



Data Analysis and Manipulation using Excel, PowerQuery and PowerPivot

Module C of the CinFM

Course Description

This 3-day course covers the importing, cleaning, manipulating and analysis of data sets and databases within the overall Excel environment, including PowerQuery and Power Pivot.

The first day of the course covers the use of a wide set of traditional native Excel functionality and advanced functions to manipulate and analyse data. These include the use of functions from many function categories (Lookup, Text, Date, Information, Logical) as well as Database functions, filters and advanced filters, PivotTables, and general aggregation and conditional functions.

The second day of the course is devoted to the use of PowerQuery to manipulate, integrate, merge and consolidate data, and to create grouped analysis and other queries. We show the applicability of this tool to many areas, ranging from simple yet powerful analysis, to more advanced features that can allow for new forms of analysis or save significant time. Hands-on exercises include transposition, pivoting and unpivoting data, the creation of grouped-based reports, and the appending or consolidation of data sets, and introduction to the use of the M-language.

The third day covers Power Pivot. The focus is on the creation relational databases with an Excel Data Model, and the creation and interpretation of DAX measures to create powerful queries of the data. We recap the core feature of Pivot Tables, such as filters and slicers, and their effect and interpretation with a filter context. We cover the use of CUBE functions. We briefly mention Power BI for data visualisation and the links to PowerPivot and the other data analysis approaches covered in the course.

The many hands-on exercises used throughout the course aim not only to develop a strong capability across a wide set of application areas, but also a good understanding of the advantages and limitations of the various analytic options available. This ensures that one makes the most appropriate choice of approach when faced with a practical situation.



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Topics Covered

- Filters and searching · Sorting · Advanced filters and data extraction · Dynamic sorting
- Aggregation functions · Conditional functions · Database functions
- Lookup, Text, Date, Information and Logical functions
- Removing duplicates and errors · Splitting and combining text fields
- Unique keys · Creating flat tables · Multiple data sets
- Calculated columns for advanced queries
- Power Query · Linking to external data sources · Cleaning data
- Manipulating data · Transposition · Pivoting Unpivoting · Grouped queries · Appending and consolidation of data sets
- Using the M-language · Variable types · Date formats
- PivotTables · Filters · Slicers
- PowerPivot · Excel Data Model · Relational databases
- DAX language and measures · Understanding and interpretation evaluation contexts
- Functions and iterator functions
- Sensitivity analysis · CUBE functions · Time-intelligence · Complex queries

Learning Objectives

- Learn the full range of approaches to analyse data within an Excel environment
- Understand the advantages and limitations of each, and enhance one's ability to choose the most effective and appropriate method
- Learn how to clean and manipulate data sets using Excel functionality and advanced functions
- Understand areas or activities where automation or further tools would be most effective
- Develop practical skills in cleaning, manipulating, integrating and analysing data sets in Excel
- Learn how to use PowerQuery to import, clean manipulate and analyse data
- Understand when to use intermediate or connection only queries
- Develop skills in using PowerQuery for more advanced applications
- Understand benefits of limitation of PowerQuery compared to native Excel
- Learn the use of PowerPivot to analyse data sets with PivotTables, filters, and slicers
- Understand the meaning and interpretation of DAX measures within a filter context
- Gain practical skills in creating reports using measures and calculated columns
- Learn how to create and analyse relational databases using the DataModel
- Gain an overview of advanced features of PowerPivot