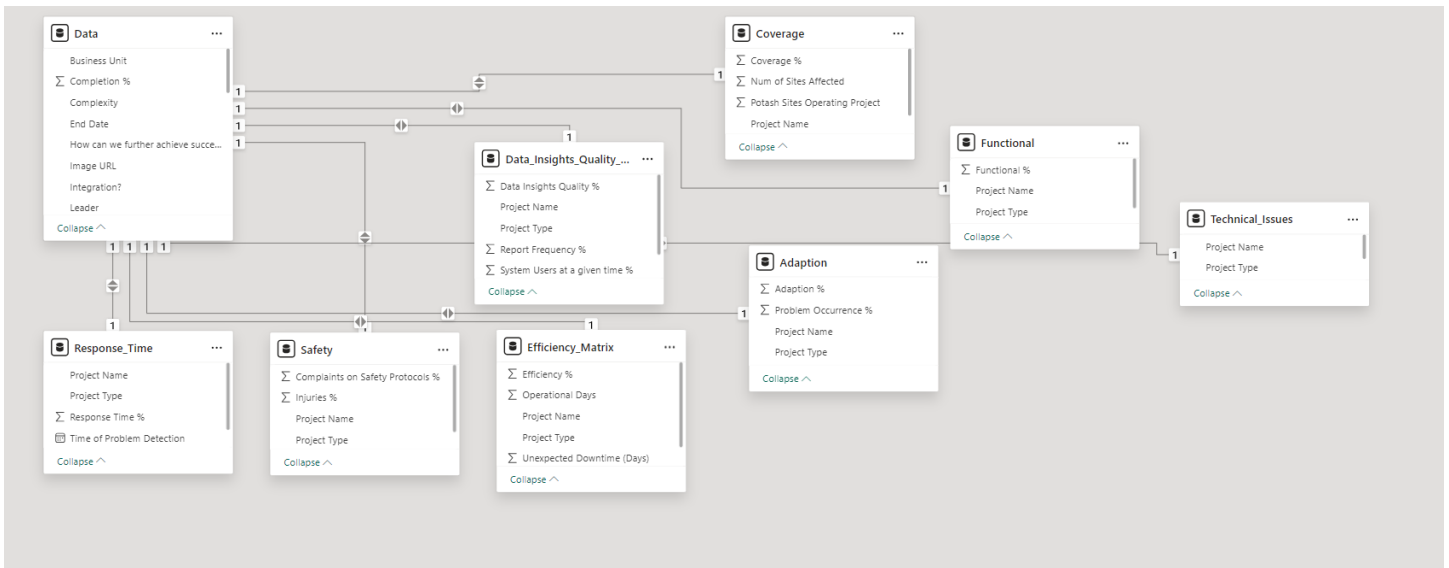


Figure 11 Data Model generated for the dashboard documentation

From Figure 11, it can be noticed that there are nine tables in total with one parent table that helps to connect the primary keys of all the other tables. The parent table, “Data”, consist of the primary keys named “Project Name” and “Project Type” which helps it to connect to all the other eight tables with the same key. Each of the eight tables are a representation of the eight metrics that are used in this dashboard to visually depict the progress of the dashboard. When information about a specific project is added/ modified/ deleted, the refresh button in display (L) can be clicked. It may take a moment for the changes to load and once it is loaded, the changes will be depicted in the data model and the data sheets as well.

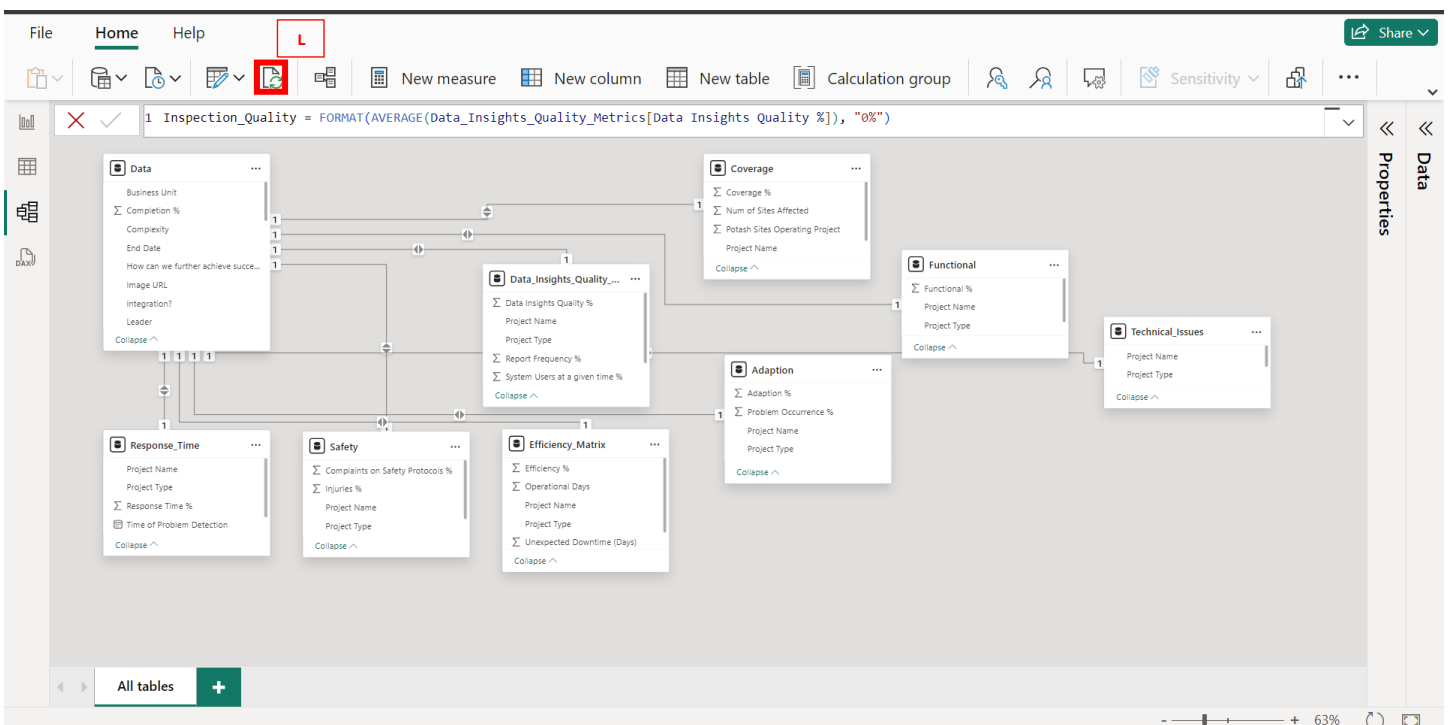


Figure 12 Illustration to highlight the display (L) button which refers to the refresh button to bring updated changes from the data sources to the dashboard

Data Sources (Files)

The location of the excel files may change post-documentation however, this section is to indicate the excel files that were used to create the dashboard.

My files > Documents > OKR 4 Dashboard Visualization > Excel_Files_for_Dashboard

	Name	Modified	Modified By	File size	Sharing	Activity
	Adaption_Metrics.xlsx	June 30	Shruti Kaur	8.51 KB	Shared	
	Coverage_Metrics.xlsx	June 30	Shruti Kaur	8.46 KB	Shared	
	Data_Insights_Quality_Metrics.xlsx	July 4	Shruti Kaur	8.61 KB	Shared	
	Efficiency_Metrics.xlsx	June 30	Shruti Kaur	8.74 KB	Shared	You shared this file - Jun 30
	Functional_Metrics.xlsx	June 30	Shruti Kaur	8.43 KB	Shared	
	Project Management Data Science Progra...	July 4	Shruti Kaur	301 KB	Shared	You shared this file - May 15
	Response_Time_Metrics.xlsx	June 30	Shruti Kaur	8.67 KB	Shared	
	Safety_Metrics.xlsx	June 30	Shruti Kaur	8.48 KB	Shared	
	Technical_Issues_Metrics.xlsx	June 30	Shruti Kaur	7.97 KB	Shared	

Figure 13 The nine excel files that were used as the data sources for the dashboard and played an important role in the data model of the data science dashboard itself.

Display (O) is indication of the parent data source that is used to connect all other data sources. For simplicity of this documentation, we will take one of the eight excel sheet as an example here. In Figure 14, we are looking at the “Data Insights Quality” excel sheet and all the projects have a calculated metric percentage based on the parameters of the suggested formulas in Display (E) that was discussed in the previous section. To calculate the “Data Insights Quality”, it was suggested to calculate it as such:

$$\% \text{ of System Automated} + \% \text{ of Report Frequency} + \% \text{ of System Users at a given time}$$

Project Name	Project Type	Data Insights Quality %	Systems Automated %	Report Frequency %	System Users at a given time %
Belt Vision - Operations Solution Integration	RESOURCE MANAGEMENT	47%	20%	20%	100%
Loadout Spill Detection	IMPROVED SAFETY	50%	10%	40%	100%
Recovery Well Monitoring	LOW ENVIRONMENTAL IMPACT	60%	24%	56%	100%
Foreign Objects on Belts	IMPROVED PRODUCTIVITY	68%	34%	70%	100%
Maintenance Failure Prediction (Identification and Insights)	IMPROVED SAFETY	67%	21%	80%	100%
Mini Grail	RESOURCE MANAGEMENT	53%	35%	23%	100%
AI in Pathology	IMPROVED SAFETY	60%	67%	14%	100%
Cross Flow Separators Camera Vision	IMPROVED SAFETY	46%	34%	15%	90%
Belt Vision Metrics - For all sites	IMPROVED SAFETY	39%	23%	14%	80%

Figure 14 The "Data Insights Quality Metrics" table is an example of a metrics table that was used to create the dashboard

Each of the table follows the suggested use of the formulas and has parameters to helps to derive the final percentage of the metric which is then used in the dashboard. If the user chooses not to make use of the formula, the user can simply type their desired input into the cell. In this case, if the user doesn’t want to make use of the parameters such as “Systems Automated”, “Report Frequency” and “System Users at a given time”, they can type their desired input into the “Data Insights Quality %” cell directly for that specific project name.

With that, it marks the end of the dashboard documentation and I hope that the documentation has been of some use in your journey of navigating the dashboard!