

TT13 – PHUSE EU Connect 2022

Using Power BI to present the QC status for studies

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Contents

- Introduction
- Objectives
- What is Power BI?
- Accessing the data
- Building the report
- Conclusion
- Further Development
- Questions

Introduction

- PHASTAR hosts the QC trackers for studies as Excel files on a SharePoint® site
- Centrally located, easy to use dashboard used by lead programmer/statistician and the project manager

Objectives

- Provide a summary of the QC status for a study
- Consider the technical environment used to store and access the QC trackers
- The summary needs to include for each type of program: graphical displays of the QC status, supporting tabular displays, and percentage complete
- Needs to be easy to use

What is Power BI®?

- Power BI is the leading BI tool according to Gartner
- Power BI is a collection of software services, apps, and connectors that work together to turn unrelated sources of data into coherent, visually immersive, and interactive insights
- Power BI comprises two components: Power BI Desktop, and Power BI service

What is Power BI?

Power BI Desktop

- A data analysis and report creation tool
- Includes Power Query Editor
- Free to download and use desktop application

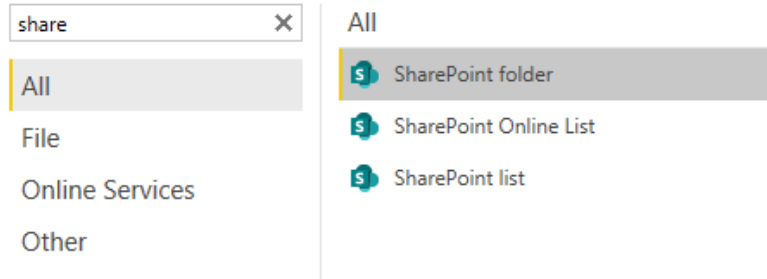
Power BI service

- Cloud based
- Allows some report editing
- It's how reports are shared and distributed

Accessing the data

Upon opening the “Get Data” screen, select “SharePoint folder” from the sources available

Get Data



share

All

- SharePoint folder
- SharePoint Online List
- SharePoint list

File

Online Services

Other



SharePoint folder

Site URL

https://xxxx.sharepoint.com/sites/xxxx

OK Cancel

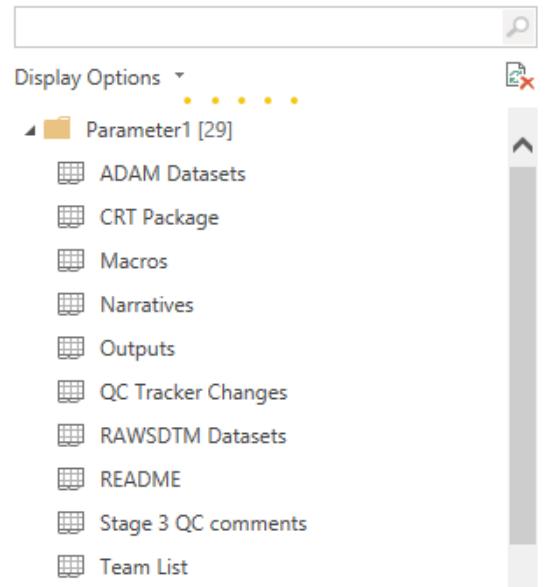
Next enter the root site URL for the SharePoint folder

Accessing the data

Combine Files

Select the object to be extracted from each file. [Learn more](#)

Sample File: Beta QC plan template SP-002-T01...



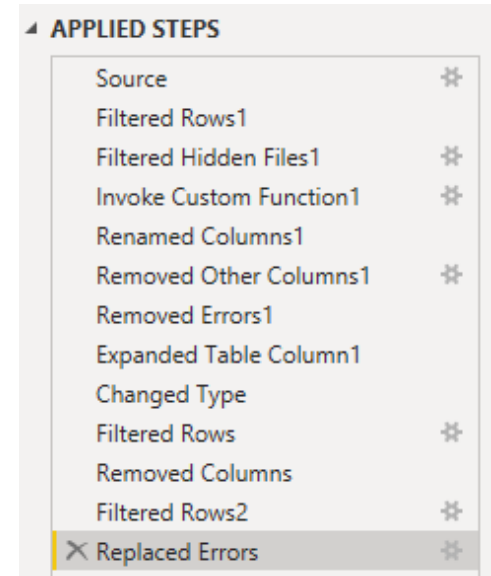
- Can load a single Excel workbook
- Can combine the contents of the same worksheet of multiple workbooks
- Select an Excel workbook containing all the worksheets required
- Import, in turn, the worksheets required from all QC tracker files in the library

Transforming the data

The data in the QC trackers requires some transformation to enable it to be used as the basis for the report, including:

- Some of the data columns need to be updated before they can be used as desired
- Filtering, renaming columns, data cleaning, removing blank rows, etc.

Achieved using Power Query Editor



Data Analysis Expressions (DAX)

"These steps translate into queries written in Data Analysis Expressions (DAX), which is a library of functions and operators that can be combined to build formulae and expressions in Power BI"

Data Analysis Expressions (DAX)



ADaM Datasets

Display Options ▾ ?

```

let
Source = SharePoint.Files("https://xxxxx.sharepoint.com/xxxxx/xxxxx", [ApiVersion = 15]),
#"Filtered Rows1" = Table.SelectRows(Source, each ([Folder Path] = "https://xxxxx.sharepoint.com/xxxxx/xxxxx/xxxxx/") and ([Name] <> "TES
#"Filtered Hidden Files1" = Table.SelectRows(#"Filtered Rows1", each [Attributes]?[Hidden]? <> true),
#"Invoke Custom Function1" = Table.AddColumn(#"Filtered Hidden Files1", "Transform File", each #"Transform File"([Content])),
#"Renamed Columns1" = Table.RenameColumns(#"Invoke Custom Function1", {"Name", "Source.Name"}),
#"Removed Other Columns1" = Table.SelectColumns(#"Renamed Columns1", {"Source.Name", "Transform File"}),
#"Removed Errors1" = Table.RemoveRowsWithErrors(#"Removed Other Columns1", {"Transform File"}),
#"Expanded Table Column1" = Table.ExpandTableColumn(#"Removed Errors1", "Transform File", Table.ColumnNames(#"Transform File"("#Sample Fi
#"Changed Type" = Table.TransformColumnTypes(#"Expanded Table Column1",{{"Source.Name", type text}, {"Dataset Type", type text}, {"Databse
#"Filtered Rows" = Table.SelectRows(#"Changed Type", each ([Dataset name] <> null)),
#"Removed Columns" = Table.RemoveColumns(#"Filtered Rows",{"Column20", "Column21", "Column22", "Column23", "Column24", "Column25", "Column
#"Filtered Rows2" = Table.SelectRows(#"Removed Columns", each ([Status] <> "Section Header")),
#"Replaced Errors" = Table.ReplaceErrorValues(#"Filtered Rows2", {"Final Batch Run Date", null})

in

#"Replaced Errors"

```

Building the QC status report

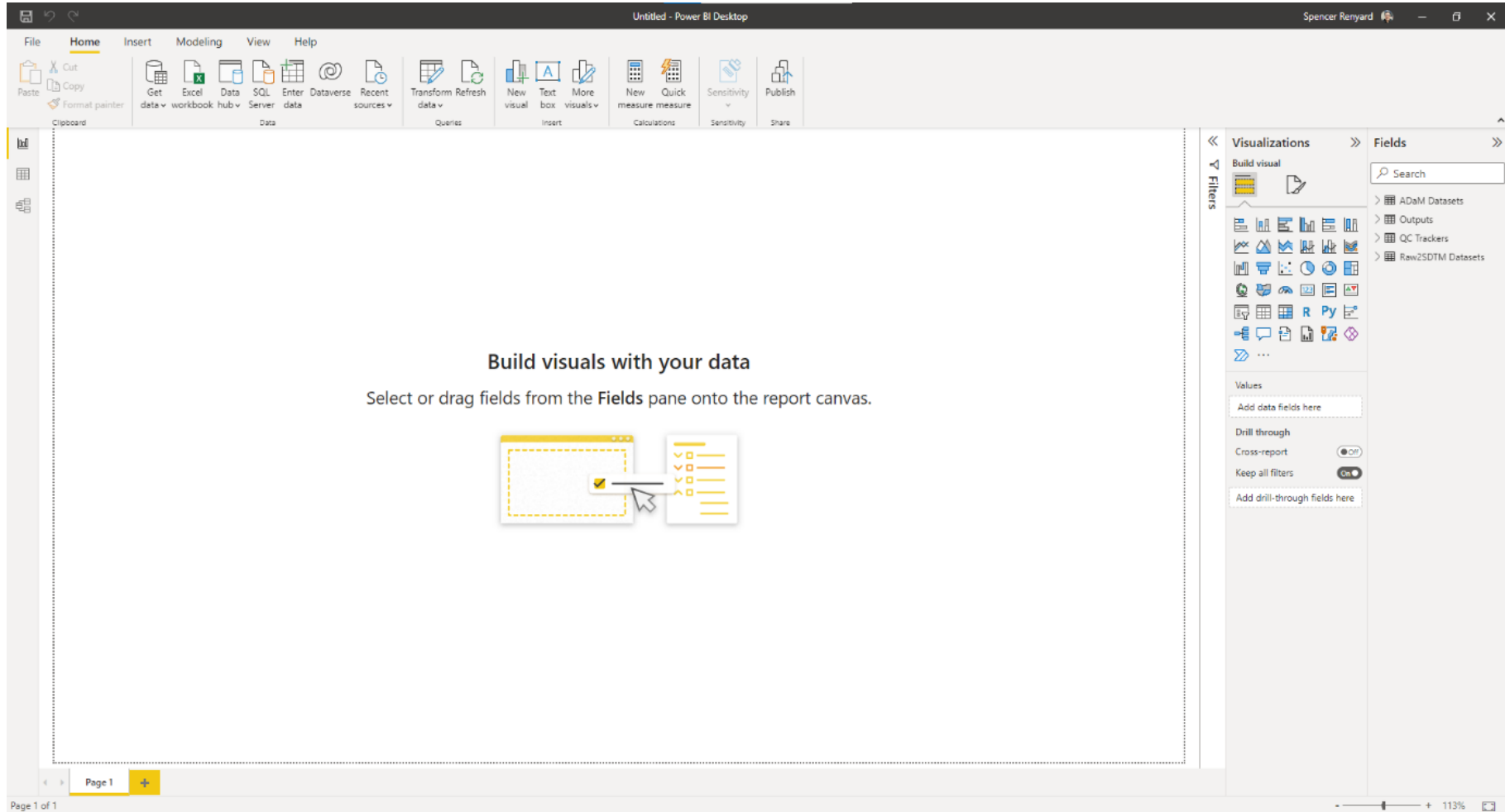
Key components

- For each program type
 - Graphical displays of the QC status
 - Supporting tabular displays
 - Percentage complete
- QC tracker name (equivalent to the study name)
- Date and time of data transfer

Key requirements

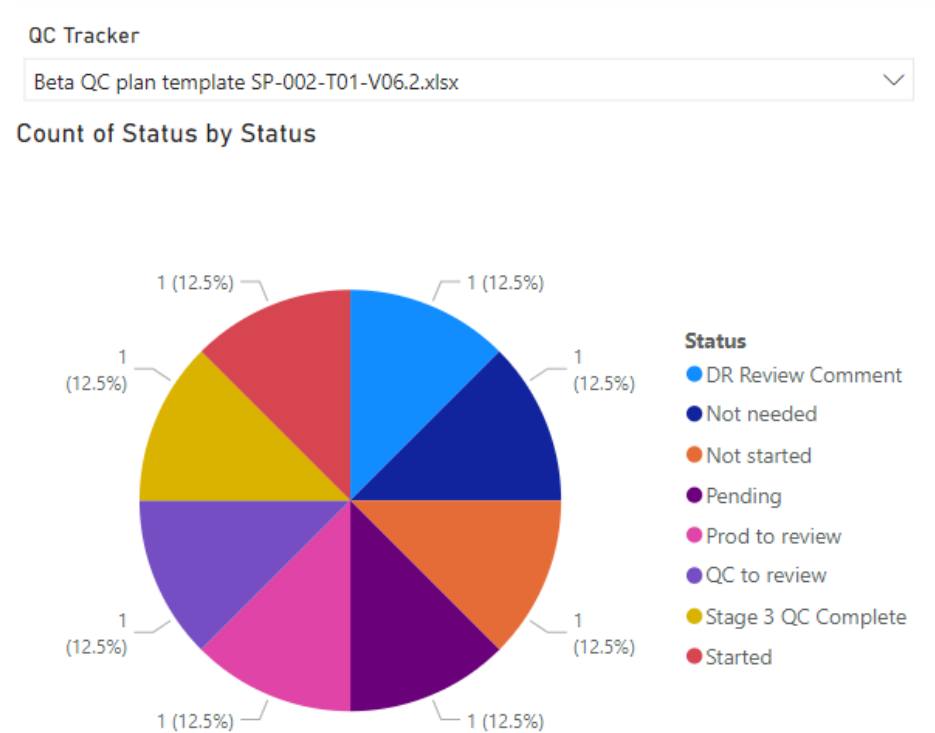
- Ability to easily filter by study
- Good performance
- Easy to present to other parties

Power BI Desktop Report window



Building the QC status report – visualisation

- Slicer
 - Used to display the filter
 - Display the file name
- Pie chart
 - Displays the counts per QC status



Building the QC status report - summary

Summary table

- Presents count of programs by QC status

Status	Count of Status
DR Review Comment	1
Not needed	1
Not started	1
Pending	1
Prod to review	1
QC to review	1
Stage 3 QC Complete	1
Started	1
Total	8

Matrix

- Outputs grouped by output type

Output Type	Count of Status
Figure	4
Not started	1
Pending	1
Prod to review	1
Started	1
Table	4
DR Review Comment	1
Not needed	1
QC to review	1
Stage 3 QC Complete	1
Total	8

Building the QC status report - measures

- Weighted overall percentage
- Creating a new “measure” for each QC status value
- The measures can be combined in an equation to calculate the weighted overall percentage

```
1 Outputs_Completed =  
2 CALCULATE(  
3     COUNT(Outputs[Status]),  
4     FILTER(Outputs,  
5         Outputs[Status] = "Completed"  
6     )  
7 )
```

This can be added to the report using the “card” visualization

Weighted
Overall
Completion

91.2%

Finalising the report



Select Study QC Tracker

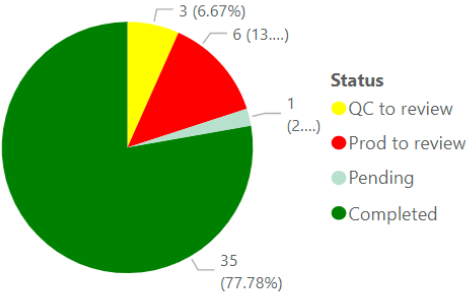
QC Tracker.xlsx

Select the QC Tracker and Output Deliverable grouping (if required)

Select Deliverable grouping

All

Count of Raw2SDTM by Status

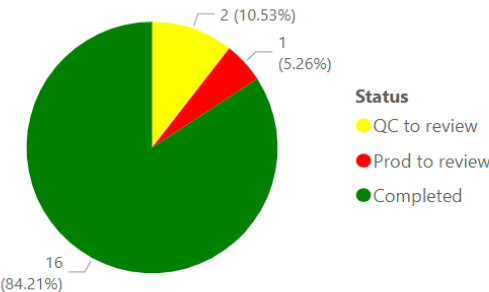


Status	Count
Completed	35
Pending	1
Prod to review	6
QC to review	3
Total	45

Weighted
Overall
Completion

89.4%

Count of ADaM by Status

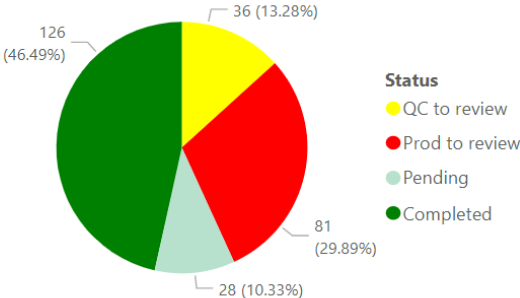


Status	Count
Completed	16
Prod to review	1
QC to review	2
Total	19

Weighted
Overall
Completion

92.1%

Count of Outputs by Status



Output Type	Count	%	Weighted Overall Completion
Appendix	20	7.38%	71.2%
Figure	40	14.76%	
Table	211	77.86%	
Total	271	100.00%	

Note: excludes items with status of "Not Needed"

Data Updated: Aug 14, 2022 3:43 PM



Publishing the report

- The QC status report has been created in Power BI Desktop; however, this does not allow the report to be easily shared
- The report is published to the Power BI service, which allows others to see and interact with the report
- The report can be embedded into a SharePoint page
- Can export the report to an external file

Taking the report to the next level

- Presenting drillthrough tables
- Displayed when hovering over summary items
- In Power BI these are called “tooltips”
- Each tooltip is created on a new page in the report
 - They can include visuals, images, and any other collection of items

QC Tracker

Beta QC plan template SP-002-T01-V06.2.xlsx

Output Type	Count of Status
Figure	4
Table	4
DR Review Comment	1
Not needed	1
QC to review	1
Stage 3 QC Complete	1
Total	8

Output Type	Output Name	Output Number
Table	DS201	11.1.1.1

Conclusion

The transformation of source data into report ready data and the design and creation of the report elements and overall report are familiar activities

Power BI allows data to be accessed from many sources to quickly create usable reports

The Power BI report objects provide many useful interaction options

Easy to select the study of interest and can focus on specific items and drilldown to see more detail



Future Development

- DAX is another programming/query syntax to investigate and learn
- The report is not produced on real-time data
 - Adding a button to allow the user to refresh the data
- Future application design
- Power BI starting to be used by other groups

Any Questions?

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