



2025 WICPA ACCOUNTING TECHNOLOGY CONFERENCE

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HIGHLIGHTED TOPICS:



ASK THE EXPERTS

Get your burning questions answered by leading experts on all things related to CPA technology



MICROSOFT 365: SUPERCHARGING CPA PRODUCTIVITY

Uncover the hidden gems of Microsoft 365 to elevate your productivity and streamline your processes



SMART TECH, SOUND JUDGMENT: NAVIGATING AI RESPONSIBLY

Learn how to balance innovation with ethical obligations to maintain trust and integrity

THURSDAY, DEC. 4 | WICPA OFFICE & WICPA CPE LIVESTREAM

2025 WICPA ACCOUNTING TECHNOLOGY CONFERENCE

MATERIALS AT A GLANCE

The following materials are from the afternoon sessions of the 2025 WICPA Accounting Technology Conference held on Thursday, Dec. 4, including:

- From Numbers to Narratives: Mastering Data Analysis for CPAs
- Power BI in Practice: Building End-to-End Analytics Solutions
- Ask the Experts: Panel Discussion on Emerging Technologies

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CYBER
THREATS ARE
INCREASING
EVERY DAY.

75%

of accounting firms believe they would only be able to survive **three to seven days** after a ransomware attack.

Source: www.cpapracticeadvisor.com



Choose Ontech to protect your data

1

Expertise in Cybersecurity

Robust security for your sensitive data

2

Compliance with Regulations

AICPA Code of Conduct & IRS Guidelines

3

Proactive Monitoring/Support

Respond quickly to minimize downtime

4

Customized Solutions

Designed to meet specific CPA firm needs

5

Training & Awareness

Helping your staff recognize cyber threats



Ontech's tailored solutions and transparent billing make us the ideal choice for CPAs and accountants. Don't wait to safeguard your data. Contact Ontech Systems today for a **FREE risk assessment** of your network!

75%

of accounting firms believe they would only be able to survive **three to seven days** after a ransomware attack.

Source: www.cpapracticeadvisor.com

CPA firms are increasingly targeted due to their access to sensitive financial information. Since 2014 reported data breaches of CPA firms have increased **over 80%** with ransomware extortion incidents rising to **over 40%** since 2018.

Choosing Ontech to manage your CPA firm's IT & protect your data can offer several advantages:

- Expertise in Cybersecurity:** Our staff specializes in cybersecurity to ensure your firm's sensitive financial data is protected against the latest threats. We always implement robust security measures & regular security audits.
- Compliance with Regulations:** Ontech helps ensure your firm complies with industry regulations and standards, such as the AICPA Code of Professional Conduct and IRS guidelines for safeguarding taxpayer data.
- Proactive Monitoring and Support:** We provide continuous monitoring to detect & respond to potential threats quickly. This proactive approach minimizes downtime and keeps your operations running smoothly.
- Customized Solutions:** Our team offers tailored IT solutions to meet the specific needs of CPA firms. This includes secure cloud services, data backup and recovery, and network management.
- Training and Awareness:** They also provide training for your staff to recognize and respond to cyber threats, enhancing your firm's overall security posture.

Our tailored solutions, transparent billing, and commitment to minimizing technical issues make it an ideal choice for CPA's and accountants. Let us help safeguard your critical data!



Get a free risk assessment of your firm's network today at www.ontech.com!

FTC SAFEGUARD CHECKLIST

WHO'S AFFECTED & WHAT'S REQUIRED



The **FTC Safeguards Rule** applies to “**financial institutions**”, including:



Car Dealerships



Retailers



Tax Preparers



Accounting Firms



Loan Companies



Any Business **Collecting Financial Data!**

Here's What's Required To Stay Compliant:



Designate a Qualified Individual

Assign someone (**internal or outsourced**) to be responsible for your information security program.



Conduct a Risk Assessment

Identify internal and external risks to customer data. This is ongoing, **not a one-time event!**



Train Your Team

Security is everyone's responsibility, so your employees need ongoing training on data protection and phishing awareness. **We can help with this!**



Monitor Your Service Providers

If you outsource IT, payroll, marketing, or data processing, **those vendors must also comply.**



Keep It Updated

Regularly review and **adjust** your security program as your business or threats evolve.



Implement Safeguards

Based on your risk assessment, put the right controls in place. **These typically include:**

- Access controls (who can access what, and why)
- Encryption of customer data
- Multi-Factor Authentication (MFA)
- Secure data disposal policies
- Logging and monitoring access and activity



Create an Incident Response Plan

Be ready with a plan if (**or when**) a data breach occurs. The FTC expects a **structured response strategy.**

Why It Matters: *Non-compliance can lead to:*



Hefty fines



Damaged reputation



Loss of trust with customers

Luckily, we help local businesses like yours **navigate FTC requirements with confidence!**

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Certified Public Accountants**

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From Numbers to Narratives: Mastering Data Analysis for CPAs

Developed by Bryan L. Smith, CPA.CITP, CISA

In Waukesha, WI on December 4, 2025, 1:00-2:00pm



Bryan L. Smith, CPA.CITP, CISA

- Owner DataSmithPro, LLC
- Co-founder of CPA Crossings, LLC
- Strategic technology advisor to CPAs w/ 40+ years of experience
- Nationally recognized author and presenter on CPA technology
- Extensive knowledge and experience in proper Excel design techniques as well as helping CPAs build spreadsheets that are accurate
- As a Certified Information Systems Auditor (CISA), spent a considerable amount of time auditing and validating thousands of Excel spreadsheets
- Developed various data analysis and Microsoft Power BI courses and has worked with multiple organizations to train and coach staff on proper data analysis techniques
- Masters of Science in Information Assurance (MSIA)

Presentation Outline

Click links to navigate to
specific section ----- >



- [The Evolving Role of CPAs in a Data-Driven World](#)
- [Why Data Analysis Matters for CPAs](#)
- [Key Data Analysis Skills and Concepts for CPAs](#)
- [Leveraging Microsoft 365 Tools for Data Analysis](#)
- [Building a Data Analytics Mindset](#)
- [Wrap-Up](#)

The Evolving Role of CPAs in a Data-Driven World



The Profession at a Crossroads



Traditional role: compliance, audit, tax preparation, historical financial reporting



Emerging role: providing insights, analyzing trends, strategic forecasting, risk management



Automation and AI are replacing repetitive compliance tasks



Clients, employers, and regulators expect real-time, forward-looking insights



CPA firms and corporate teams must evolve to remain relevant and competitive

Shifting Expectations for Accounting Professionals



Beyond Standard Reporting

CPAs are expected to deliver actionable insights, not just traditional financial reports.

Data Trend Analysis

Analyzing financial data trends helps organizations anticipate changes and opportunities.

Strategic Decision Support

CPAs assist in forecasting and strategic decision-making to drive business growth.



From Compliance to Strategic Advisory

Evolving CPA Role

CPAs are transitioning from traditional compliance roles to broader strategic advisory positions within businesses.

Data Interpretation

CPAs utilize data analysis to provide insights that support business decision-making and strategy development.

Strategic Business Guidance

By advising on performance improvements, CPAs help businesses achieve sustainable growth and competitive advantage.

Compliance vs Advisory



Old World:

Static reports, manual reconciliations, backward-looking financials.

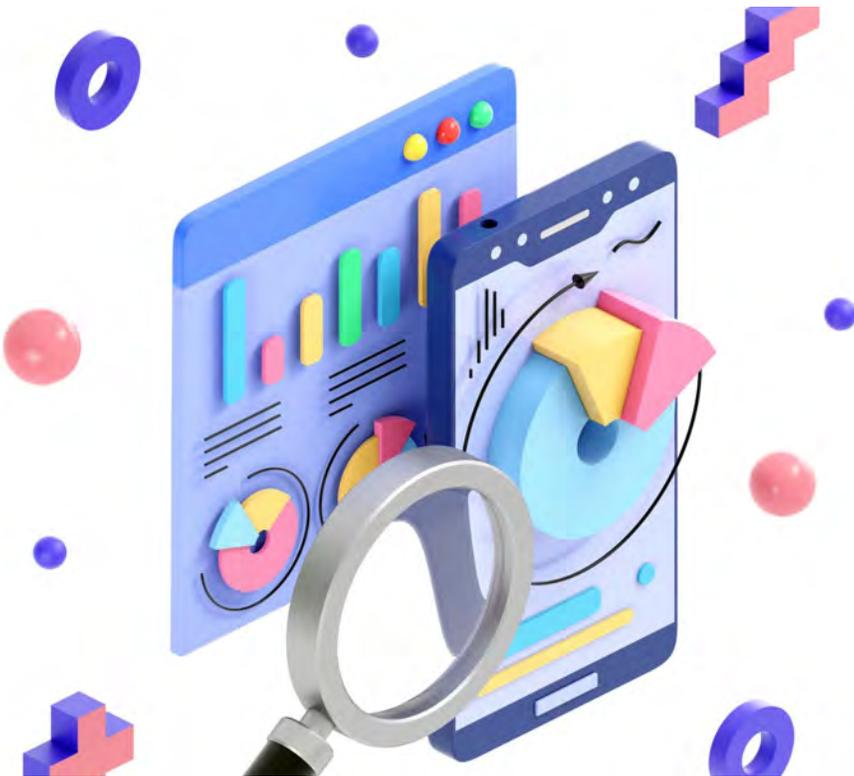
New World:

Refreshable dashboards, predictive insights, and proactive recommendations.

Compliance answers **'What happened?'**

Analytics and advisory answer **'Why did it happen?' and 'What should we do about it?'**

The Rise of Data Analytics in the Profession



Integration in Accounting

Data analytics tools are now embedded within accounting workflows for enhanced efficiency and accuracy.

Detailed Financial Analysis

Advanced analytics enable accountants to generate more detailed and actionable financial insights.



Increasing Client Expectations in a Digital Era

Demand for Speed

Clients expect rapid delivery of financial reports and real-time insights to make timely decisions.

Accuracy and Insight

Clients require precise financial data combined with deeper analytical insights for better business understanding.

Technology Utilization

CPAs are expected to use advanced technology and data analytics tools to meet client expectations efficiently.



The Impact of Automation and Artificial Intelligence on Traditional Tasks

Transformation of Traditional Tasks

Automation and AI are revolutionizing traditional accounting by streamlining routine tasks and improving efficiency.

Reduction of Manual Work

AI reduces the time spent on manual data entry, allowing accountants to minimize errors and increase productivity.

Focus on Strategic Planning

With automation handling routine tasks, CPAs can focus on data analysis and strategic business planning for better decision making.

Why Data Analysis Matters for CPAs



Why Data Analysis Matters



For Students/Staff:

Builds a competitive edge in the job market and career progression



For Managers:

Enables efficiency gains, smarter resource allocation, and better supervision



For Directors/Partners:

Drives growth, new revenue streams, and differentiates client services



For all levels:

Mastering analytics increases impact, relevance, and long-term career security

Enhancing Client Advisory Services



Role of Data Analysis

Data analysis helps CPAs understand client needs deeply for personalized financial advice

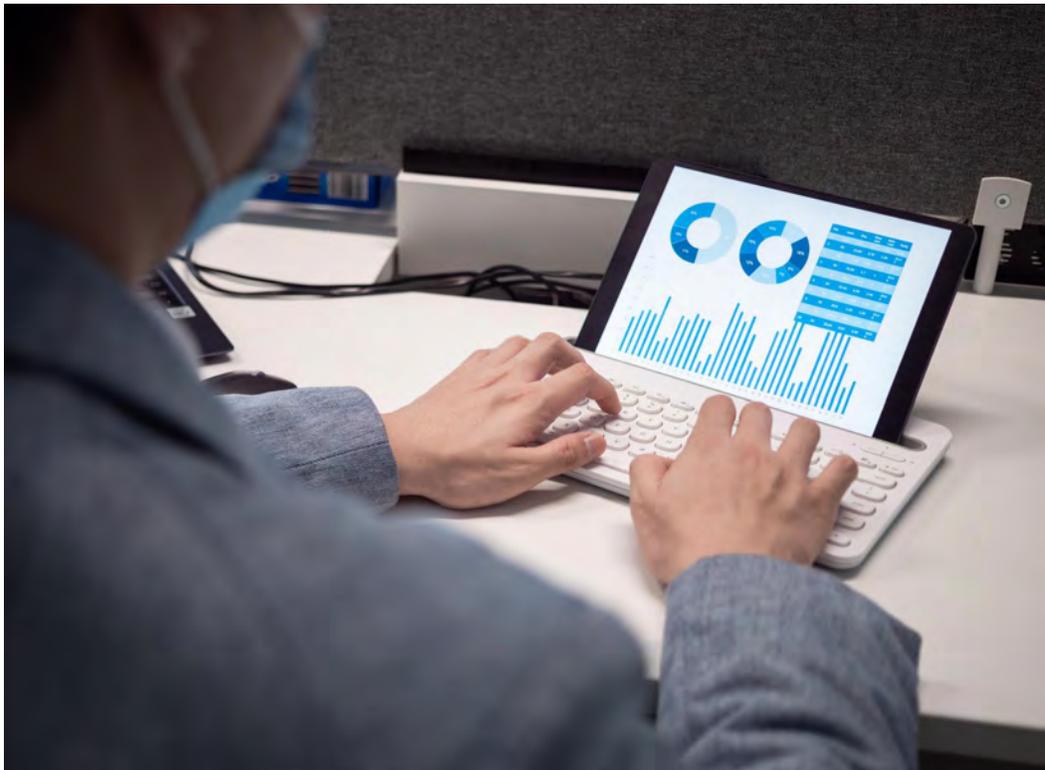
Tailored Client Advice

CPAs use insights from data to offer advice aligned with clients' unique financial goals

Informed Decision Making

Data-driven advice empowers clients to make better financial decisions confidently

Mitigating Risks and Improving Decision-Making



Trend Analysis for Risk

Analyzing trends helps identify potential risks early, allowing proactive risk management.

Anomaly Detection Impact

Detecting anomalies supports recognizing unusual patterns that could indicate risks or opportunities.

Enhanced Decision-Making

Data-driven insights empower CPAs to make informed, strategic decisions for organizational success.



Storytelling with Data

Framework:

Metric → Driver → Meaning → Action

Example: Revenue dropped 6% →
Identify key product line → Explain the
risk → Recommend action

The narrative is what decision-makers
value – **not just the raw number**

Effective storytelling **transforms
accountants** from **reporters to trusted
advisors**



Examples of Data Stories

AR Aging:

AR >90 days rising → Cash flow risk →
Recommend collection strategy

Expense Spike:

Travel costs surge → Operational driver
(new project) → Adjust budgets

Margin Analysis:

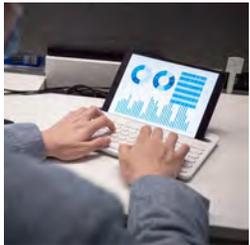
Client A less profitable → Product/service
mix issue → Recommend pricing or product
focus

Why Compliance Work Is No Longer Enough



Limitations of Compliance

Compliance work focuses on meeting regulatory requirements but often lacks strategic business insights



Need for Deeper Analysis

CPAs must analyze financial data beyond compliance to uncover trends and opportunities for clients



Forward-Looking Insights

Providing predictive insights helps clients plan effectively and adds significant business value

Advisory Opportunities: From Insights to Actionable Recommendations



Transforming Data into Insights

Data analytics converts raw figures into meaningful insights for strategic decision-making.

Proactive Recommendations

CPAs use insights to provide proactive advice that drives business growth and operational efficiency.



Competitive Edge: Standing Out in the Accounting Industry

Enhancing Advisory Capabilities

Mastering data analysis allows CPAs to provide deeper insights and valuable business advice to clients

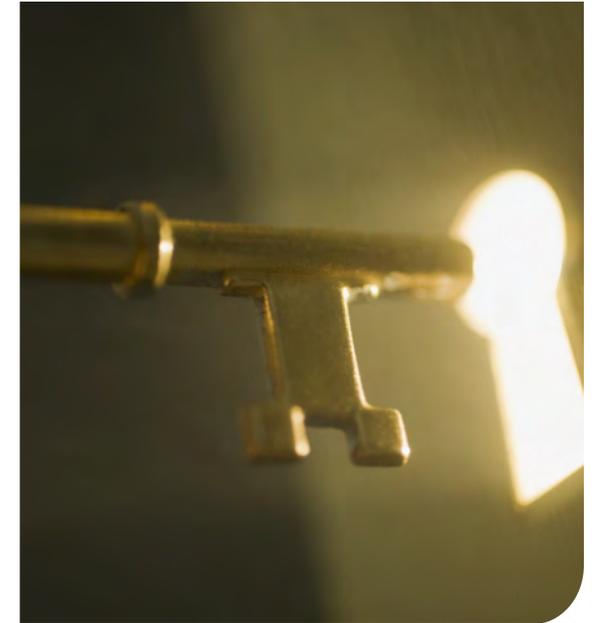
Increasing Marketability

Data analysis skills boost a CPA's marketability by meeting modern business demands and expectations

Strategic Business Partner

CPAs with strong data analysis are seen as key strategic partners in business decision-making processes

Key Data Analysis Skills and Concepts for CPAs



Understanding Basic Data Analytics Principles



Data Types Overview

Understanding different data types helps categorize and organize data correctly for analysis

Statistical Measures

Statistical measures summarize data distributions effectively

Visualization Techniques

Data visualization techniques help present data clearly, enhancing interpretation and decision-making

Identifying and Interpreting Relevant Data



Data Relevance Assessment

CPAs identify data sets that directly address specific business questions for effective analysis

Actionable Insights Extraction

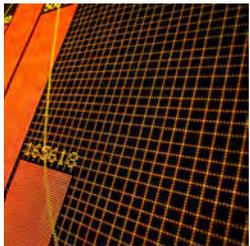
Analyzing relevant data helps CPAs generate insights that support informed business decisions

Transforming Raw Data Into Actionable Narratives



Data Storytelling Importance

Storytelling techniques help translate complex data into understandable and engaging narratives for stakeholders.



Visualization Techniques

Visualizations like charts and graphs aid in illustrating key insights clearly and effectively.



Driving Actionable Insights

Clear communication of data insights enables informed decision-making and stakeholder action.



Critical Thinking and Analytical Reasoning

Importance of Critical Thinking

Critical thinking helps CPAs analyze data deeply and identify underlying patterns and relationships.

Analytical Reasoning Skills

Analytical reasoning enables CPAs to interpret complex datasets accurately for strategic financial insights.

Better Financial Decisions

These skills empower CPAs to make informed decisions that benefit clients and organizations strategically.



Effective Data Visualization Techniques

Importance of Clear Data Presentation

Clear presentation of data helps CPAs effectively communicate insights to stakeholders and supports better understanding.

Mastering Visualization Tools

Proficiency in tools like Power BI and Excel enables CPAs to create detailed and interactive visual reports.

Supporting Decision-Making

Well-designed visualizations make complex data easier to understand, facilitating data-driven decisions.

Understanding Data Governance and Integrity



Data Accuracy and Consistency

Ensuring data is accurate and consistent is essential for reliable financial analysis and reporting.

Data Security Importance

Protecting data security builds trust and meets regulatory compliance for CPAs and clients.

Governance Principles Awareness

Understanding data governance principles guides proper management and integrity of financial data.

Leveraging Microsoft 365 Tools for Data Analysis





Essential Data Skills for CPAs

Financial Data Analysis

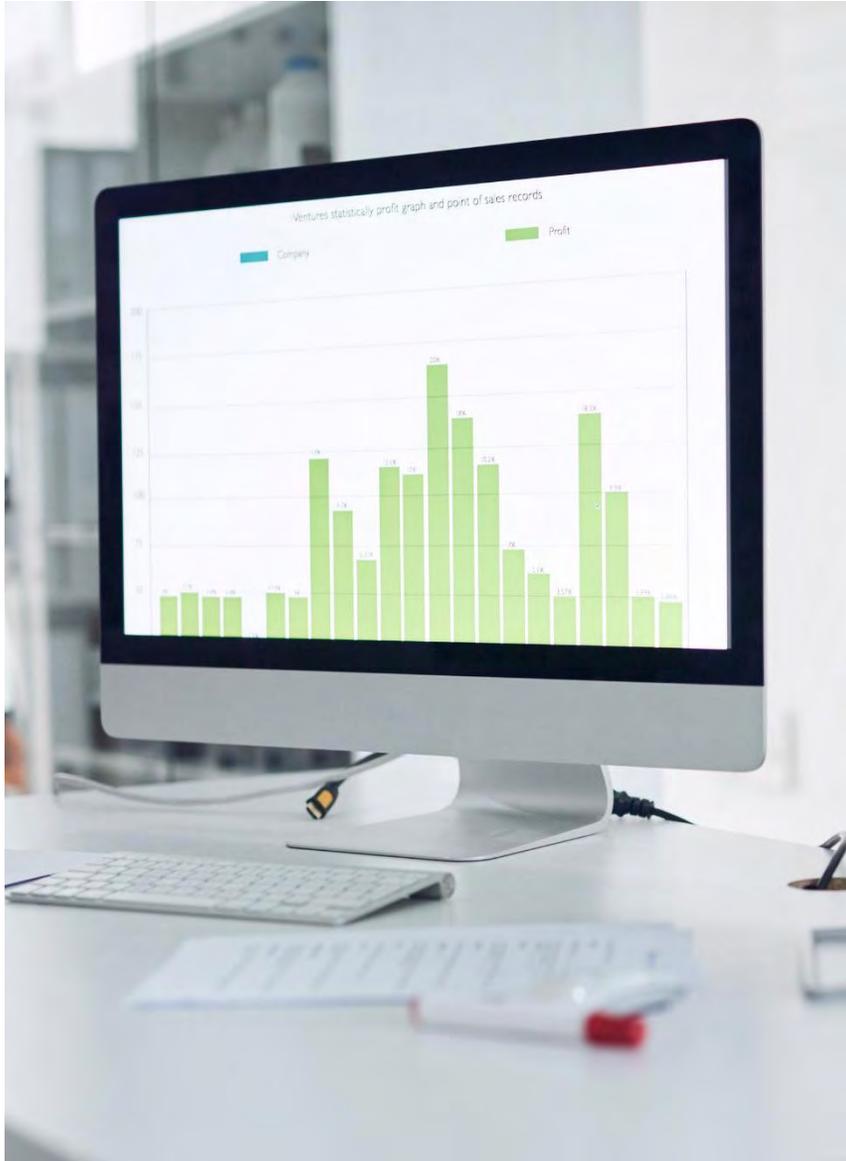
CPAs must interpret financial data and identify trends to support accurate decision-making and business insights.

Data Visualization Mastery

Understanding and creating visuals makes complex data more accessible and supports communication of financial findings.

Digital Tools Proficiency

Familiarity with digital tools like Excel and audit software increases efficiency and accuracy in data analysis tasks.



Utilizing Excel for Data Modeling and Visualization

Advanced Excel Functions

Excel offers advanced functions that help CPAs perform complex calculations and data analysis efficiently.

Pivot Tables

Pivot tables enable dynamic summarization and organization of large datasets for insightful reporting.

Charting Tools

Excel's charting tools allow effective visualization of data trends and comparisons through various graph types.



Collaborating with Power BI for Advanced Analytics

Interactive Dashboards

Power BI enables creation of interactive dashboards that visualize data dynamically and intuitively.

Real-Time Data Updates

Power BI supports real-time data updates, ensuring the latest information is always available for analysis.

Advanced Analytics Insights

Advanced analytics in Power BI provide deeper insights to support better decision-making.

Microsoft 365 Toolkit



Excel: The foundation for most accountants; dynamic arrays, data models, and pivot tables extend its power.



Power Query: Automates repetitive data preparation tasks such as cleaning, transforming, and combining files.



Power BI: Creates dynamic dashboards and interactive visualizations to tell compelling stories.



OneDrive/SharePoint/Teams: Cloud-based collaboration, version control, and secure file sharing.



Power Automate: Sets up workflows and alerts, eliminating manual tasks.



Overview and Integration of Microsoft Excel, Power Query, and Power Pivot

Excel as Analysis Platform

Excel offers a familiar interface for data organization, enabling CPAs to perform efficient analysis.

Power Query for Data Cleaning

Power Query simplifies data cleaning and transformation, ensuring accurate and usable data for analysis.

Power Pivot for Data Modeling

Power Pivot enables complex data modeling and relationship management to uncover deeper insights.



Introduction to Microsoft Power BI and Its Significance

Interactive Data Visualization

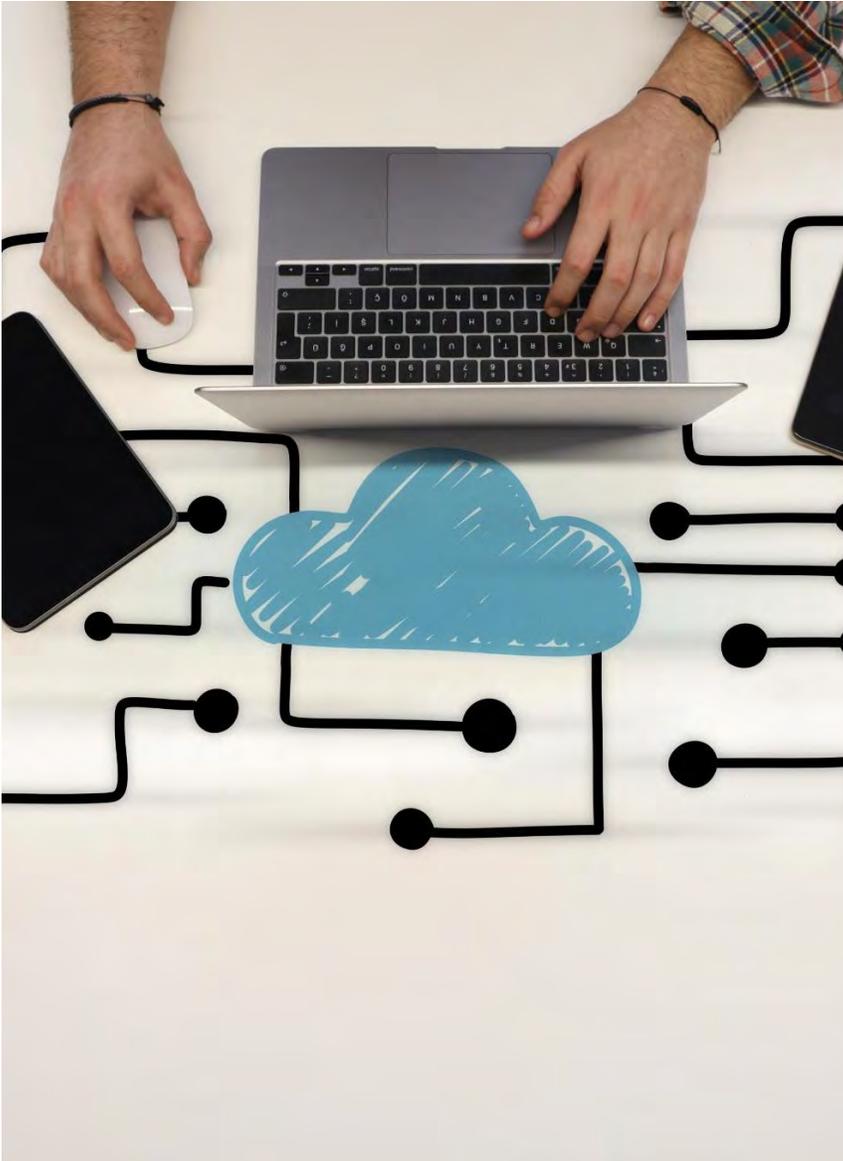
Power BI allows creation of interactive visual reports that help users explore data dynamically.

Empowering CPAs

Power BI empowers CPAs to generate insightful dashboards for clear communication with stakeholders.

Clear Communication of Complex Data

Power BI simplifies complex data, making reports easy to understand for all stakeholders.



Using Teams and SharePoint for Collaboration and Data Sharing

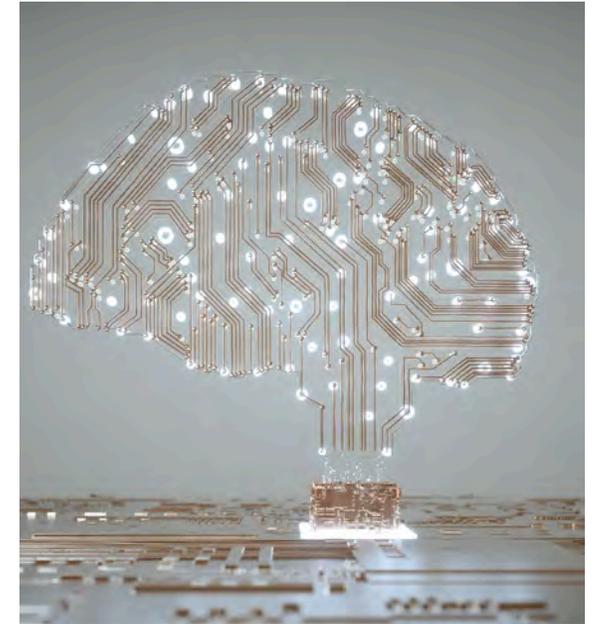
Seamless Collaboration

Teams and SharePoint enable smooth collaboration among accounting teams for effective communication.

Real-Time Data Sharing

Real-time sharing of data, reports, and insights improves decision making and productivity.

Building a Data Analytics Mindset



Developing a Growth Mindset for Continuous Learning



Embrace Ongoing Education

Continuous learning enables CPAs to stay updated with new tools and evolving industry knowledge

Stay Curious and Adapt

Curiosity drives exploration of innovative techniques and helps adapt to changing data environments

Integrating Data Analytics Into Daily Accounting Practice



Improved Accuracy

Data analytics reduces errors and enhances precision in accounting tasks for more reliable results

Enhanced Efficiency

Routine workflows become faster and more streamlined by integrating data analysis tools

Strategic Value Delivery

CPAs leverage data insights to provide valuable strategic advice to clients and organizations

Analytics Maturity Path



Awareness: Know that tools and capabilities exist beyond traditional Excel



Efficiency: Staff automate repetitive processes using Power Query and modern Excel features



Insight: Analytics provides deeper understanding of performance drivers and trends



Advisory: Accountants provide forward-looking guidance and recommendations based on data models

Building the Mindset

Staff	Learn and experiment with tools like Power Query and Power BI
Managers	Encourage staff development and allocate time for training
Leaders	Invest in analytics strategy, infrastructure, and culture
Everyone	Strive to move up the value chain from compliance to advisory



The Value of Mastering Power BI for CPAs

Data Transformation Skills

Mastering Power BI enables CPAs to convert complex raw data into clear, actionable insights

Visual Storytelling

Power BI helps CPAs create compelling visual stories that communicate data effectively to stakeholders

Influencing Business Strategy

CPAs use data insights from Power BI to guide strategic decisions and improve client advising



Basic Steps to Get Started with Data Analytics in Microsoft 365

Understand Data Sources

Begin by identifying and comprehending various data sources available within Microsoft 365 environments to analyze

Practice with Excel and Power BI

Use Excel and Power BI tools to manipulate data, create visualizations, and gain practical analytics experience

Build Skills Through Projects

Enhance analytics capabilities by working on hands-on projects that apply learned concepts progressively



Transforming Financial Reporting with Interactive Dashboards

Real-time Data Updates

Interactive dashboards provide real-time financial data updates for timely decision making.

Enhanced Data Accessibility

Dashboards make complex financial data accessible and easy to understand for all users.

Dynamic Financial Visualization

Dynamic visualizations simplify financial reporting by highlighting key metrics clearly.



Common Obstacles in Adopting Data Analytics

Resistance to Change

Resistance to organizational change can slow the adoption of data analytics despite its benefits.

Data Quality Issues

Poor data quality undermines analytics efforts and leads to unreliable insights.

Skills Gap

Lack of skilled personnel limits effective use and adoption of analytics technologies.

Wrap-Up





Conclusion

Empowering CPAs

Mastering data analysis enables CPAs to convert raw numbers into insightful business narratives effectively.

Mastering data analysis tools empowers CPAs to excel in the changing accounting environment.

Strategic Advisory Role

This skill transformation positions CPAs as key strategic advisors in today's data-driven business environment.

Enhanced Advisory Services

Data analysis enhances advisory services, enabling CPAs to provide greater client value.

Continuous Skill Development

Ongoing learning and using modern analytical tools are essential for CPAs to maintain success and relevance.

Tools at Your Fingertips



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Power Automate: Sets up workflows and alerts, eliminating manual tasks.

Call to Action



Students/Staff

Start learning advanced Excel, Power Query, and Power BI now.



Managers

Promote and support staff analytics training and experimentation.



Leaders

Make analytics a strategic priority within firms and corporations.

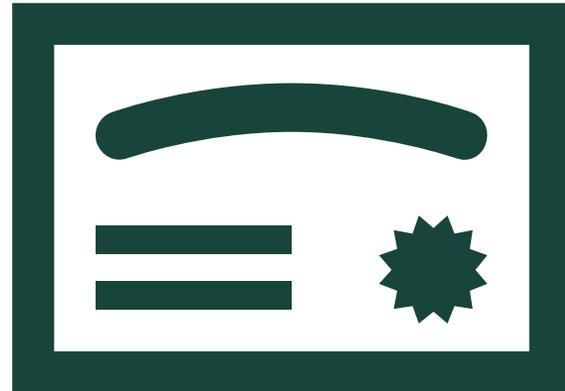


Remember

Analytics is not optional – it's essential for future relevance of the profession.

Questions?





Thank You!!



Bryan L. Smith, CPA.CITP, CISA



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ONE FINAL NOTE



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Power BI in Practice: Building End-to-End Analytics Solutions

Developed by Bryan L. Smith, CPA.CITP, CISA

In Waukesha, WI on December 4, 2025, 2:15-3:30pm



Bryan L. Smith, CPA.CITP, CISA

- Owner DataSmithPro, LLC
- Co-founder of CPA Crossings, LLC
- Strategic technology advisor to CPAs w/ 40+ years of experience
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- Extensive knowledge and experience in proper Excel design techniques as well as helping CPAs build spreadsheets that are accurate
- As a Certified Information Systems Auditor (CISA), spent a considerable amount of time auditing and validating thousands of Excel spreadsheets
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Presentation Outline

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specific section ----- >

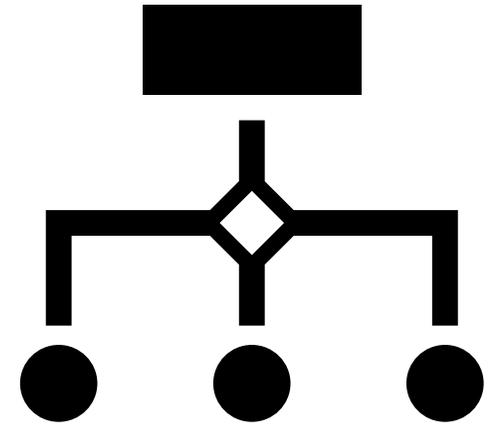


- [Power BI Workflow](#)
- [What's Next After Creating a Data Model](#)
- [Best Practices for Performance Optimization](#)
- [Leveraging Your Data Model Through PowerBI.com](#)
- [Wrap-Up](#)

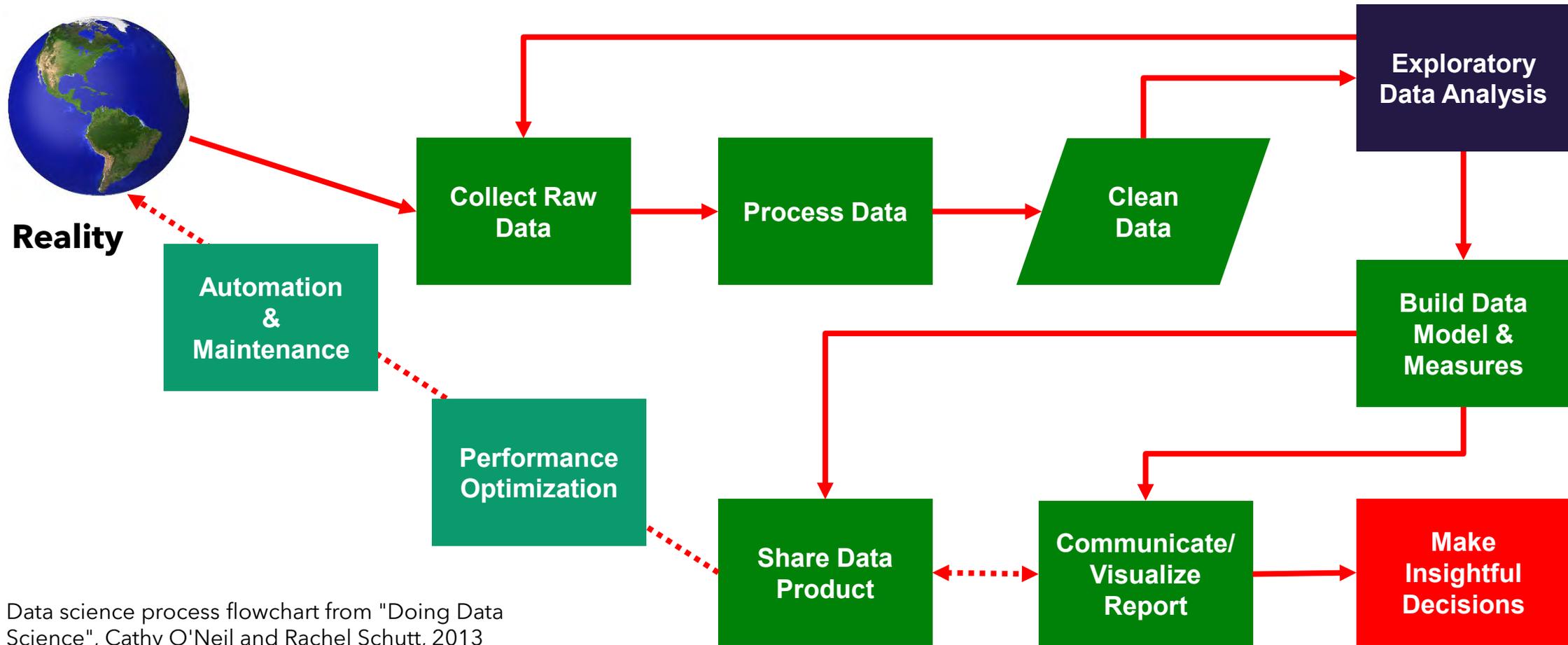
The slides in this presentation contain many screenshots of Excel and the Power BI applications in order to demonstrate particular features and functionality. These screenshots were taken during the development of this course. However, Microsoft updates the apps regularly and it becomes difficult to constantly update the screenshots. Therefore, please note that screenshots may vary from your actual version, but the overall functionality remains the same.

Note About Screen Shots

Power BI Workflow



Data Analysis Process Flow



Data science process flowchart from "Doing Data Science", Cathy O'Neil and Rachel Schutt, 2013



Reality

Your Organization

People performing various activities

Activities generate data

No two organizations have identical data

Determine your organization's data

Collect Raw Data

Collect Raw Data

Build “pipelines” to your data

- Data connectors
- Files (Excel, csv, text, report, databases)

Where is it?

How do we get it?

Is it complete?

Process Data

Process Data

Data is processed through the pipelines

Wherever possible automate this

Many tools on the market to help with this

Different tools for different data

Sometimes left to the technical staff

Clean
Data

Clean Data

Get data into a suitable format

May have several data tables

- Sales, customers, products, sales person

Filter, extract, combine, merge, eliminate, match, etc.

Create calculated columns for missing data

Exploratory Data Analysis

Do you have the right data for what you want to know?

Is our data clean?

- Duplicates, missing values, absurd outliers, incorrect, etc.

Garbage In, Garbage Out

May need to go back to previous steps

Build Data
Model &
Measures

Build Data Model & Measures

Put the raw data into a useable form

Connect tables through relationships

Allows access to all cleansed data

Build measures/metrics for what you want to know

- Dependent on who is using the data model

Share Data
Product

Share Data Product

Data Product = Data Model & Measures

Goal is to eliminate siloing of data

No ability to change the data, the model or the measures

Provides consistent analysis across the organization

Otherwise, people just copy & paste into Excel!!

Communicate/
Visualize
Report

Communicate/Visualize Report

Tells the story of our data

Pictures are worth a 1,000 words

Limited tables (rows & columns of data)

Graphics, pictures, charts, etc.

Interactive visualizations

Take your audience into consideration

**Make
Insightful
Decisions**

Make Insightful Decisions

The ultimate goal of Data Analysis

What is my data telling me?

- Trends, patterns, anomalies, etc.

Data backed decisions

Alternative is gut-based decisions



Automation
&
Maintenance

Automation & Maintenance

Determine needs for data refresh

Setup scheduled refreshes

Document data model

Implement security rights

Monitor report usage



Performance Optimization

Performance Optimization

Remove unnecessary fields (columns) in dataset

Remove unnecessary records (rows) in dataset

Hide tables, columns & measures if not expected to use

Create measure in place of value column

Hide value columns where a measure is used to aggregate

The Importance of the Data Analysis Process Flow

Each step is as important as another

- Don't discount any step

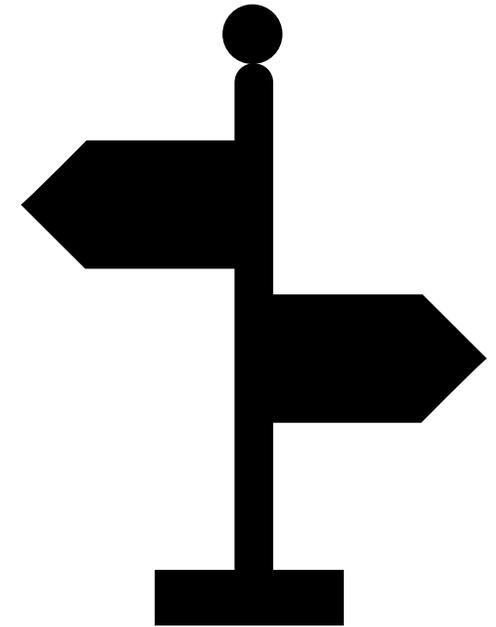
Following from beginning to end = greatest success

- Don't skip steps

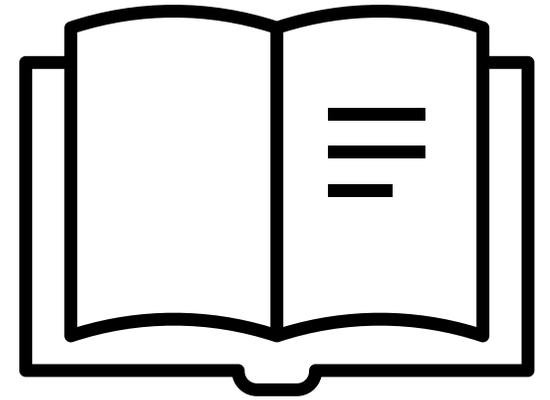
No magic button to push

Team effort to eliminate data silos

What's Next After Creating a Data Model



Document Data Model



Why Document the Data Model?

Ensures users understand

- Data structure
- Relationships
- Business Logic

Errors, inconsistencies & changes can be tracked over time

New analysts can quickly onboard & make improvements

Document **Power Pivot** Data Model



Excel Documentation

Power Query

- Change Step Name
- Add Description to Step Properties
- Query Properties - Description

Power Pivot

- Table Properties - Description
- Measure - Description
- Fields - Description
- Advanced - Synonyms
- Put Measures in Separate Table

Excel Power Query - Document Steps

Query Settings

PROPERTIES

Name: Customers

APPLIED STEPS

- Source
- Navigation
- Changed Type
- Renamed Columns
- Removed Columns
- Replaced Values
- Replaced Values

Context Menu:

- Edit Settings
- Rename
- Delete
- Delete Until End
- Insert Step After
- Move before
- Move after
- Extract Previous
- View Native Query
- Properties...

Right-click on Step, select Properties

Step Properties

Name: Source

Description: Excel file that contains Customer master data.

OK Cancel

Change Step Name (Source & Navigation step can't be changed)

Type a detailed description of what this step does

Query Settings

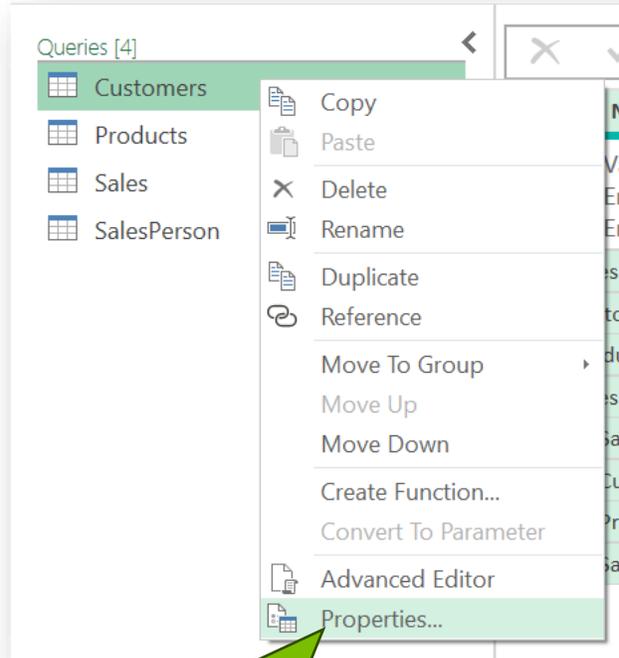
APPLIED STEPS

- Source
- Changed Type
- Renamed Columns
- Removed Columns
- Replaced "S" in CustomerType
- Replaced "I" in CustomerType

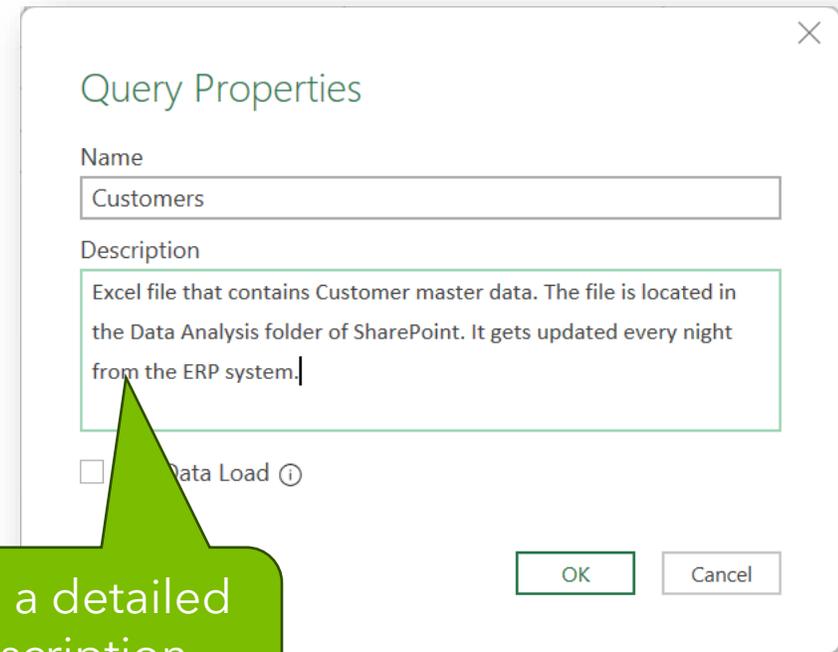
Excel file that contains Customer master data.

Indication a description was added, "hover" over to display

Excel Power Query - Document Query Description

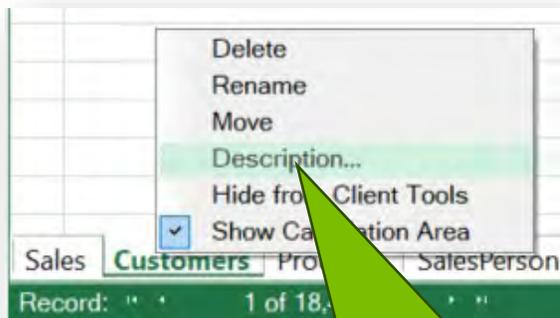


Right-click on Query,
select Properties

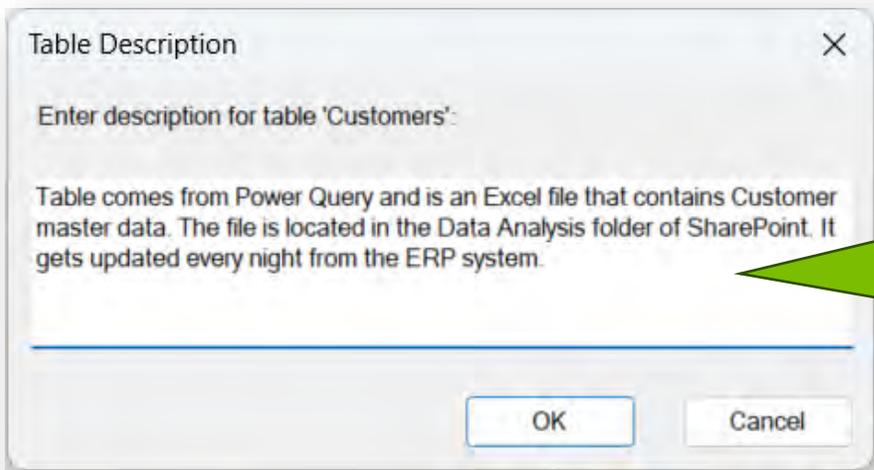


Type a detailed
description
about this Query

Excel Power Pivot - Document Table Description



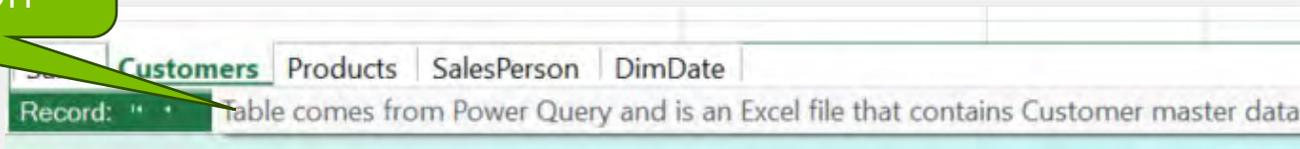
Right-click on Table, select Description



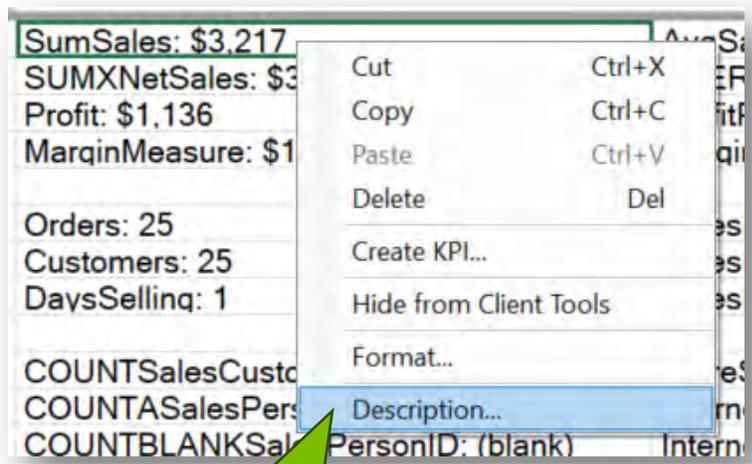
Type a detailed description about this Table. **Note:** this description is different from the Query description.

Limited to 256 characters

"Hover" over table name to display description

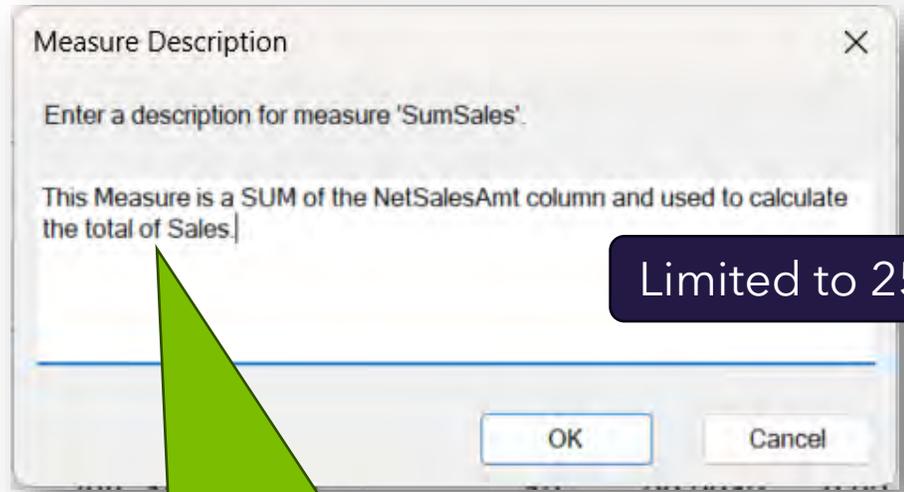


Excel Power Pivot - Document Measure Description



Right-click on Measure, select Description

Note: You can also enter a Description on the Power Pivot ribbon in Excel

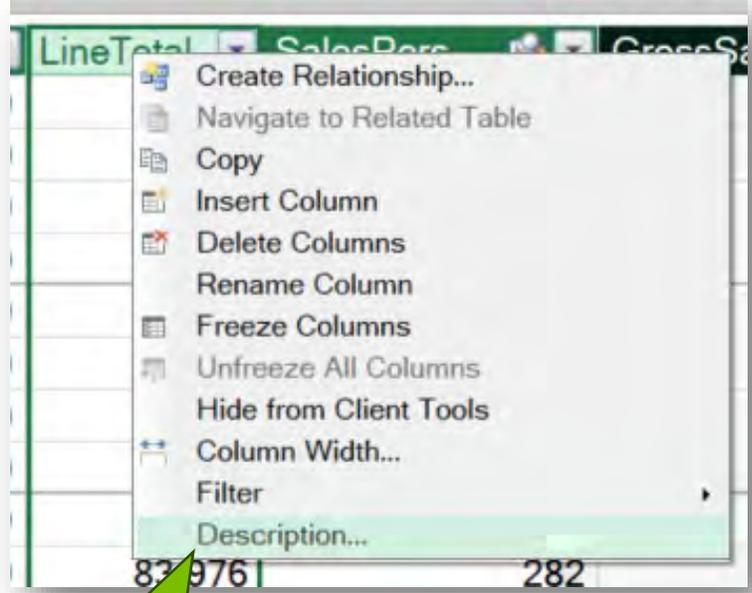


Limited to 256 characters

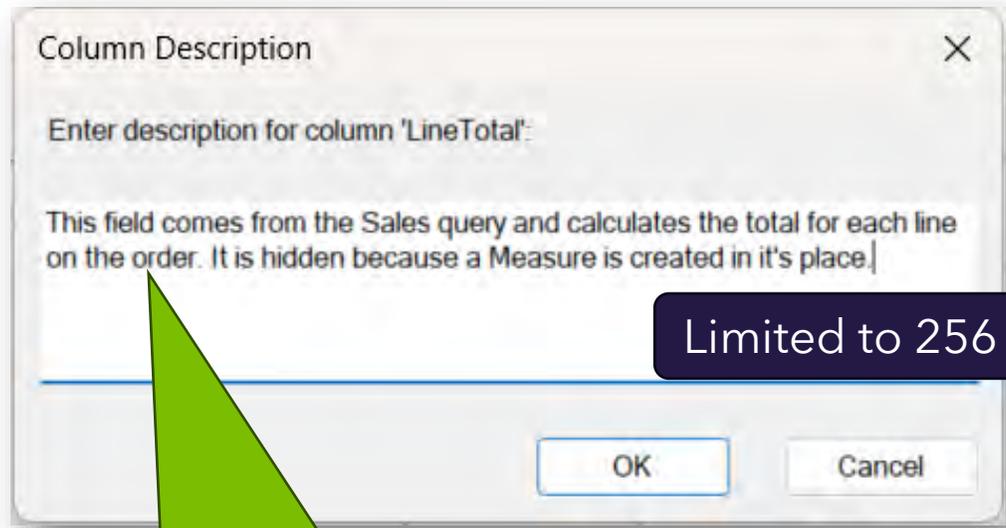
Type a detailed description about this Measure

Note: The only way to display a measure description is to right-click on measure and select Description

Excel Power Pivot - Document Field/Column Description



Right-click on Column,
select Description



Limited to 256 characters

Type a detailed description
about this Column

Note: The only way to display a
column description is to right-click on
column and select Description

Excel Power Pivot - Create Synonyms for Fields

The screenshot shows the Excel Power Pivot interface. The ribbon is set to 'Advanced', and the 'Synonyms' task pane is open. The 'Sales' table is selected in the field list, and the 'SumSales' field is highlighted. A callout box shows the field name 'SumSales' and its synonyms: 'sum sale, sales amount, net sales'. A green callout bubble points to the callout box with the text: 'Can be used with Q&A feature when Data Model is saved to PowerBI.com'.

Excel Power Pivot -

Place Measures in a Table - Step 1, Create Table

Select any Blank cell in Excel, then Ctrl-C

Go to Manage Data Model, select Paste

Give a table name "_Measures"

Uncheck

Right-click & Hide

Excel **Power Pivot** - Place Measures in a Table - Step 2, Add Measures

Power Pivot

Go back to Excel

Select the _Measure table

Select Measure, then Edit

Fill in any other field, then press OK

Manage Measures

Measure	Formula
ALLMonthsSales	CALCULATE([SumSales],ALL(Sales[OrderMonth]))
ALLMonthsSales...	DIVIDE([SumSales],[ALLMonthsSales])
ALLSales	CALCULATE([SumSales],ALL(Sales))
ALLSalesRatio	DIVIDE([SumSales],[ALLSales])
ALLSELECTEDM...	CALCULATE([SumSales],ALLSELECTED(Sales[OrderMonth]))
ALLSELECTEDM...	DIVIDE([SumSales],[ALLSELECTEDM...])
ALLSELECTEDS...	CALCULATE([SumSales],ALLSELECTED(Sales))
ALLSELECTEDS...	DIVIDE([SumSales],[ALLSELECTEDS...])
AVERAGEXSellP...	AVERAGEX(Sales,[SUMXNetSales])

Measure

Table name: **Measures**

Measure name: ALLMonthsSales

Description: Measure to calculate SumSales without regard to a Months filter

Formula: `=CALCULATE([SumSales],ALL(Sales[OrderMonth]))`

Formatting Options

Category: Currency

Symbol: \$

Decimal places: 0

Use 1000 separator (,)

OK Cancel

Excel Add-In Tool for Documentation

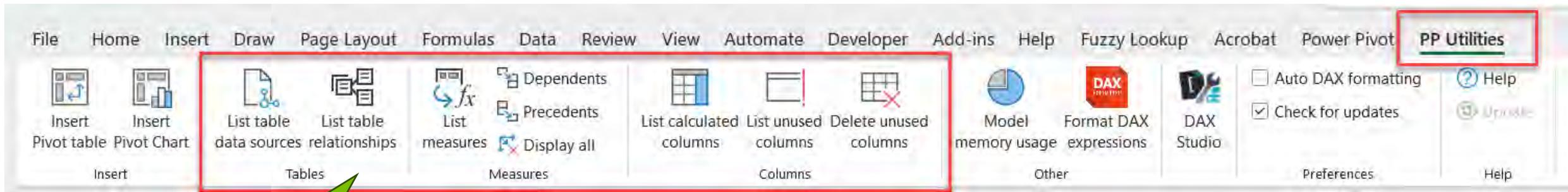
Power Pivot Utilities

- By Bertrand d'ARBONNEAU, hosted on sqlbi.com
- Hasn't been updated in awhile but still works

Documentation Features

- List Table Data Sources
- List Table Relationships
- List Measures
- List Calculated Columns
- List Unused Columns

Power Pivot Utilities Ribbon



Documentation Features

List Table Data Sources

	A	B	C	D
1	Table	Connection Name	Connection type	Description
2	_Measures	Connection	NOSOURCE	
3	Customers	Query - Customers	OLEDB	Table comes from Power Query and is an Excel file that contains Customer master data. The file is located in the Data Analysis folder of SharePoint. It gets updated every night from the ERP system.
4	DimDate	Excel PBI999X9 PM97 v1.0 DATE Table	OLEDB - MS Jet	
5	Products	Query - Products	OLEDB	
6	Sales	Query - Sales	OLEDB	
7	SalesPerson	Query - SalesPerson	OLEDB	
8				

Navigation: SalesByCategory | SalesPer | TimeIntelligence | **Tables_Sources** | ... + :

List Table Relationships

	A	B	C	D	E	F
1	ID	Foreign Key Table	Foreign Key Column	Primary Key Table	Primary Key column	Active
2	1	Sales	CustomerID	Customers	CustomerID	TRUE
3	2	Sales	ProductID	Products	ProductID	TRUE
4	3	Sales	SalesPersonID	SalesPerson	SalesPersonID	TRUE
5	4	Sales	OrderDate	DimDate	DateKey	TRUE
6						

Navigation: < > ... TimeIntelligence Tables_Sources **Model_Relationships** Measur ... + :

List Measures

	A	B	C	D
1	TABLE	MEASURE	DAX Expression	DESCRIPTION
2		__No measures defined	:=1	
3	_Measures	ALLMonthsSales	:=CALCULATE([SumSales],ALL(Sales[OrderMonth]))	Measure to calculate SumSales without regard to a Months filter.
54	Sales	SumOrderSize	:=SUM([OrderSize])	
55	Sales	SumSales	:=SUM([NetSalesAmt])	This Measure is a SUM of the NetSalesAmt column and used to calculate the total of Sales.
56	Sales	SumTotalStdCost	:=SUM([TotalStdCost])	
57	Sales	SUMXDiscAmt	:=SUMX(Sales,ROUND([SUMXGrossSales]*[Discount	
58	Sales	SUMXGrossSales	:=SUMX(Sales,ROUND([OrderQty]*[UnitPrice],2))	
59	Sales	SUMXNetSales	:=SUMXGrossSales]-[SUMXDiscAmt]	

Navigation bar: Tables_Sources, Model_Relationships, **Measures**, Calculated_Co

List Calculated Columns

	A	B	C	D
1	TABLE	COLUMN	DAX Expression	DESCRIPTION
2	Sales	DiscountAmt	=ROUND([GrossSales]*[DiscountPct],2)	
3	Sales	GrossSales	=ROUND([OrderQty]*[UnitPrice],2)	Calculated Column that calculates Gross Sales by multiplying Qty x UnitPrice.
4	Sales	Margin	=ROUND([NetSalesAmt]-[TotalStdCost],2)	
5	Sales	MarginPct	=DIVIDE([Margin],[NetSalesAmt],0)	
6	Sales	NetSalesAmt	=ROUND([GrossSales]-[DiscountAmt],2)	
7	Sales	OrderDay	=DAY([OrderDate])	
8	Sales	OrderMonth	=MONTH([OrderDate])	
	Sales	OrderQtr	=SWITCH([OrderMonth], 1,1,2,1,3,1,	

Model Relationships | Measures | **Calculated Columns** | Unused Columns

List Unused Columns

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Table	Column	Pivot Tables	Pivot Charts	Slicers	Relationships	Measures	Cube Formulas	Calculated Columns	Sorted By	Hierarchies	Is Used	Mark For Delete (Works only on Excel 2016)
2	_Measures	RowNumber										FALSE	Yes
3	_Measures	Column1										FALSE	Yes
4	Customers	CustomerID				TRUE						TRUE	No
5	Customers	CustomerName										FALSE	Yes
6	Customers	LastName										FALSE	Yes
7	Customers	FirstName										FALSE	Yes
8	Customers	CustomerType	TRUE		TRUE		TRUE		TRUE			TRUE	No
9	Customers	Territory	TRUE						TRUE		TRUE	TRUE	No
10	Customers	CountryCode					TRUE				TRUE	TRUE	No
11	Customers	Continent									TRUE	TRUE	No
12	DimDate	DateKey	TRUE		TRUE	TRUE	TRUE					TRUE	No
13	DimDate	FullDate										FALSE	Yes
14	DimDate	Calendar Year	TRUE		TRUE							TRUE	No
15	DimDate	Calendar YearMonth										FALSE	Yes
16	DimDate	Calendar MonthYear										FALSE	Yes

Unused Columns Report

Power Query Applied Steps Missing from Power Pivot Utilities Add-In

The image shows a composite screenshot of the Power Query environment. On the left, the 'Advanced Editor' button in the ribbon is highlighted with a red box and an arrow pointing to the 'Advanced Editor' window. Below it, the 'Queries' pane shows 'Customers' selected. In the center, the 'Query Settings' pane for 'Customers' has a red box around the 'APPLIED STEPS' section, which lists: Source, Navigation, Changed Type, Renamed Columns, Removed Columns, Replaced 'S' in CustomerType, and Replaced 'I' in CustomerType. On the right, the 'Advanced Editor' window displays the M code for the 'Customers' query. A red arrow points from the 'APPLIED STEPS' list to the corresponding M code lines. A green callout bubble at the bottom right contains the text: 'You can copy & paste this into Excel to document'. The M code includes comments and functions like Table.TransformColumnTypes, Table.RenameColumns, Table.RemoveColumns, and Table.ReplaceValue.

```
let
    // Excel file that contains Customer master data.
    Source = Excel.Workbook(File.Contents("C:\Users\BryanSmith\DataSmithPro\DSP Curriculum-Power sdfs = Source[[Item="TblCustomers",Kind="Table"]][Data],
    #"Changed Type" = Table.TransformColumnTypes(sdfs,{{"CustomerID", Int64.Type}, {"Sales_Stores", Int64.Type}},
    // Changed column names to make more sense.
    #"Renamed Columns" = Table.RenameColumns(#"Changed Type",{{"Sales_StoreName", "CustomerName", "Sales_Stores", "Sales_StoresID"}, {"Sales_Stores", "Sales_StoresID"}, {"Sales_StoreName", "CustomerName"}, {"Sales_StoresID", "Sales_StoresID"})),
    // Removed columns not needed for analysis.
    #"Removed Columns" = Table.RemoveColumns(#"Renamed Columns",{"MiddleName", "TerritoryID"}),
    // Replaced 'S' with 'Store' so field value makes more sense to user. These would be wholesaler.
    #"Replaced 'S' in CustomerType" = Table.ReplaceValue(#"Removed Columns", "S", "Store", ReplaceText, true),
    // Replaced 'I' with 'Internet' so field value makes more sense to user. These would be customer.
    #"Replaced 'I' in CustomerType" = Table.ReplaceValue(#"Replaced 'S' in CustomerType", "I", "Internet", ReplaceText, true),
in
    #"Replaced 'I' in CustomerType"
```

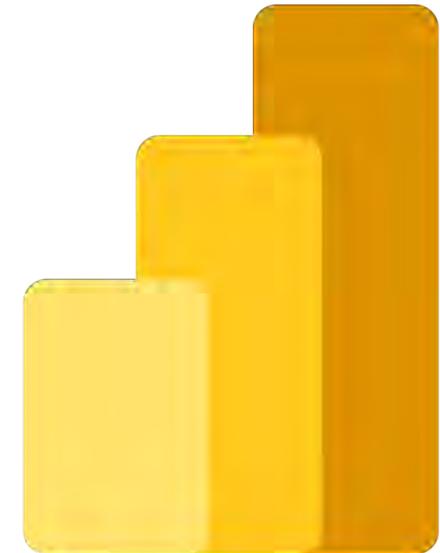

Macro Results

	A	B	C	D
1	Query Name	Step Name	M Formula	Description
2	Customers	Source	= Excel.Workbook(File.Contents("C:\Users\BryanSmith\DataSmithPro\DSP Curriculum-PowerBI - DataSources\VPBI999X9 PM98 v1.1 AW DataSet.xlsx"), null, true), sdfs = Source[{Item="TblCustomers",Kind="Table"}][Data],	Excel file that contains Customer master data.
3	Customers	Changed Type	= Table.TransformColumnTypes(sdfs,{{"CustomerID", Int64.Type}, {"Sales_StoreName", type text}, {"LastName", type text}, {"FirstName", type text}, {"MiddleName", type text}, {"CustomerType", type text}, {"TerritoryID", Int64.Type}, {"SalesTerritoryName", type text}, {"CountryRegionCode", type text}, {"Group", type text}}),	
4	Customers	Renamed Colu	= Table.RenameColumns("#Changed Type",{{"Sales_StoreName", "CustomerName"}, {"CountryRegionCode", "CountryCode"}, {"Group", "Continent"}, {"SalesTerritoryName", "Territory"}}),	Changed column names to make more sense.
5	Customers	Removed Colu	= Table.RemoveColumns("#Renamed Columns",{"MiddleName", "TerritoryID"}),	Removed columns not needed for analysis.
6			= Table.ReplaceValue("#Removed	Replaced 'S' with 'Store' so field value makes more sense to user. These
			= Table.SelectColumn	
			"Size", "SizeUnitMea	
			"Subcategory", "Cate	

Note: Make sure you don't use " in description, I replaced with '

PowerQuerySteps

Document **Power BI Desktop** Data Model



Power BI Desktop Documentation

Power Query

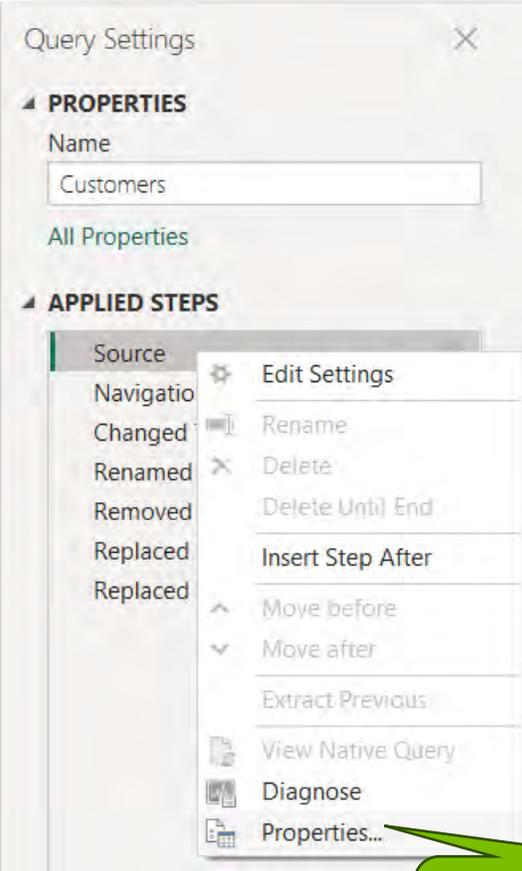
- Change Step Name
- Add Description to Step Properties

Model View

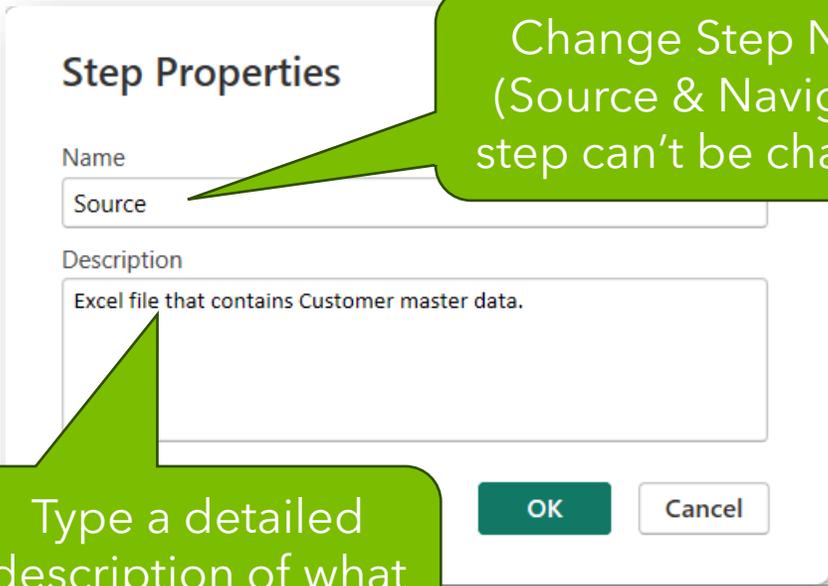
- Properties (for Measures, Fields, Calculated Columns & Tables)
 - Description
 - Synonyms
 - Display folder
 - FolderName1\FolderName2 (if needed)
 - Advanced - Data category

Power BI Desktop Power Query - Document Steps

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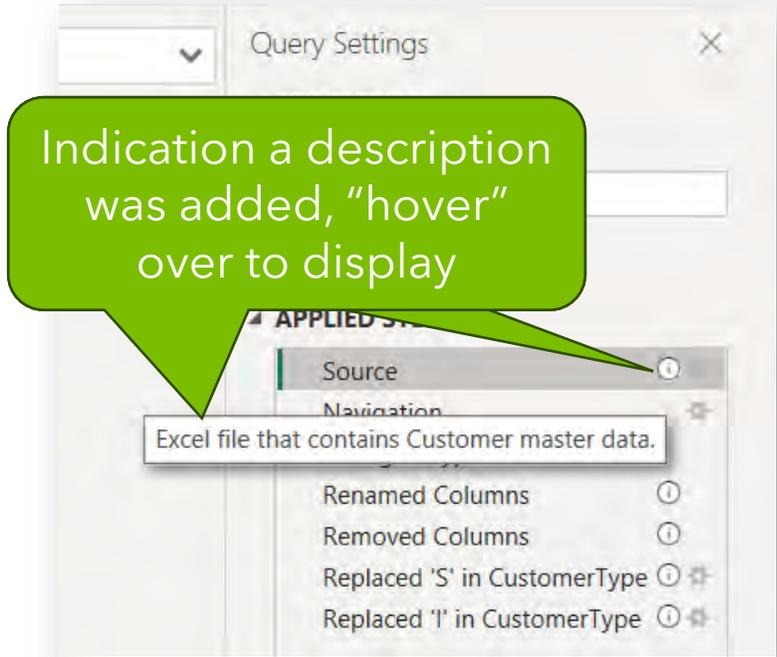


Right-click on Step, select Properties



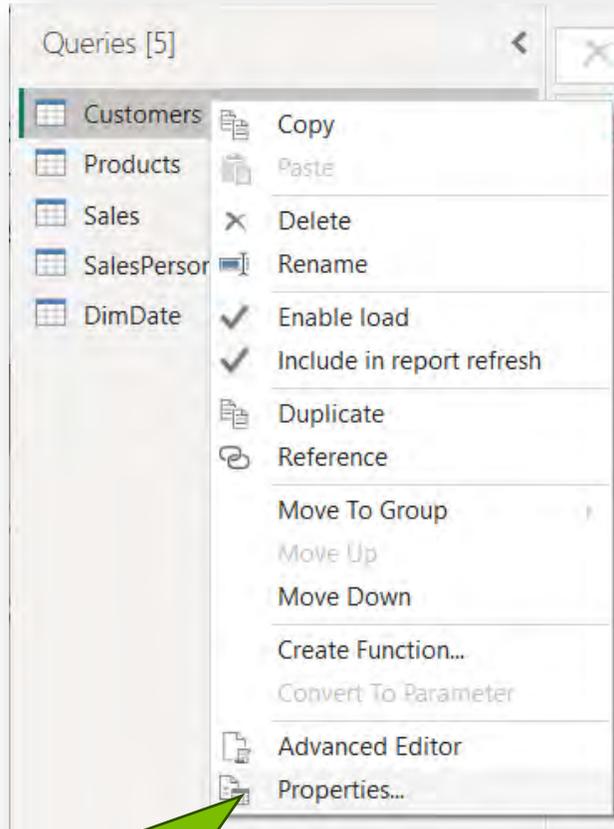
Change Step Name (Source & Navigation step can't be changed)

Type a detailed description of what this step does

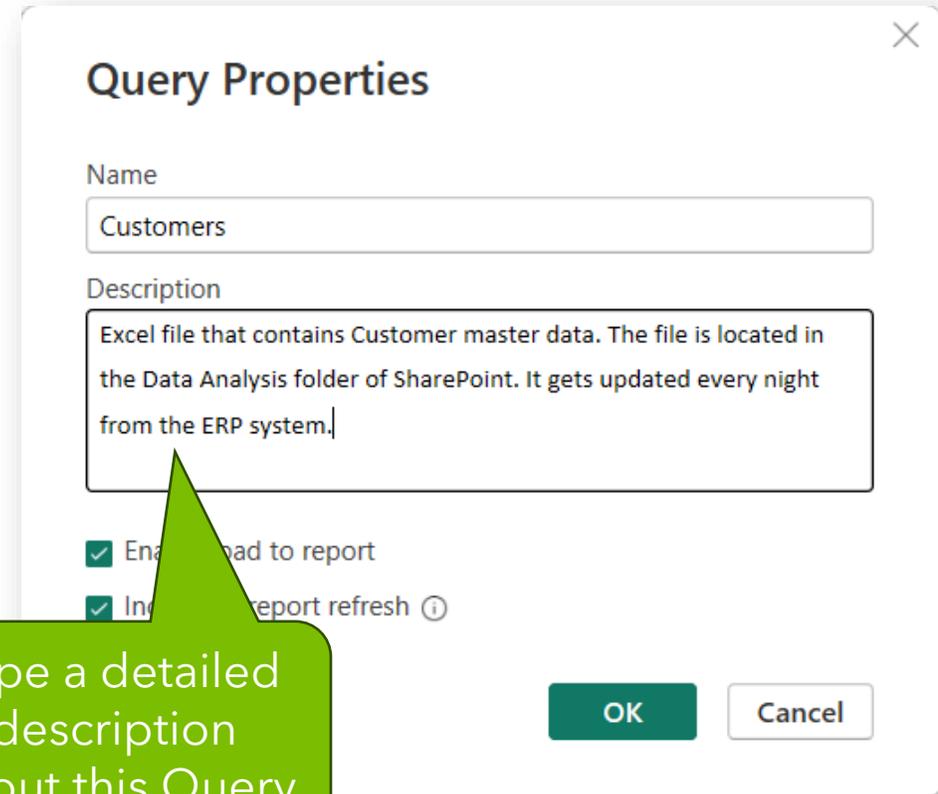


Indication a description was added, "hover" over to display

Power BI Desktop Power Query - Document Query Description

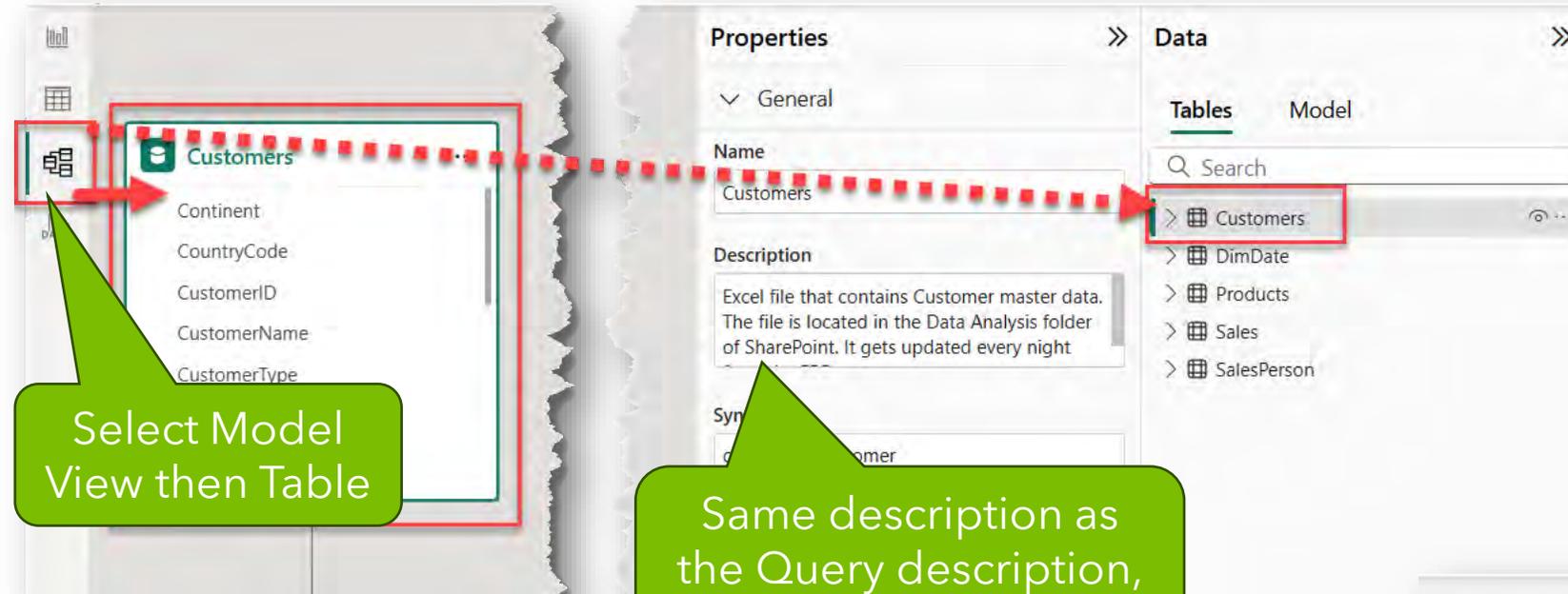


Right-click on Query, select Properties



Type a detailed description about this Query

Power BI Desktop - Document Table Description

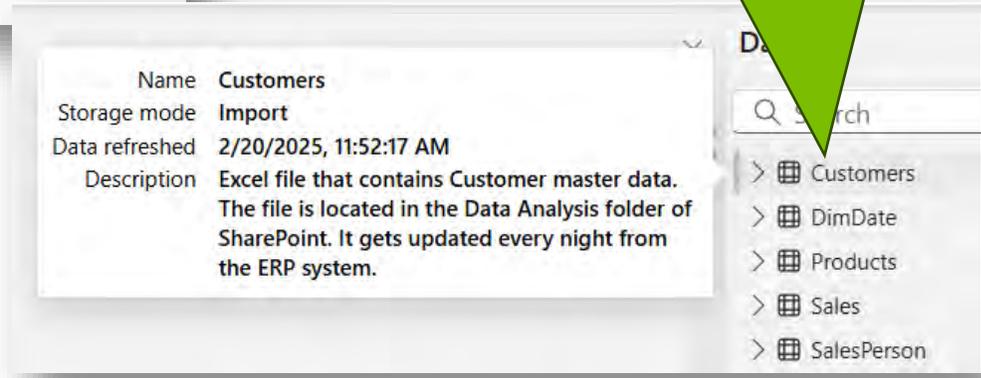


Select Model View then Table

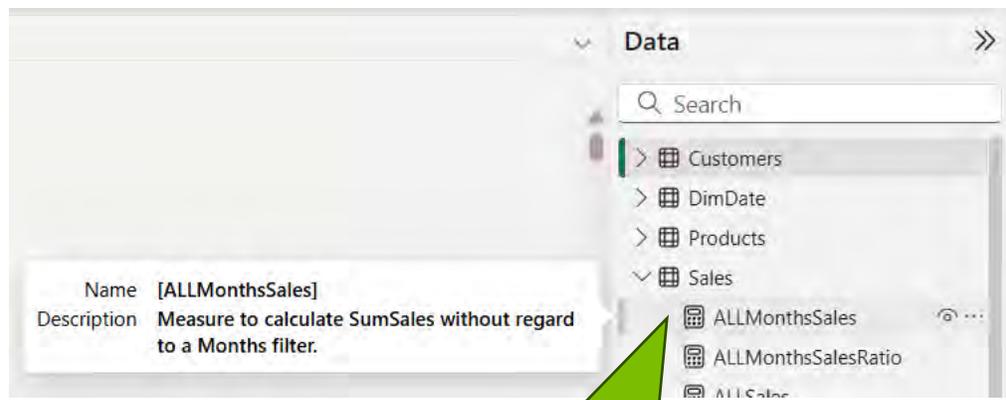
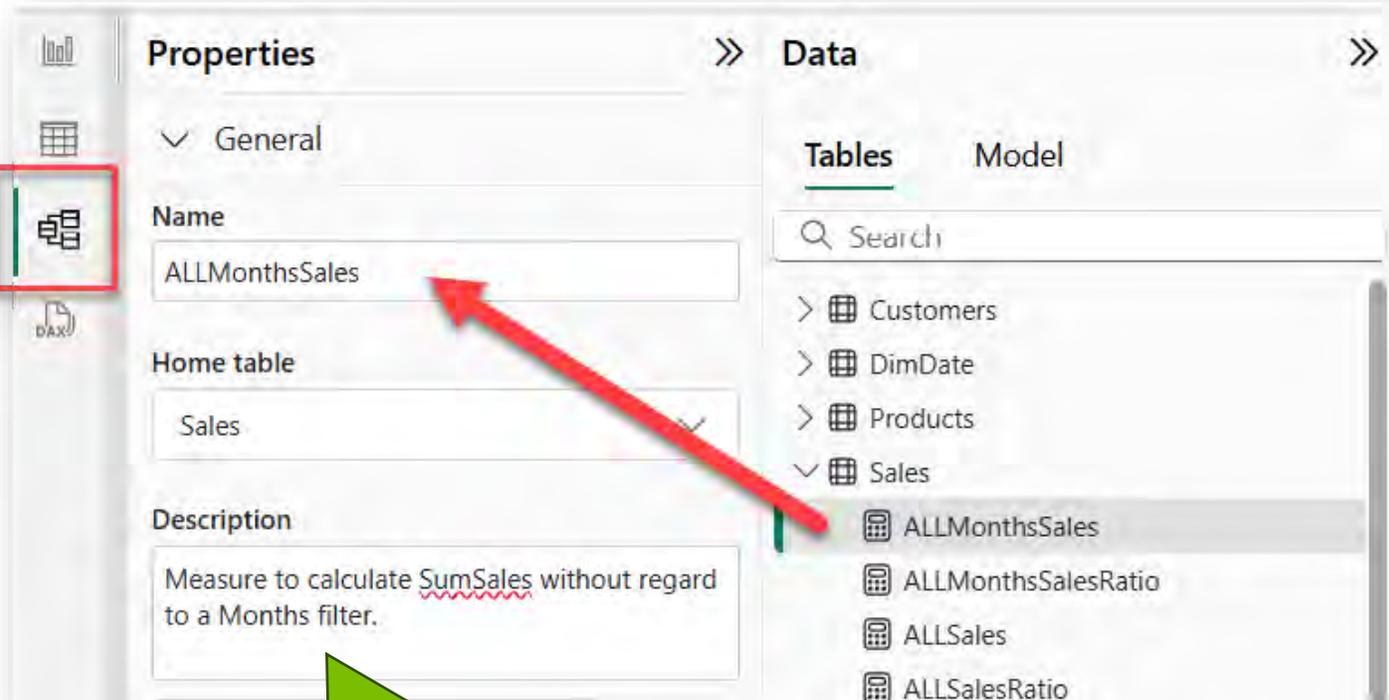
Same description as the Query description, so easier to enter here.

Limited to 256 characters

"Hover" over table name on **any** Data pane to display description



Power BI Desktop - Document Measure Description



Type a detailed description about this Measure

Limited to 256 characters

"Hover" over measure name on **any** Data pane to display description

Power BI Desktop - Document Field/Column Description

The screenshot shows the 'Properties' pane on the left with the 'General' tab selected. The 'Name' field contains 'GrossSales'. The 'Description' field contains the text: 'Calculated Column that calculates Gross Sales by multiplying Qty x UnitPrice.' The 'Data' pane on the right shows a list of columns under the 'Sales' table, with 'GrossSales' highlighted at the bottom and enclosed in a red box.

Calculated Column description

The screenshot shows the 'Properties' pane on the left with the 'General' tab selected. The 'Name' field contains 'LineTotal'. The 'Description' field contains the text: 'This field comes from the Sales query and calculates the total for each line on the order. It is hidden because a Measure is'. The 'Is hidden' checkbox is checked. The 'Data' pane on the right shows a list of columns, with 'LineTotal' highlighted in the middle.

Type a detailed description about any Column

Power BI Desktop - Create Synonyms for Fields

The screenshot displays the Power BI Desktop interface. On the left, the 'Properties' pane is open to the 'General' tab for a measure named 'SumSales'. The 'Home table' is set to 'Sales'. The description reads: 'Measure to calculate SUM total of the NetSalesAmt column. It is the measure used in many other measures.' Below the description is a 'Create with Copilot (preview)' button and a warning: 'Content created by AI may not be accurate or appropriate, so review it carefully. [Read terms](#)'. The 'Synonyms' section lists: 'sum sales, SumSales, sales, sales amount, net sales'. On the right, the 'Data' pane is open to the 'Tables' view, showing a list of measures. The 'SumSales' measure is highlighted with a red rectangular box.

Can be used with
Q&A feature

Power BI Desktop - Place Measures in a Folder\Subfolder

Properties

General

Name: ALLMonthsSales

Home table: Sales

Description: Measure to calculate SumSales without regard to a Months filter.

Synonyms: ALL months sales

Display folder: _Measure\ALL

Data

Tables

Customers, DimDate, Products, Sales

ALLMonthsSales (highlighted)

ALLMonthsSalesRatio, ALLSales, ALLSELECTEDSalesRatio, Average of NetSalesAmt, AVERAGEXSellPricePerItem, AvgSales, BikeSales, Count of SalesOrderID, COUNTASalesPersonID

Give folder name
"_Measures"

Can create
subfolders using "\"

Sales

_Measure

ALL

ALLMonthsSales (highlighted)

ALLMonthsSalesRatio, ALLSales

Result

Power BI Desktop Add-In for Documentation

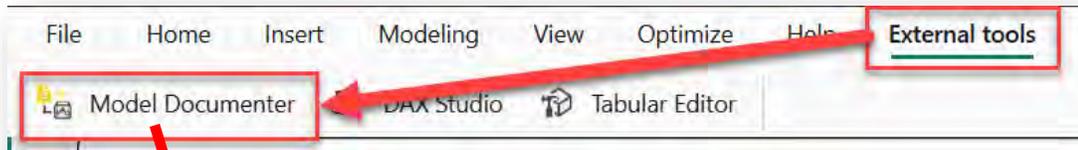
Model Documenter

- By Marc Lelijveld & Ton Swart, hosted on data-marc.com

Documentation Features

- Creates PBI-D file with model documentation
- Table details
- Data source details, including steps & description
- Column details
- Measure details
- Relationship details

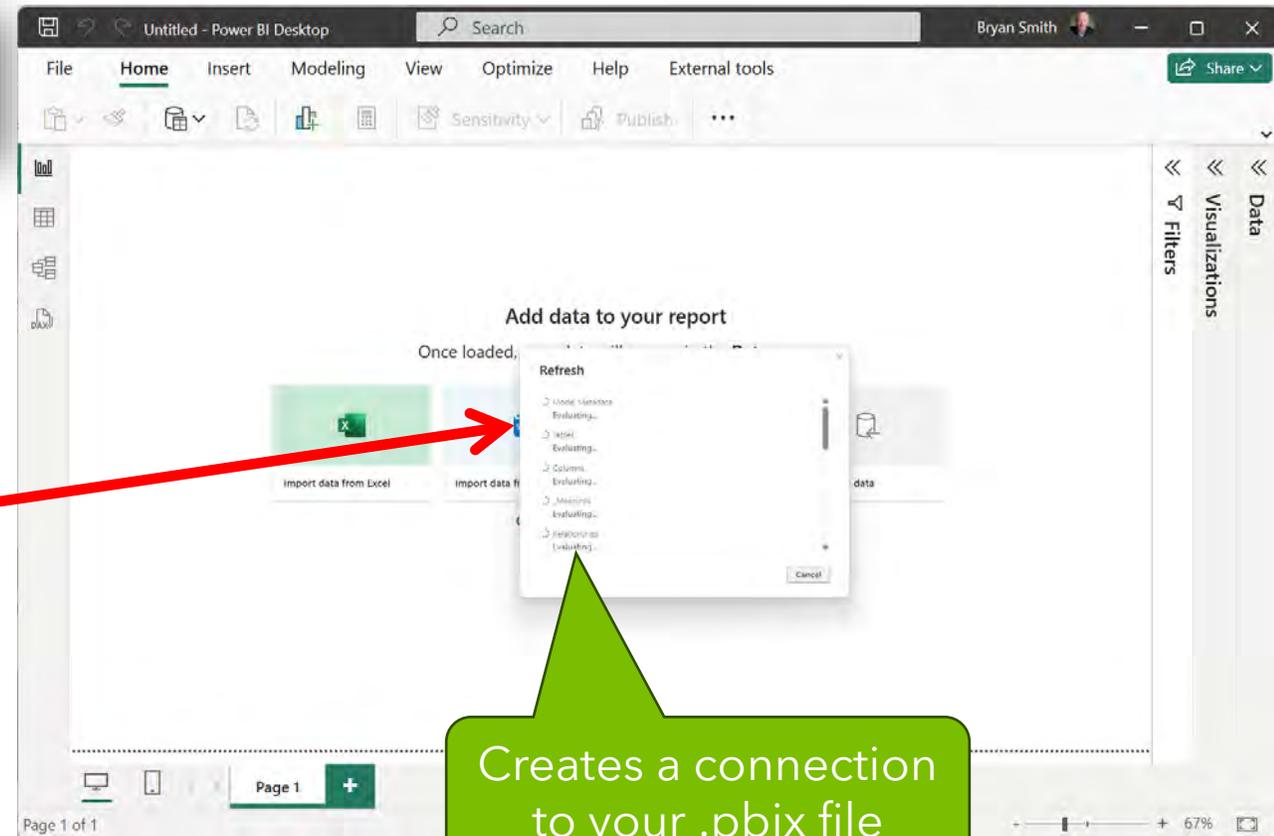
Access Model Documenter



```
C:\Program Files (x86)\Data-Marc\ >
Successfully loaded plugin System.Data.OleDb, Version=6.0.0.0, Culture=neutral, PublicKeyToken=cc7b13fcd2ddd51 from assembly System.Data.OleDb.dll
Successfully loaded plugin System.IO.Packaging, Version=6.0.0.0, Culture=neutral, PublicKeyToken=b03f5f7f11d50a3a from assembly System.IO.Packaging.dll
Successfully loaded plugin System.Net.Http, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b03f5f7f11d50a3a from assembly System.Net.Http.dll
Successfully loaded plugin System.Net.Http.WebRequest, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b03f5f7f11d50a3a from assembly System.Net.Http.WebRequest.dll
Parsing results:
Command line:
--server localhost:63822 --database cd083e0c-d745-410a-a860-9e71911f8c92 --filename c:\Power BI Model Documenter\ModelDocumenter.vpax --pbitemplate C:\Program Files (x86)\Common Files\Data-Marc\ModelDocumenter\ModelDocumentationTemplate_v2.1.0.pbitemplate
Parsed Arguments:
Argument: s(server), type: String, value: localhost:63822 (converted from: localhost:63822)
Argument: d(database), type: String, value: cd083e0c-d745-410a-a860-9e71911f8c92 (converted from: cd083e0c-d745-410a-a860-9e71911f8c92)
Argument: f(filename), type: String, value: c:\Power BI Model Documenter\ModelDocumenter.vpax (converted from: c:\Power BI Model Documenter\ModelDocumenter.vpax)
Argument: p(pbitemplate), type: String, value: C:\Program Files (x86)\Common Files\Data-Marc\ModelDocumenter\ModelDocumentationTemplate_v2.1.0.pbitemplate (converted from: C:\Program Files (x86)\Common Files\Data-Marc\ModelDocumenter\ModelDocumentationTemplate_v2.1.0.pbitemplate)

Arguments not specified:

Additional arguments:
```



Model Documenter Result



PBI-D file

Windows internal ID of .pbix file

"Buttons" to report pages
(hold Ctrl to select)

The screenshot shows the 'Model documentation' interface for a file with ID `cd083e0c-d745-410a-a860-9e71911f8c92`. The interface includes a top navigation bar with tabs for 'Info', 'PQ Parameters', 'Tables', 'Partitions & policies', 'Columns', 'Calculation groups', 'Field Parameters', 'Measures', 'Relationships', and 'Security'. The 'Info' tab is selected, displaying a text area on the left and a metadata table on the right. A red box highlights the top navigation bar, and another red box highlights the bottom navigation bar. A red arrow points from the 'Info' tab in the top bar to the 'Info' tab in the bottom bar.

localhost:63822 <i>Server Name</i>	cd083e0c-d745-410a-a860-9e71911f8c92 <i>Model Name</i>
PowerBI <i>Compatibility Mode</i>	1567 <i>Compatibility Level</i>
22.Jan.2024 15:58 <i>Model Created</i>	20.Feb.2025 00:00 <i>Last Processed</i>
Extraction	
ModelDocumenter <i>Extractor App</i>	2.1 <i>Extractor App Version</i>
Dax.Model.Extractor <i>Extractor Lib</i>	24.Feb.2025 07:58 <i>Extraction Date</i>

Model Documenter - Tables



The screenshot shows the 'Tables' page in the Model Documenter interface. The page title is 'Model documentation - cd083e0c-d745-410a-a860-9e71911f8c92'. The 'Tables' tab is selected in the top navigation bar. On the left, there are summary statistics: 6 Tables, 1 DateTime, 5 Power Query, and 1 DAX. Below these are filters for Table Type, Auto generated DateTab..., Is Hidden, and Is Referenced, all set to 'All'. The main table lists the following data:

Type	Table Name	Description	Table Type	# Partitions	# Rows
Power Query	Customers	Excel file that contains Customer master data. The file is located in the Data Analysis folder of SharePoint. It gets updated every night from the ERP system.	Power Query	1	19,185
Calculated Table	DimDate		Calculated Table	1	
Power Query	DimDate		Power Query	1	2,556
Power Query	Products		Power Query	1	295
Power Query	Sales		Power Query	1	121,317
Power Query	SalesPerson		Power Query	1	14

Two callouts are present: a green callout pointing to the 'Customers' row with the text 'List description & other information', and another green callout pointing to the filter section with the text 'Slicers are on every page'. The footer of the interface says 'Powered by Data-Marc.com'.

Model Documenter - Partitions & Policies



The screenshot shows the 'Partitions & policies' view in the Model Documenter. The interface includes a top navigation bar with tabs for Info, PQ Parameters, Tables, Partitions & policies, Parameters, Measures, and Relationships. The main area is divided into three sections: a left sidebar, a central table, and a right pane for the selected table's expression.

Partitions & policies sidebar:

- 1 # Partitions
- (Blank) # Partitions Incremental
- Table Name: All
- type: All

Table:

Table Name	Partition Name	Start	End
Customers	Customers		
DateTableTemplate_e50dbf60-8eaa-4d92-a04c-8ce7e0744d5a	DateTableTemplate_e50dbf60-8eaa-4d92-a04c-8ce7e0744d5a		
DimDate	DimDate		
Products	Products		
Sales	Sales		
SalesPerson	SalesPerson		

Expression pane (for Customers):

```
let
    // Excel file that contains Customer master data.
    Source = Excel.Workbook(File.Contents("C:\Users\BryanSmith\DataSmithPro\DSP Curriculum-PowerBI - DataSources\PI\999X9 PM98 v1.1 AW DataSet.xlsx"), null, true),
    TblCompany_Table = Source[Item="TblCustomers",Kind="Table"][[Data],
    #Changed Type = Table.TransformColumnTypes(TblCompany_Table,
    {{"CustomerID", Int64.Type}, {"Sales_StoreName", type text}, {"LastName", type text}, {"FirstName", type text}, {"MiddleName", type text}, {"CustomerType", type text}, {"TerritoryID", Int64.Type}, {"SalesTerritoryName", type text}, {"CountryRegionCode", type text}, {"Group", type text}}),
    // Changed column names to make more sense.
    #Renamed Columns = Table.RenameColumns(#Changed Type,
    {{"Sales_StoreName", "CustomerName"}, {"CountryRegionCode", "CountryCode"}, {"Group", "Continent"}, {"SalesTerritoryName", "Territory"}),
    // Removed columns not needed for analysis.
    #Removed Columns = Table.RemoveColumns(#Renamed Columns,
    {"MiddleName", "TerritoryID"}),
    // Replaced 'S' with 'Store' so field value makes more sense to user. These would be wholesale customers, such as Bike Stores that buy for resale.
    #Replaced 'S' in CustomerType = Table.ReplaceValue(#Removed Columns, "S", "Store", Replacer.ReplaceText, {"CustomerType"}),
    // Replaced 'I' with 'Internet' so field value makes more sense to user. These would be customers who bought from our web store.
    #Replaced 'I' in CustomerType = Table.ReplaceValue(#Replaced 'S' in CustomerType, "I", "Internet", Replacer.ReplaceText, {"CustomerType"})
in
    #Replaced 'I' in CustomerType
```

Policy information:

- Customers: No policy
- DateTableTemplate_e50dbf60-8eaa-4d92-a04c-8ce7e0744d5a: Rolling window
- DimDate: No policy
- Products: Incremental period
- Sales: No policy
- SalesPerson: No policy

Bottom navigation: Info, PQ Parameters, Tables, Partitions & policies, Columns, Calculation groups, Field Parameters

Select table to view PQ steps

Model Documenter - Columns



The screenshot shows the 'Columns' view in the Model Documenter. The main table lists columns with their table names, column names, data types, and formulas. A tooltip is displayed for the 'GrossSales' column, showing its data type as 'Decimal', its column expression as `ROUND([OrderQty]*[UnitPrice],2)`, and its description as 'Calculated Column that calculates Gross Sales by multiplying Qty x UnitPrice.'.

Table Name	Column Name	Calc. column	# Column Cardinality	Sort by	Format String
Sales	DiscountAmt		506		\\$#,0.00;(\\$#,0.00);\\$#,0.00
	DiscountPct		9		
	GrossSales		1,448		\\$#,0.00;(\\$#,0.00);\\$#,0.00
			1,188		
			1,516		
			1,342		0.00%;-0.00%;0.00%
			1		
			1		
			4		
			41		
			3		
			4		
			266		
			0		

Slicer to select column type

Hover over "Calc. Column" to view formula & description

Model Documenter - Measures



The screenshot shows the 'Measures' tab in the Model Documenter interface. The main area displays a table of measures for the 'Sales' table. A callout box points to the 'SumSales' measure, with the text 'Select Measure to view formula'.

Table Name	Display Folder	Measure Name	Description	Measure Expression
Sales		OrderLineColor		SUM([NetSalesAmt])
		Orders		
		Profit		
		ProfitPct		
		SalesMTD		
		SalesPerCustomer		
		SalesPerDay		
		SalesPerOrder		
		SalesQTD		
		SalesYTD		
		StoreSales		
		Sum of DiscountAmt		
		Sum of GrossSales		
		Sum of LineTotal		
		Sum of Margin		
		Sum of NetSalesAmt		
		Sum of OrderYear		
		Sum of SalesOrderID		
		SumCost		
		SumDiscAmt		
		SumGrossSales		
		SumLineTotal		
		SumOrderSize		
		SumSales	Measure to calculate SUM total of the NetSalesAmt column. It is the measure used in many other measures.	
		SumTotalStdCost		
		SUMXDiscAmt		
		SUMXGrossSales		
		SUMXNetSales		
		ALLMonthsSales	Measure to calculate SumSales without regard to a Months filter.	

Model Documenter - Relationships



Model documentation - **cd083e0c-d745-410a-a860-9e71911f8c92**

Info | PQ Parameters | Tables | Partitions & policies | Columns | Calculation groups | Field Parameters | Measures | **Relationships** | Security

Relationships

4 (Blank)
Relationships: # Many-to-Many

4 (Blank)
Active: # Inactive

Cross Filtering Behavior: All

Security Filtering Behav...: All

Is Active: All

Rely On Ref. Integrity: All

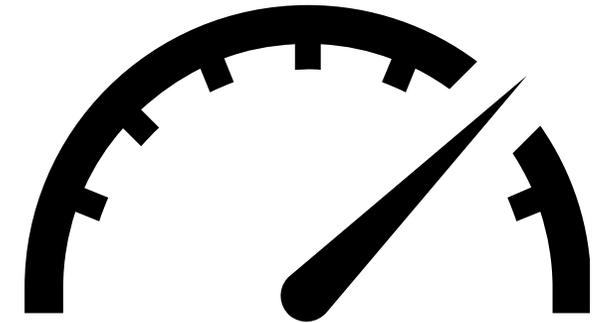
Left side	Cardinality	Right side	# Invalid rows
'SalesPerson'[SalesPersonID]	1 -----> M	'Sales'[SalesPersonID]	62021
'Customers'[CustomerID]	1 -----> M	'Sales'[CustomerID]	
'Products'[ProductID]	1 -----> M	'Sales'[ProductID]	
'DimDate'[DateKey]	1 -----> M	'Sales'[OrderDate]	

Visual of relationship

Powered by Data-Marc.com

Columns | Calculation groups | Field Parameters | Measures | **Relationships** x | Security | Tooltip-Table

Best Practices for Performance Optimization





Performance
Optimization

Performance Optimization

(Repeat Slide)

Remove unnecessary fields (columns) in dataset

Remove unnecessary records (rows) in dataset

Hide tables, columns & measures if not expected to use

Create measure in place of value column

Hide value columns where a measure is used to aggregate

Remove Unnecessary Fields/Columns in Dataset

Remove in Power Query

- i.e. we removed MiddleName & TerritoryID in Customers
- Reduces size of data model

Becomes unavailable in data model

- Not needed for measures and/or calculated columns
- If needed in data model, can hide in data model

Remove Unnecessary Records/Rows in Dataset

Filter in Power Query

- Old data
- Inactive customers, locations, products, etc.
- Include just records needed for analysis

Filter early so future Steps aren't refreshing data

Use data profiling tools

Data Profiling Tools



The screenshot shows the Power Query Editor interface for a query named 'Customers'. The ribbon includes 'File', 'Home', 'Transform', 'Add Column', and 'View'. The 'View' tab is active, showing options for 'Column distribution', 'Column profile', and 'Column quality', all of which are checked. Below the ribbon is a data preview table with columns: CustomerID, CustomerName, LastName, FirstName, CustomerType, and Territory. The 'CustomerName' column has a value distribution chart showing two bars, indicating two distinct values. A callout box points to this chart with the text 'Use Column Profile to find 2 not Unique'. The 'Column statistics' pane at the bottom left shows the following data:

Statistic	Value
Count	1000
Error	0
Empty	0
Distinct	998
Unique	996
Empty string	0
Min	A Bicycle...
Max	eComm...

The 'Value distribution' chart shows a horizontal bar chart for the 'CustomerName' column. The most prominent bar is for 'Friendly Bike Shop', which is highlighted with a callout box stating 'Friendly Bike Shop 2 (< 1%)'. Other bars represent various other store names.

Records with errors or blank

CustomerName should be unique

Use Column Profile to find 2 not Unique

Only top 1000 records, click here to select entire data set

Hide Tables, Columns & Measures, if not Expected to Use

In the Data Model

Hide from Client Tools

Can be used for calculations

Prevents users from selecting

- Eliminates confusion for users
- Removes from Q&A feature

Create Measure in Place of Value Column

Value column added to visual is Implicit Measure

- Slower calculation - inefficient

Create measure which is Explicit Measure

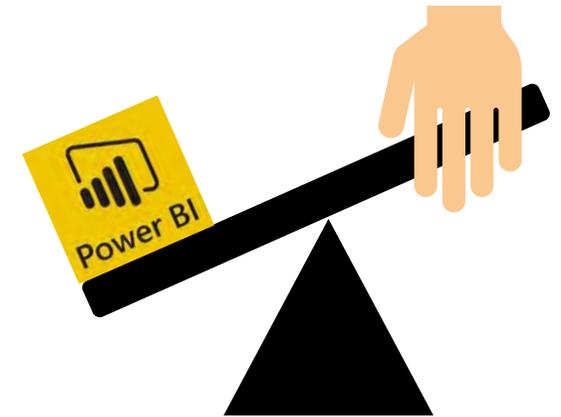
- Faster calculation - efficient

Use "X" functions (i.e. SUMX) to perform row-by-row calculations

Use SUM function to create measure to add up value columns

- Then hide value column so users don't accidentally use

Leveraging Your Data Model Through PowerBI.com



Local Files - Data Refresh & Sharing

Power Pivot

Manual Refresh by selecting
Data > Refresh All

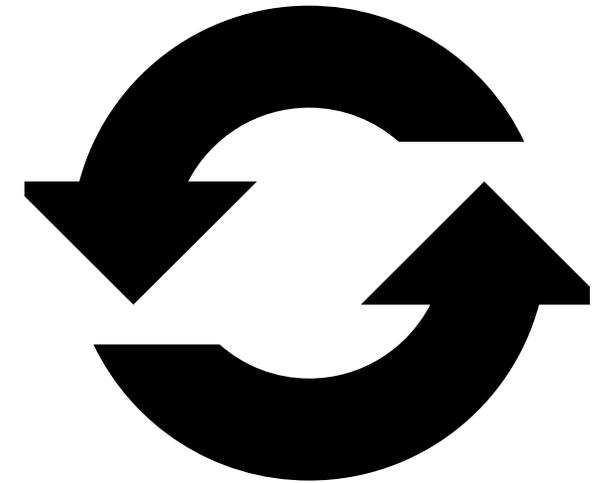
Share by emailing file or
link to file

Power BI Desktop

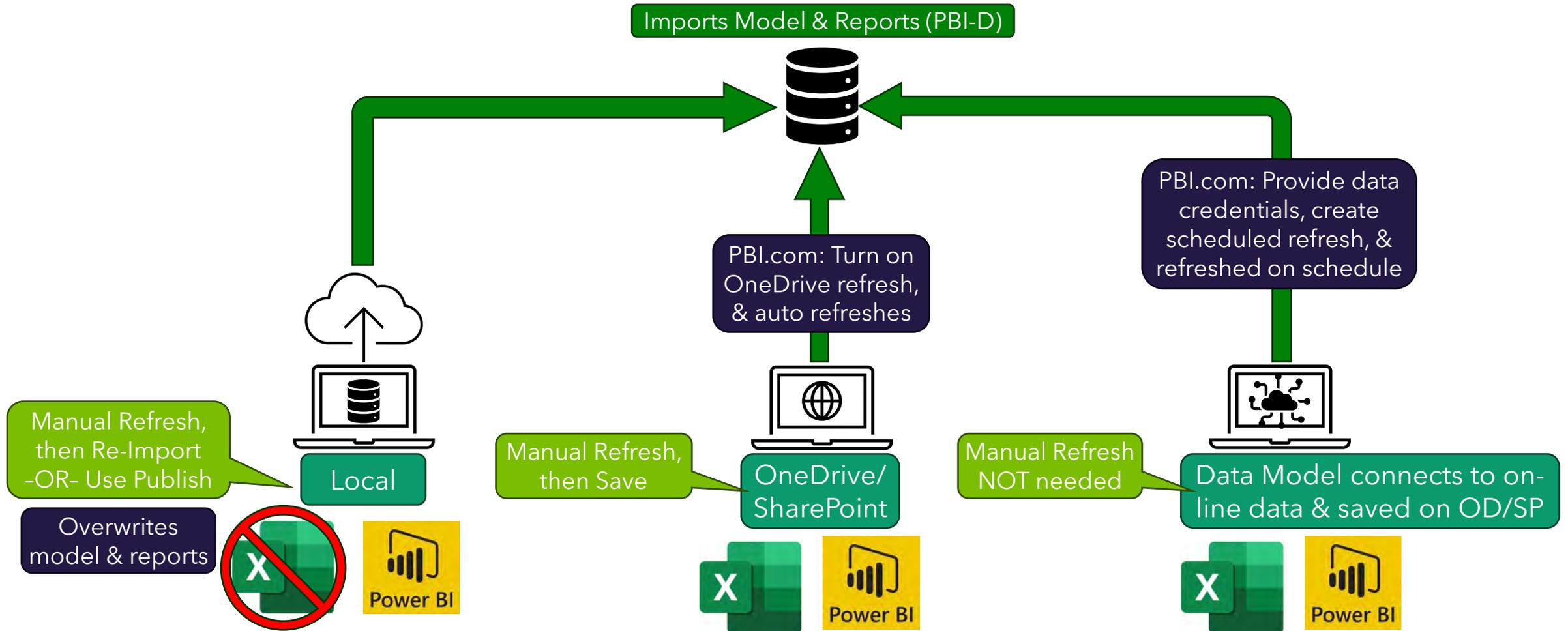
Manual Refresh by selecting
Home > Refresh

Share by emailing file or
link to file

Data Refresh with PowerBI.com



Data Refresh with PowerBI.com



Import Local .pbix File

(info only, not recommended)



Bring PBI Together
PBI110W2 - Power BI - Bringing It All Together for Data Analysis

+ New item New folder → Import ▾

- Notebook >
- Report or Paginated Report >
 - From this computer
 - OneDrive
 - SharePoint

Import .pbix or .rdl files from OneDrive, Sharepoint, or your local drive.

Imports Data Model & Report

Name	Type
PowerPBI-D_Local_v2502_1	Report
PowerPBI-D_Local_v2502_1	Semantic model

Scheduled Refresh NOT available

Settings for PowerPBI-D_Local_v2502_1

[View semantic model](#)

This semantic model has been configured by bsmith@datasmithpro.com.

[Refresh history](#)

- Semantic model description
- Gateway and cloud connections
- Data source credentials
- Parameters
- Refresh
 - Time zone
 - Time zone configuration is applied not only to determine the schedule refreshes but also to determine the schedule for incremental refresh models during on-demand and API refreshes. [Learn more](#)
 - (UTC) Coordinated Universal Time
 - Configure a refresh schedule

Define a data refresh schedule to import data from the data source into the data model.

Off
 - Refresh frequency

No option for OneDrive Refresh

Import OneDrive .pbix File



Bring PBI Together
PBI110W2 - Power BI - Bringing It All Together for Data Analysis

+ New item New folder → Import

Notebook

Report or Paginated Report

From this computer

OneDrive

SharePoint

Import .pbix or .rdl files from OneDrive, Sharepoint, or your local drive.

Imports Data Model & Report

Name	Type
PowerPBI-D_OneDrive_v2502_1	Report
PowerPBI-D_OneDrive_v2502_1	Semantic model

Note: This gets turned off if you don't select Automatic

Refresh

Time zone

Time zone configuration is applied next incremental refresh

(UTC) Coordinated Universal Time

Configure a refresh schedule

OneDrive refresh

By default, OneDrive updates files hourly. Do you want your files to be kept up

On

Sync with OneDrive and SharePoint

When changes are made to Power BI... Turn off this setting to prevent automatic

Restrict updates
Only semantic model owners can update semantic models with changes
SharePoint are not reflected.

Automatic updates
Semantic models in the Power BI service are automatically updated with

Default updates
Semantic model refresh will continue to follow the current behavior, and

Apply Discard

Scheduled Refresh still NOT available because dataset local

OneDrive/SharePoint refresh options

Auto Refresh

```
1 Products = DISTINCTCOUNT(Sales[ProductID])
```

Data

Tables **Model**

Search

- Customers
- DimDate
- Products
- Sales
- Measure
- ALL
- Products

Added a new measure, save & close file

OneDrive refresh

By default, OneDrive updates files hourly. Do you want your files to be kept up to date?

On

Sync with OneDrive and SharePoint

When changes are made to Power BI files stored in OneDrive or SharePoint, people using the semantic model might want to update the versions in the Power BI service with the changes. Turn off this setting to prevent automatic updates to the semantic model.

Restrict updates
Only semantic model owners can update semantic models in OneDrive or SharePoint. Semantic model owners must manually refresh the semantic model. Semantic model users with write permission can refresh semantic models.

Automatic updates
Semantic models in the Power BI service are automatically updated with changes made to the versions of the semantic models stored in OneDrive and SharePoint. Semantic model users with write permission can refresh semantic models.

Default updates
Semantic model refresh will continue to follow the current behavior, and semantic model owners don't need to change their selection. Semantic models will continue to be updated automatically and semantic model users with write permission can refresh semantic models.

Apply Discard

In PBI.com, Model settings, select Automatic & turn On OneDrive refresh

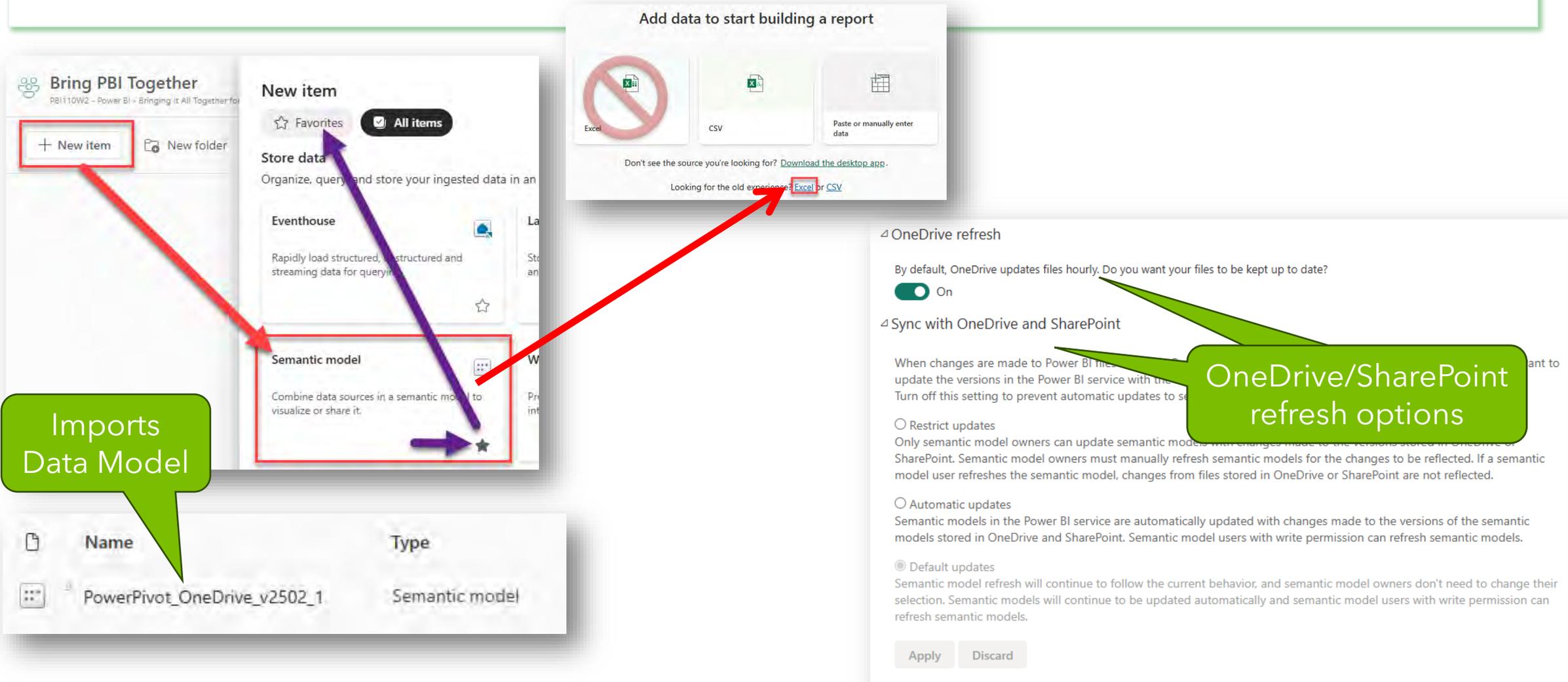
Refresh history

Scheduled OneDrive Direct Lake OneLake Integration

Details	Type	Start	End	Status	Message
	Scheduled	2/26/2025 10:00 AM	2/26/2025 10:04 AM	Completed	
Show	Scheduled	2/26/2025 10:08 AM	2/26/2025 10:08 AM	Failed	The dataset owner has restricted who can refresh this dataset. If you need to refresh this dataset, you can try to take it over, or you can contact the dataset owner.

Updates is a short time

Import OneDrive Power Pivot .xlsx File



Bring PBI Together
PBI110W2 - Power BI - Bringing it All Together for

New item
Favorites All items

Store data
Organize, query, and store your ingested data in an

Eventhouse
Rapidly load structured, unstructured and streaming data for queryin

Semantic model
Combine data sources in a semantic model to visualize or share it.

Excel **CSV** **Paste or manually enter data**

Don't see the source you're looking for? [Download the desktop app.](#)

Looking for the old experience? [Excel](#) or [CSV](#)

OneDrive refresh
By default, OneDrive updates files hourly. Do you want your files to be kept up to date?
 On

Sync with OneDrive and SharePoint
When changes are made to Power BI mes... update the versions in the Power BI service with the... Turn off this setting to prevent automatic updates to se...

Restrict updates
Only semantic model owners can update semantic models with changes made to the versions stored in OneDrive or SharePoint. Semantic model owners must manually refresh semantic models for the changes to be reflected. If a semantic model user refreshes the semantic model, changes from files stored in OneDrive or SharePoint are not reflected.

Automatic updates
Semantic models in the Power BI service are automatically updated with changes made to the versions of the semantic models stored in OneDrive and SharePoint. Semantic model users with write permission can refresh semantic models.

Default updates
Semantic model refresh will continue to follow the current behavior, and semantic model owners don't need to change their selection. Semantic models will continue to be updated automatically and semantic model users with write permission can refresh semantic models.

Apply **Discard**

Imports Data Model

Name	Type
PowerPivot_OneDrive_v2502_1	Semantic model

OneDrive/SharePoint refresh options

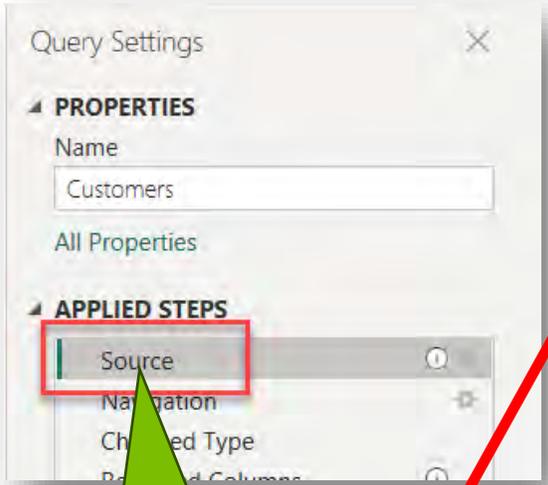


All indications are Microsoft is moving away from building “shared” data models in Excel using Power Pivot. They want users to build these models in Power BI Desktop. As of the writing of this course, using shared Power Pivot data models is still available. If this feature gets removed, you can import your Power Pivot data model into PBI-D, connect that to PowerBI.com and connect Excel to the PowerBI.com Semantic Model via Get Data > For Power BI and then create PivotTables from the Semantic Model.

This would cause more work for Excel users, so let’s hope Microsoft changes course!!

IMPORTANT NOTE: About Power Pivot (Excel) Data Models

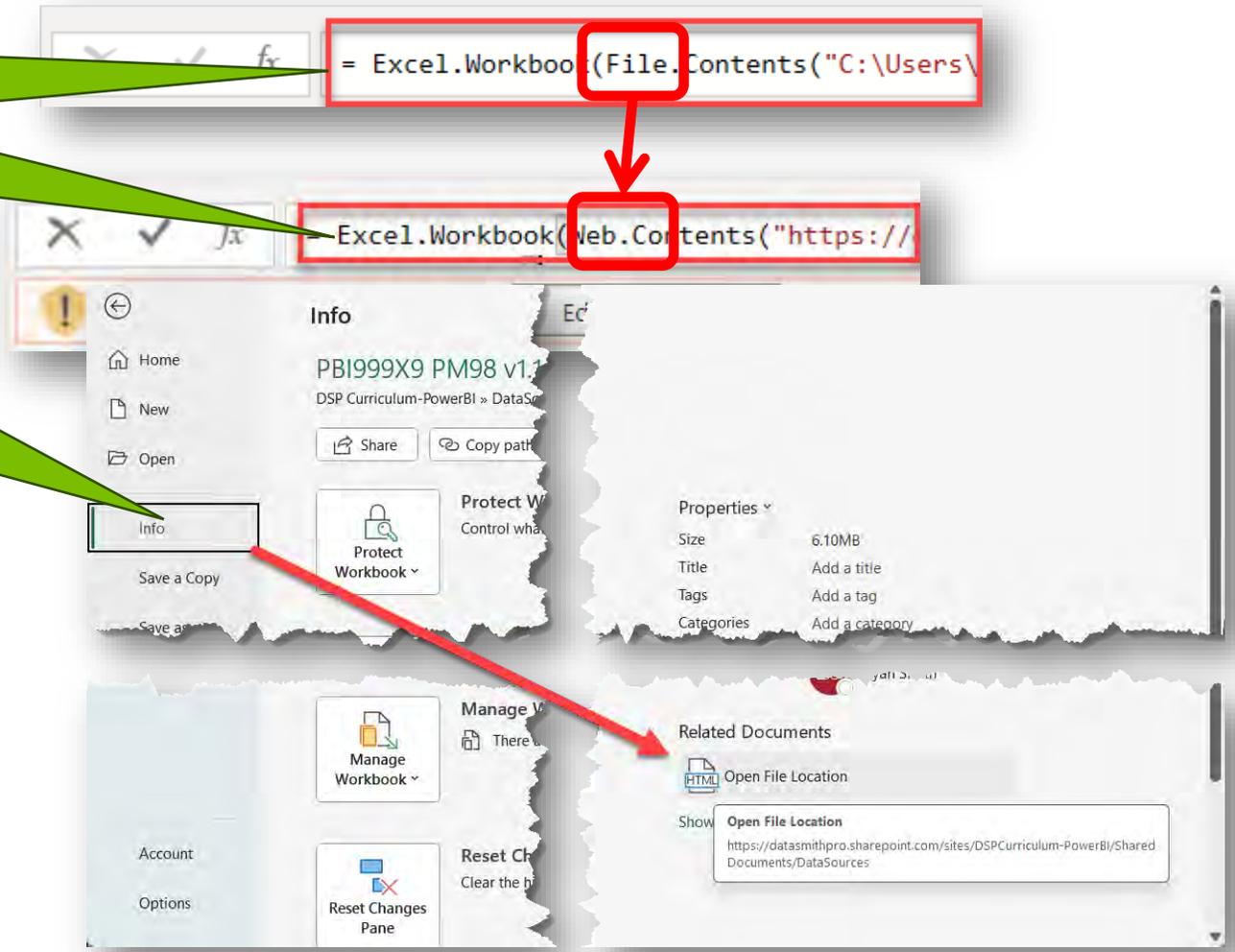
Connect Data Model to On-Line Data (Here, Excel files on SharePoint)



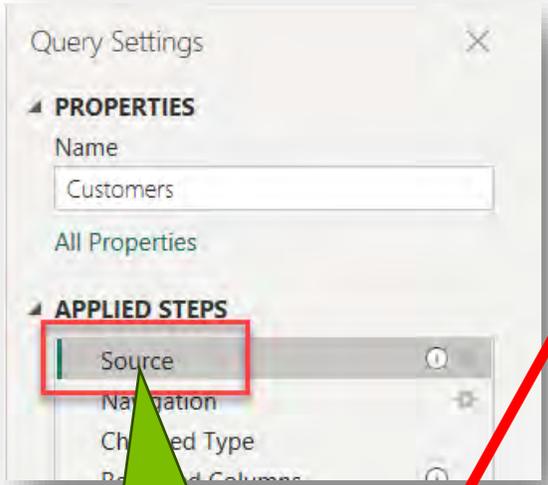
Open PQ,
select Source

Change from local
data connect to
Web Connector

You will need data
location; here is
how to get Excel



Connect Data Model to On-Line Data (Edit Credentials so data refreshes)



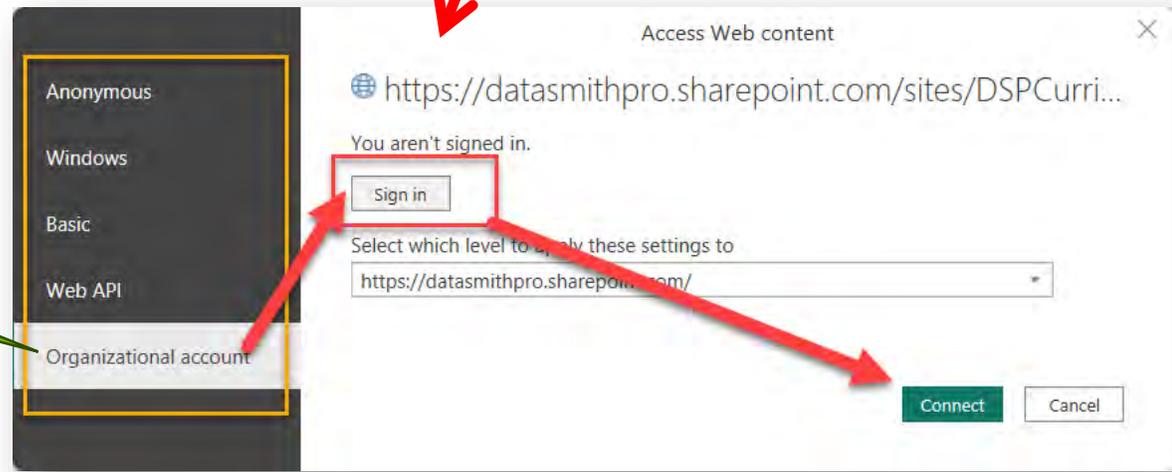
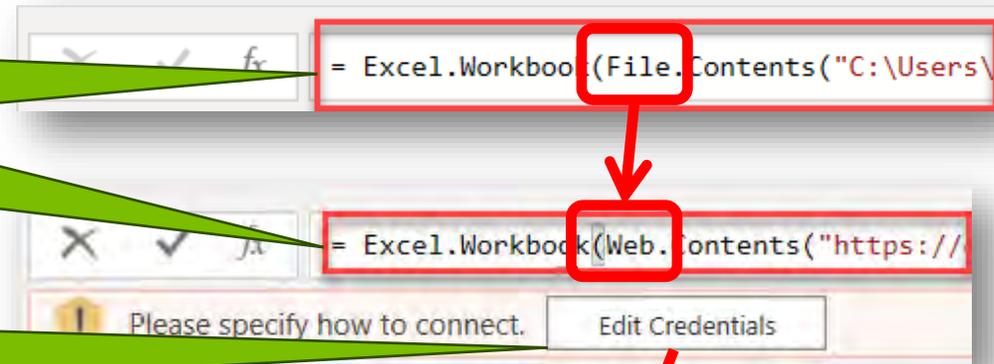
Change from local data connect to Web Connector

You will have to Authenticate to source

Here, I will use my M365 account

Change ALL Query Sources, Close & Apply, Save to OD/SP

Open PQ, select Source



Import **OneDrive .pbix** File, with Data Connected to SharePoint Data



Bring PBI Together
PBI110W2 - Power BI - Bringing It All Together for Data Analysis

+ New item New folder → Import ▾

- Notebook >
- Report or Paginated Report >

From this computer

- OneDrive
- SharePoint

Import .pbix or .rdl files from OneDrive, Sharepoint, or your local drive.

Imports Data Model & Report

Every unique data connector will need credentials for Scheduled Refreshes

Name	Type
PowerPBI-D_SPData_v2502_1	Report
PowerPBI-D_SPData_v2502_1	Semantic model

Data source credentials

⊗ Failed to test connection to your data source. Please retry your credentials. [Learn more](#)

Web ⚠ [Edit credentials](#) [Show in lineage view](#)

Web ⚠ [Edit credentials](#) [Show in lineage view](#)

Data Source Credentials



Configure PowerPBI-D_S...

url
https://datasmithpro.sharepoint.com/sites/DSP/curriculum...

Authentication method
OAuth2

Privacy level setting for this data source
Organizational

Skip this connection

Sign in Cancel

Authentication method

OAuth2

Anonymous

Basic

OAuth2

Service principal

Privacy level setting for this data source

Organizational

None

Private

Organizational

Public

Data source credentials

Web Edit credentials Show in lineage view

Web Edit credentials Show in lineage view

Parameters

Refresh

Time zone

Time zone configuration is applied not only to determine the schedule refresh time but also to establish the current date and time for incremental refresh models during on-demand and API refreshes. [Learn more](#)

(UTC-05:00) Eastern Time (US and Ca...

Configure a refresh schedule

Define a data refresh schedule to import data from the data source into the semantic model. [Learn more](#)

On

Refresh frequency

Daily

Time

[Add another time](#)

Send refresh failure notifications to Semantic model owner

These contacts:

Enter email addresses

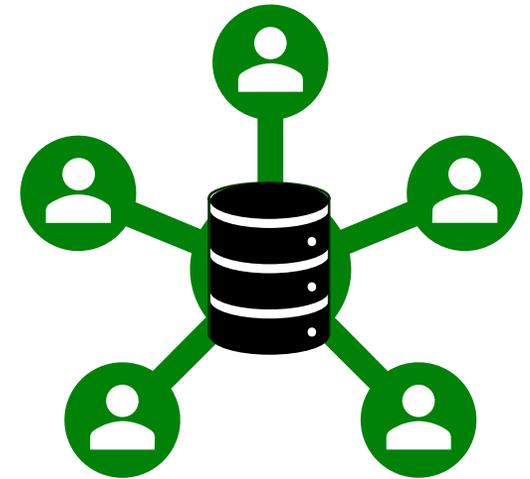
Apply Discard

Authentication depends on data source

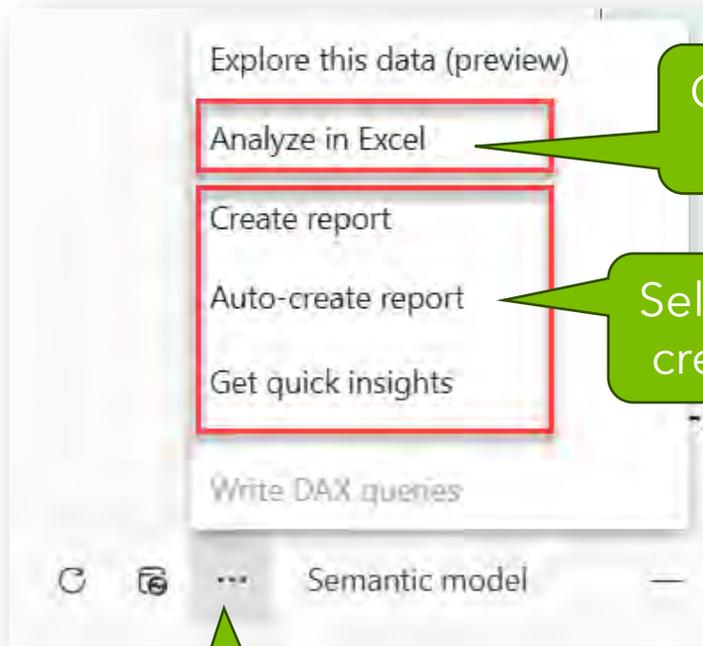
These screenshots **are not** a recommendation for which method to choose, you **MUST** research proper authentication based upon your organization's data governance.

Once credentials are entered, you can schedule refreshes

Sharing with PowerBI.com



Create Reports from Semantic Model



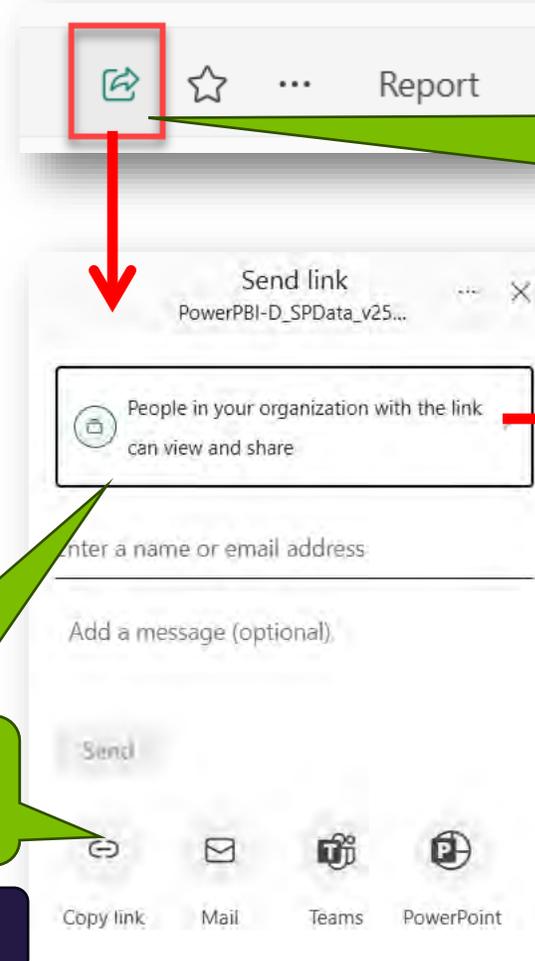
Create PivotTables in Excel

Select option to create a report

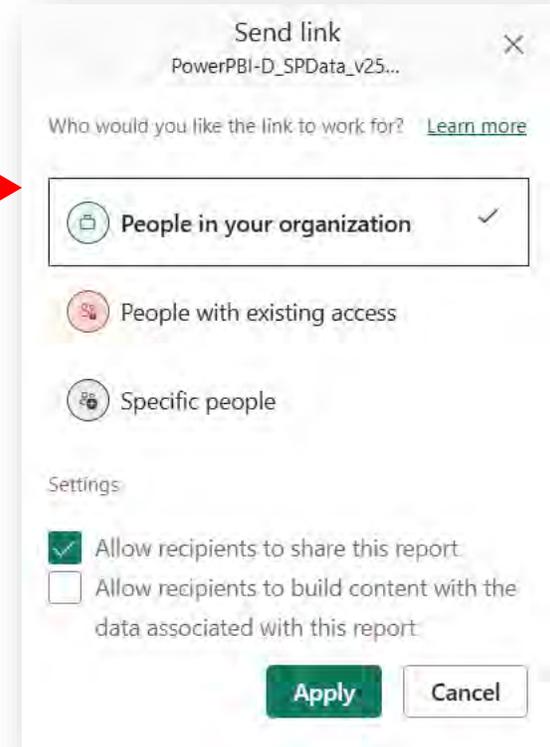
Select ... to open menu

Sharing requires Power BI Pro license

Share options and permissions



Once Report is created, select Share icon



Create an App to Share Content Without Giving Access to Workspace



The image shows a screenshot of the Power BI workspace interface on the left and a 'Build your app' dialog box on the right. In the workspace, the 'Create app' button is highlighted with a red box and a red arrow points to the dialog. A green callout bubble points to the 'Create app' button with the text 'In Workspace, select Create App'. Another green callout bubble points to the 'Description' field in the dialog with the text 'Enter information about App'. The dialog box has three steps: 1 Setup*, 2 Content*, and 3 Audience*. The 'Setup*' step is active. It includes fields for 'App name *' (filled with 'Bring PBI Together'), 'Description *' (with a placeholder 'Enter a summary'), 'App logo' (with an upload and delete option), 'App theme color' (a blue color picker), and 'Contact information' (radio buttons for 'Show app publisher', 'Show items contacts from the workspace', and 'Show specific individuals or groups', plus a search field for 'Enter a name or email address'). At the bottom right, there are 'Next: Add content' and 'Cancel' buttons.

Add Content to the App



Bring PBI Together

+ Add content

Add content to app

All Reports & Dashboards are available for selection

Add content

Insert reports, dashboards, and workbooks directly from your workspace. You can also add website links.

Add from workspace Add a link

	Name	Type	Owner	Refreshed
	PowerPBI-D_Local_v2502_1	Report	Bring PBI Together	2/25/25, 4:25:24 PM
	PowerPBI-D_OneDrive_v250	Report	Bring PBI Together	2/26/25, 11:58:05 ...
	PowerPBI-D_SPData_v2502	Report	Bring PBI Together	2/26/25, 12:00:21 ...
	PowerPivot_OneDrive_v250	Dashboard	Bring PBI Together	—

Add Cancel

Published App - User View



The screenshot displays a Power BI application interface with a dark blue sidebar on the left and a main content area on the right. The sidebar includes a search icon, the text "Bring PBI Together", and a list of reports: "PowerPBI-D_SPData_v2502_1", "SalesByCategory", "ColorSizeTT", "TTVisual", "Buttons", "Cond'l Formatting", "Show Data", "Drill Mode", "SubCat DrillThrough", "Transactions-DT", "Using DrillThrough", and "PowerPivot_OneDrive_v2502...".

The main content area features a table titled "Sales by Category" with the following data:

Category	2001	2002	2003	2004	Total
Bikes	\$28,721	\$359,329	\$938,834	\$325,755	\$1,652,640
Components		\$69,070	\$167,904	\$35,141	\$272,114
Clothing	\$144	\$12,246	\$30,191	\$9,471	\$52,053
Accessories	\$61	\$1,958	\$13,965	\$4,616	\$20,600
Total	\$28,926	\$442,603	\$1,150,894	\$374,984	\$1,997,407

Below the table is a pie chart titled "SumSales and Orders by Category". The chart shows the following distribution:

- Bikes: \$2M (82.74%)
- Components: \$0M (13.62%)
- Clothing: \$0M (2.61%)
- Accessories: \$0M (1.03%)

Below the pie chart is a chart titled "SumSales by Calendar Year and Category". The chart shows a legend with categories: Increase, Decrease, Total, and Other.

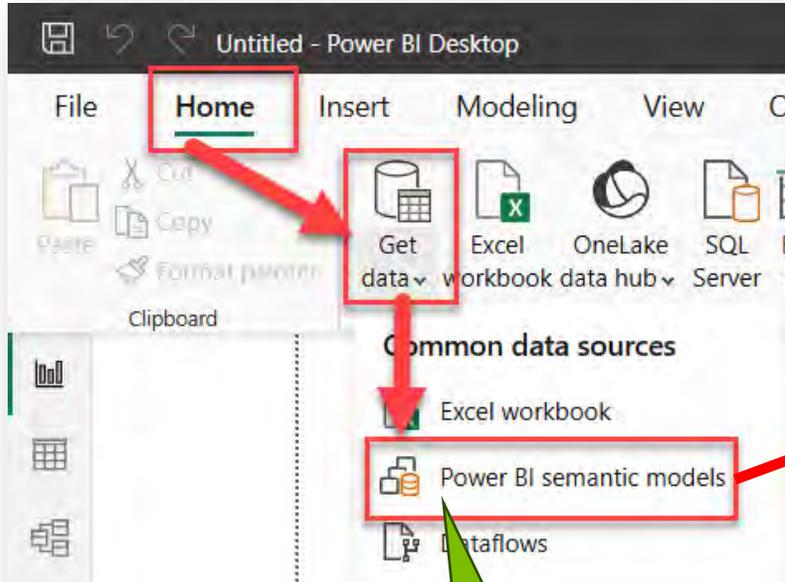
Viewing app requires Power BI Pro license

Access PBI.com Data Model in **Excel**

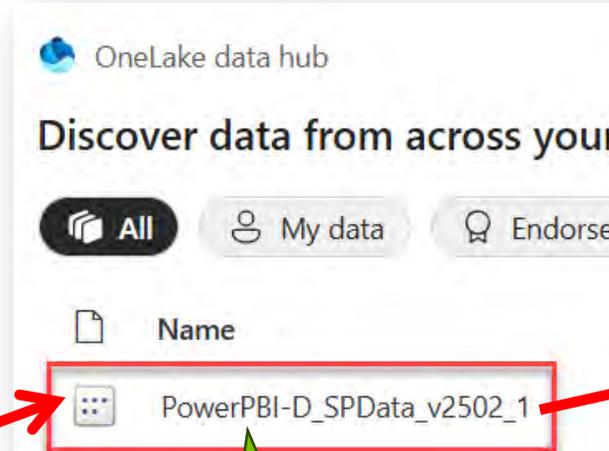
The diagram illustrates the process of connecting Excel to a Power BI semantic model. It is divided into three main sections:

- Section 1 (Left):** Shows the Excel 'Data' tab ribbon. The 'Get Data' button is highlighted with a red box. A red arrow points to the 'From Power Platform' option in the dropdown menu, which is also highlighted with a red box. Another red arrow points to the 'From Power BI (DataSmithPro)' option, which is also highlighted with a red box. A green callout bubble below this section contains the text: "You will be required to login".
- Section 2 (Middle):** Shows the Power BI window. A search bar at the top is highlighted with a green box. Below it, a semantic model named 'PowerPBI-D_SPData_v250...' is listed. At the bottom of the window, the '+ Insert PivotTable' button is highlighted with a red box. A red arrow points from this button to the PivotTable Fields task pane in the next section. A green callout bubble below this section contains the text: "Select appropriate Semantic Model".
- Section 3 (Right):** Shows the PivotTable Fields task pane. It displays a list of fields from the semantic model, including 'Customers', 'DimDate', 'Products', and 'Sales'. A red arrow points from the 'Insert PivotTable' button in the previous section to this task pane. A green callout bubble below this section contains the text: "Create PivotTable".

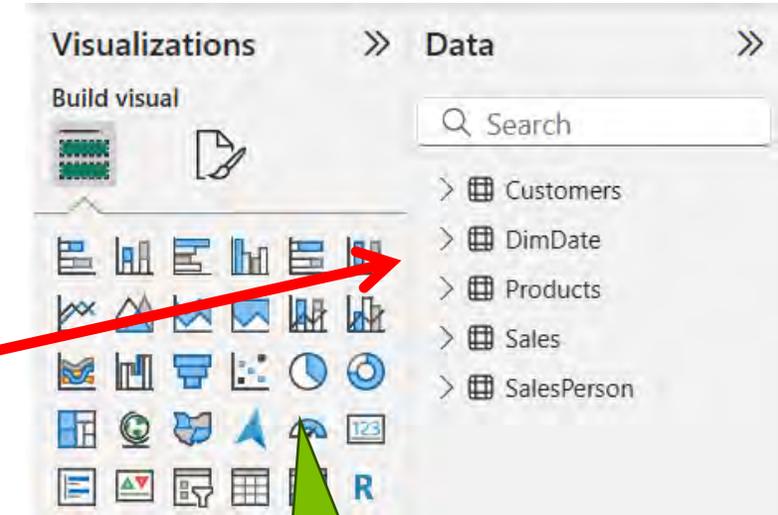
Access PBI.com Data Model in **Power BI Desktop**



You will be required to login



Select appropriate Semantic Model



Create visuals

Other Collaborations with PowerBI.com

- [Power BI's Analyze in Excel](#)
- [Power BI in Teams](#)
- [Power BI in PowerPoint](#)
- [Power BI and Power Automate](#)
- [Power BI semantic models with external users](#)

Wrap-Up



Presentation Wrap-Up

Our Power BI Workflow should include:

Documenting our data model

Determining our “use” scenarios

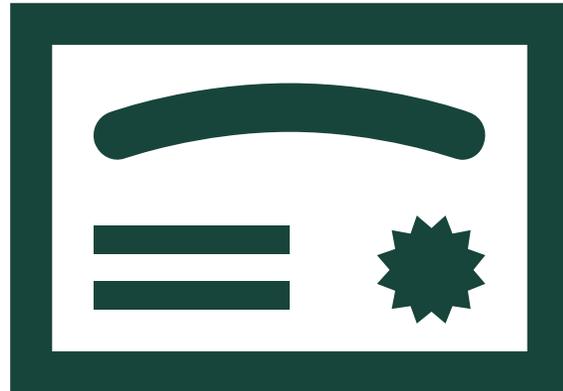
Optimizing our data model

Leverage PowerBI.com to automate refresh and share:

- Analysis
- Data Models
- Reports

Questions?





Thank You!!



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ONE FINAL NOTE

Cryptocurrency at 15: What CPAs Should Know Now



Set your browser to
HIGGINS.CNF.IO
For interactive polling
and Q & A

Presented By
John H. Higgins, CPA.CITP
Rochester, Michigan

Learning Goals



- Recognize the current state of the cryptocurrency marketplace
- Identify key developments in cryptocurrency technology

Set your browser to
HIGGINS.CNF.IO
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and Q & A

John H. Higgins, CPA.CITP

Strategic Technology Advisor



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Nationally recognized thought leader, advisor, author and speaker on CPA technology
- Strategic technology advisor to the profession w/ 35+ years of experience
- Founded and sold two CPA technology advisory startups
- Former National Mid-market Technology Partner - BDO
- CPA Practice advisor Top 25 Thought Leader for the CPA profession
- AICPA Business & Industry Hall of Fame Inductee
- Past Chair of the Michigan Association of CPAs
- Passionate advocate for the CPA profession!

Presentation Outline

- Cryptocurrency Market Update
- Cryptocurrency Technology Update
- Legislative and Regulatory Update
- Wrap-up

Things to Know About Cryptocurrency

Cryptocurrency market cap as of Oct 2025 - \$3.7 trillion

Bitcoin is the only 100% decentralized cryptocurrency

SEC considers Bitcoin a commodity, all other crypto is treated as a security

SEC authorized multiple Bitcoin ETFs (exchange traded funds) in 2024

Ethereum is primarily used for “smart contracts”

FASB ASU 2023-08 permits recording cryptocurrency at fair market value

GENIUS Act provides regulatory certainty for stablecoins in the U.S.

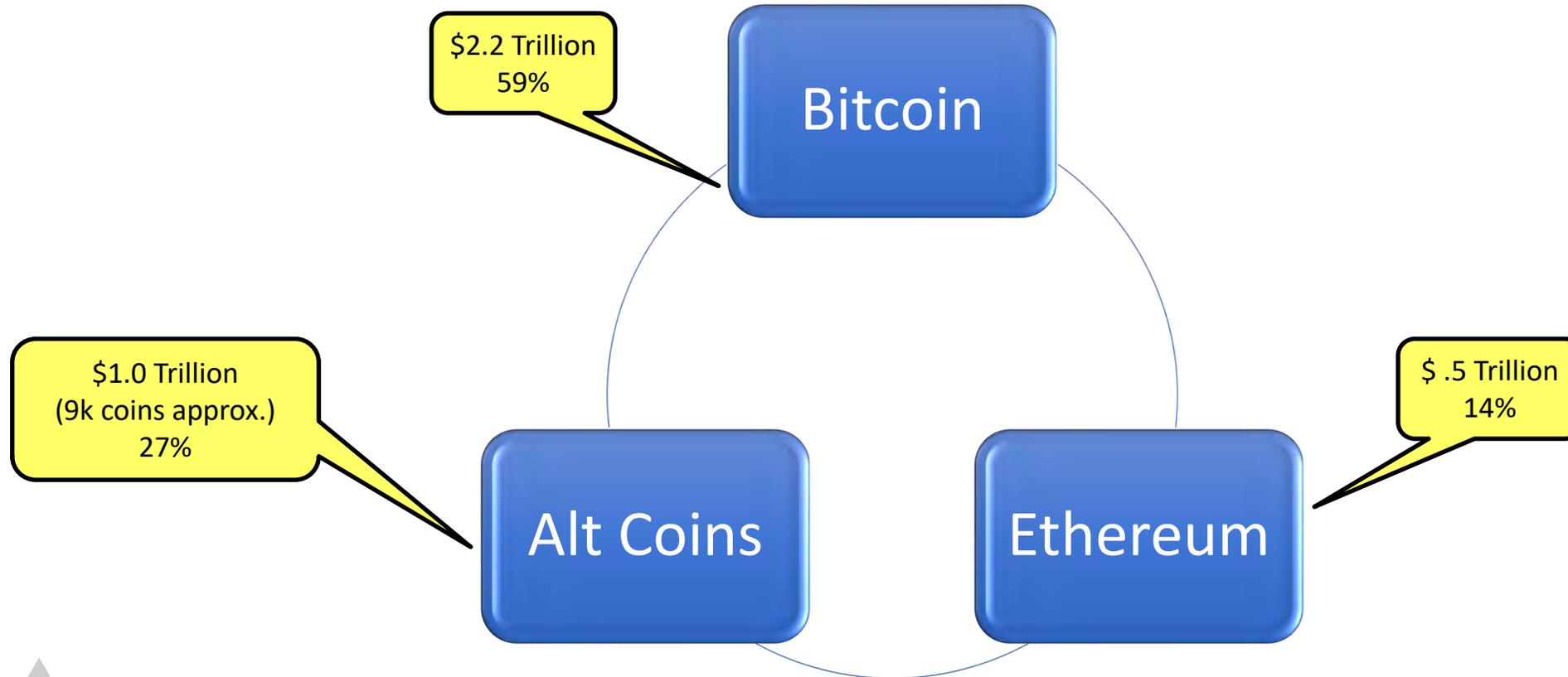
Digital Assets

- Any asset that exists in digital form
- **Cryptocurrencies:** Digital currencies that use cryptography for secure transactions and operate on decentralized networks (e.g., Bitcoin, Ethereum).
- **Stablecoins:** Cryptocurrencies designed to maintain a stable value by being pegged to a fiat currency or other assets (e.g., USDT, USDC).
- **Non-Fungible Tokens (NFTs):** Unique digital tokens that represent ownership of a specific item or piece of content, often used for digital art and collectibles.
- **Central Bank Digital Currencies (CBDCs):** Digital versions of a country's fiat currency issued and regulated by the central bank.
- **Security Tokens:** Digital assets that represent ownership in a real-world asset, such as stocks or real estate

CRYPTOCURRENCY MARKET UPDATE

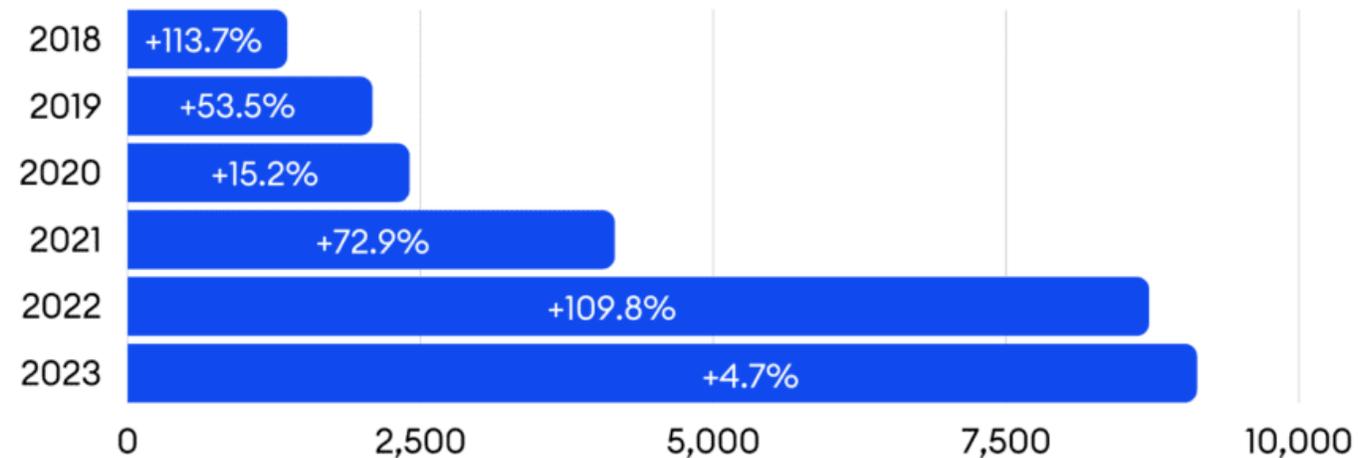


Bitcoin, Ethereum & Alt Coins – Market Cap



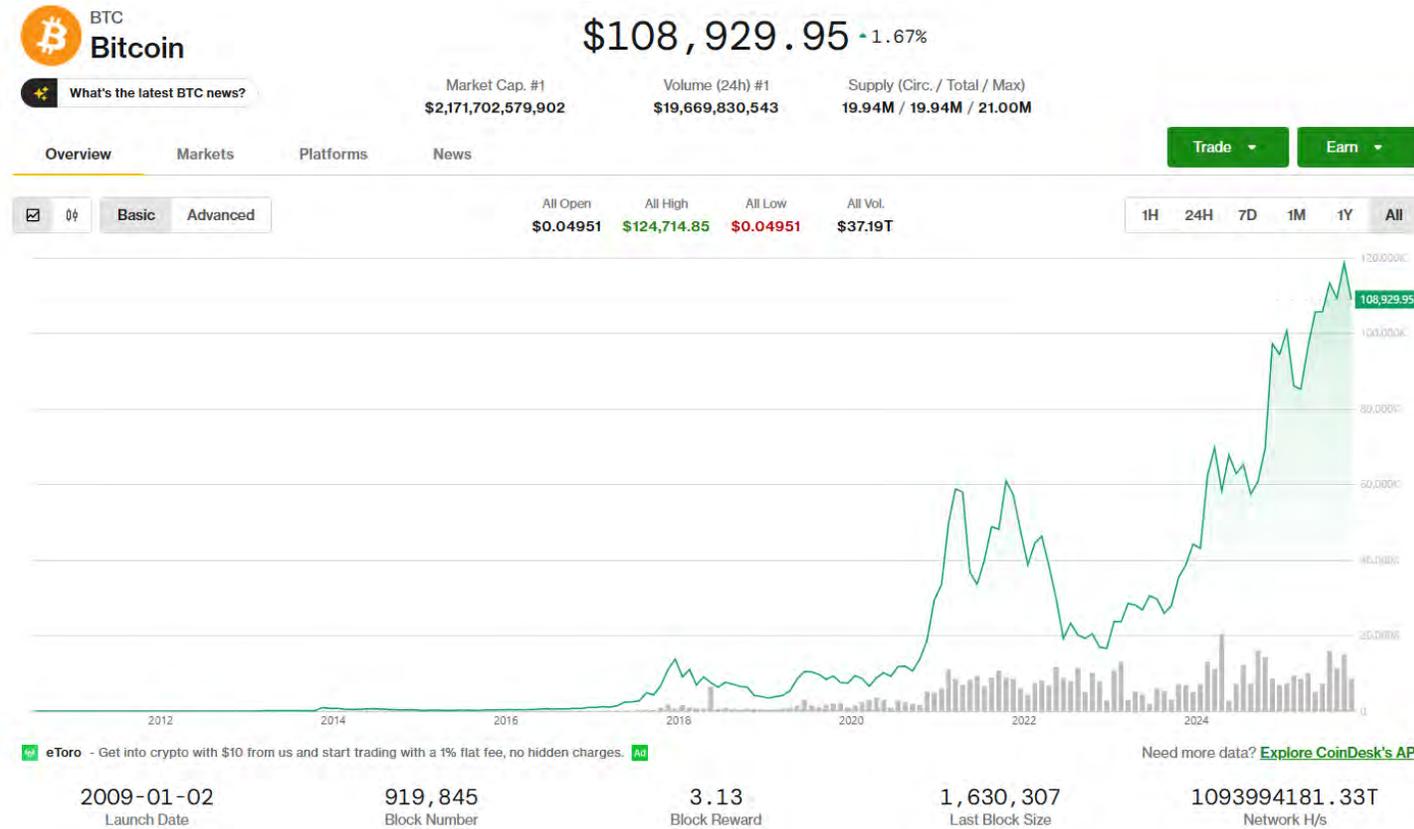
“Active” Cryptocurrencies Approach 10K

Number of Active Cryptocurrencies per Year



coinweb

Bitcoin Price Chart



Stablecoins – A Unique Form of Cryptocurrency

Maintain “stable” value via pegging to an asset

Common pegging references include \$USD, Gold, commodities

Facilitate international payments without intermediaries

Fiat-collateralized stablecoins pegged 1:1 to fiat currency held by financial institution

Tether (USDT) and USD Coin (USDC) are popular examples

Regulated by GENIUS Act in U.S. as of 7/18/25

GENIUS Act Highlights

- Digital asset pegged to a fixed monetary value and redeemable at par
- Backed 1:1 by high-quality liquid assets (USD, Gold, etc.)
- Permitted Payment Stablecoin Issuers (PPSIs)
- 1:1 reserve requirement
- Monthly examination by registered CPA firm

Bitcoin Miner Reward Halving History & Market Price

Date	Halving Amount	New Mining Reward	BTC Price	Block Reward Total
November 2012	25 BTC	25 BTC	\$12	\$300
July 2016	12.5 BTC	12.5 BTC	\$648	\$8,100
May 2020	6.25 BTC	6.25 BTC	\$8,572	\$53,575
April 2024	3.125 BTC	3.125 BTC	\$69,000	\$215,625

[ChartsBTC \(@ChartsBtc\) / X \(twitter.com\)](#)

The mining reward is what bitcoin miners receive for being the first to validate a block of transactions. It is their incentive for investing in the mining process.

BTC ETFs Mark a Milestone in Cryptocurrency

- ETF = Exchange Traded Fund
- Trade like an equity stock
- Can invest in commodities, i.e., Bitcoin
- Eleven BTC applications approved by SEC as of January 2024
- Approximately \$148 billion of ETF investments as of October 2025 (BlackRock \$86 billion)

Spot Bitcoin ETF Applications approved by SEC

- Grayscale
- 21Shares / Ark
- iShares / BlackRock
- Bitwise
- VanEck
- Wisdomtree
- Invesco / Galaxy
- Fidelity
- Valkyrie
- Global X
- Hashdex
- Franklin

Larry Fink, CEO BlackRock

Then

- [Larry Fink 2017](#)

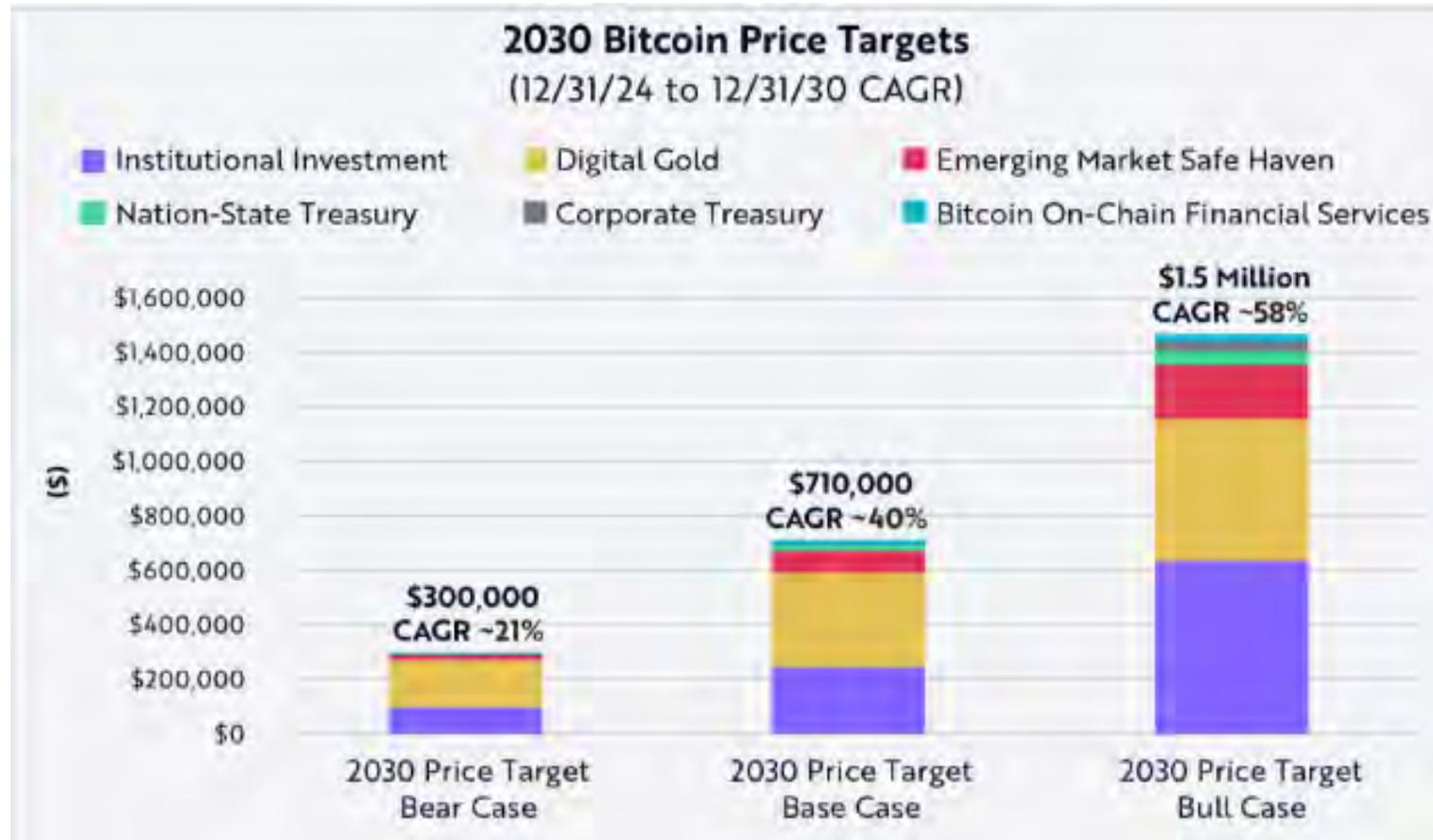
“Cryptocurrency identifies how much money laundering is being done. We are not hearing any demand from any of our clients to use this as an asset class”

Now

- [Larry Fink 2023](#)

“We are hearing from clients around the world about the need for crypto. The rally is about a flight to quality. I believe crypto will play that role.”

ARK Invest 2030 Bitcoin Price Targets



Ethereum Update

Established in 2013 By 19-year-old Vitalik Buterin

130 million active wallets / accounts as of Oct 2025

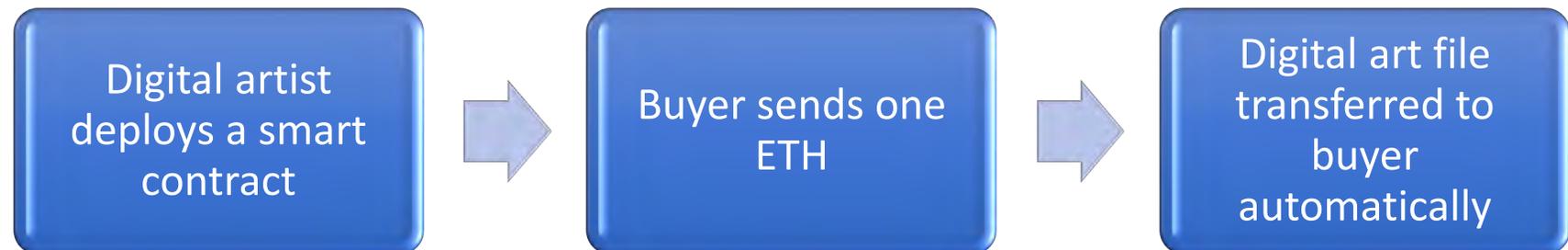
70 million smart contracts on Ethereum as of Oct 2025

Transitioned from proof-of-work to proof-of-stake 9/15/22

SEC approved 8 Ethereum ETFs in Q3 2024

Smart Contracts

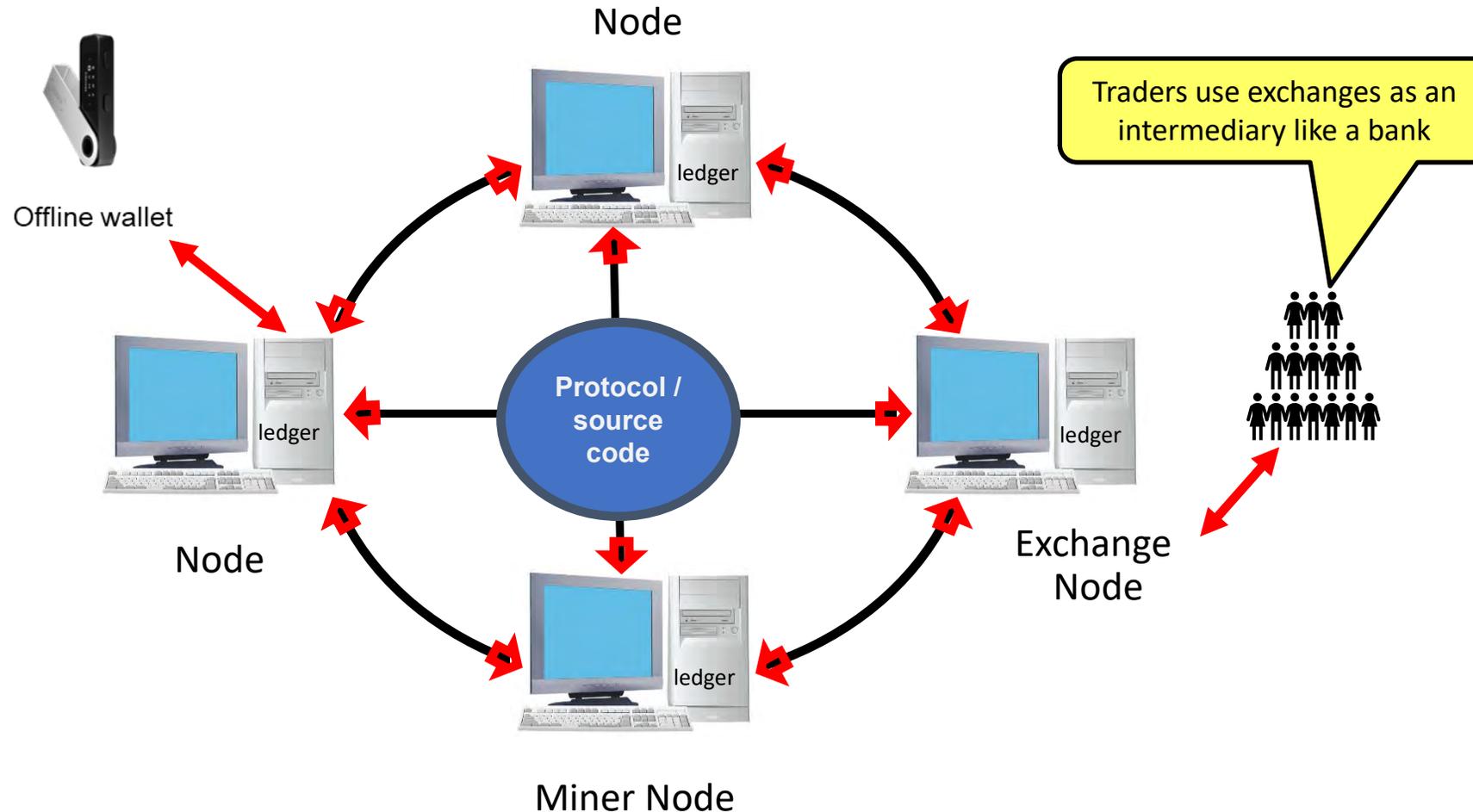
- Software coded contract that runs automatically on a blockchain when conditions are met
- Example:



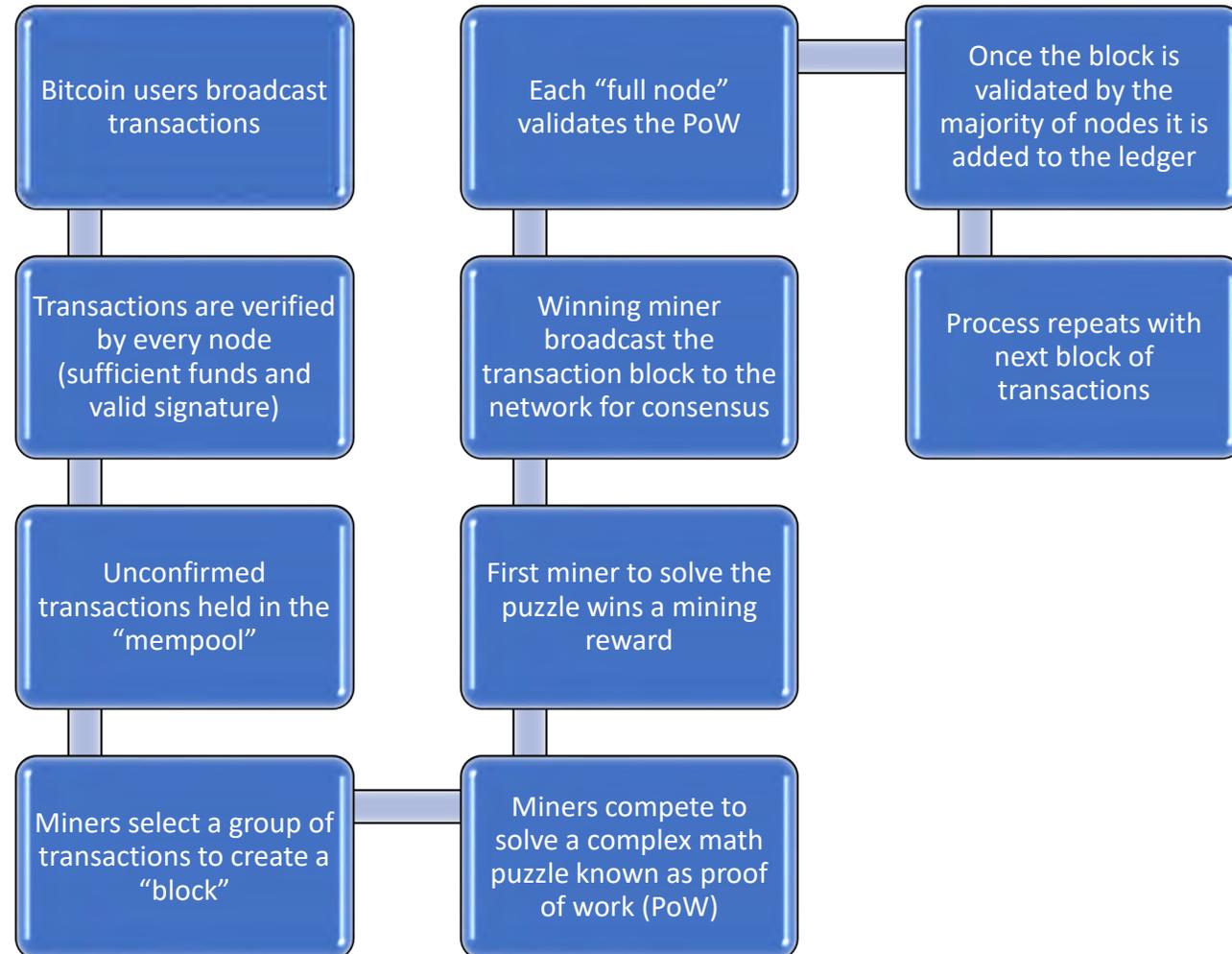
CRYPTOCURRENCY TECHNOLOGY UPDATE



Cryptocurrency Technology Review



Bitcoin Transaction Validation Process



Consensus Mechanism

- **Ensure Agreement** - All participants / nodes have a consistent and synchronized copy of the ledger
- **Ensure Integrity** – Prevent fraudulent changes through redundant copies of the ledger
- **Eliminate the Need for Trust** – Enables unknown parties to reach consensus without relying on a central authority

Consensus Mechanisms

- **Proof of Work** – Requires participants aka miners to validate transactions and create a new block of entries.
- **Proof of Stake** – “Validators” are chosen based upon an established form of “stake.”
- Ethereum proof of stake model is based on offering holders of Ethereum to “stake” some of their Ethereum holdings

New Trends in Cryptocurrency Technology

Proof-of-stake vs. Proof-of work

Lightning Network – facilitates “off chain” transactions

Wallet technology improving

Introduction of AI cryptocurrency tokens

Tax compliance software apps

CRYPTOCURRENCY TAX COMPLIANCE SOFTWARE



LEGISLATIVE AND REGULATORY UPDATE



Department of the Treasury
Internal Revenue Service



FEDERAL TAX IMPLICATIONS OF CRYPTOCURRENCY TRANSACTIONS

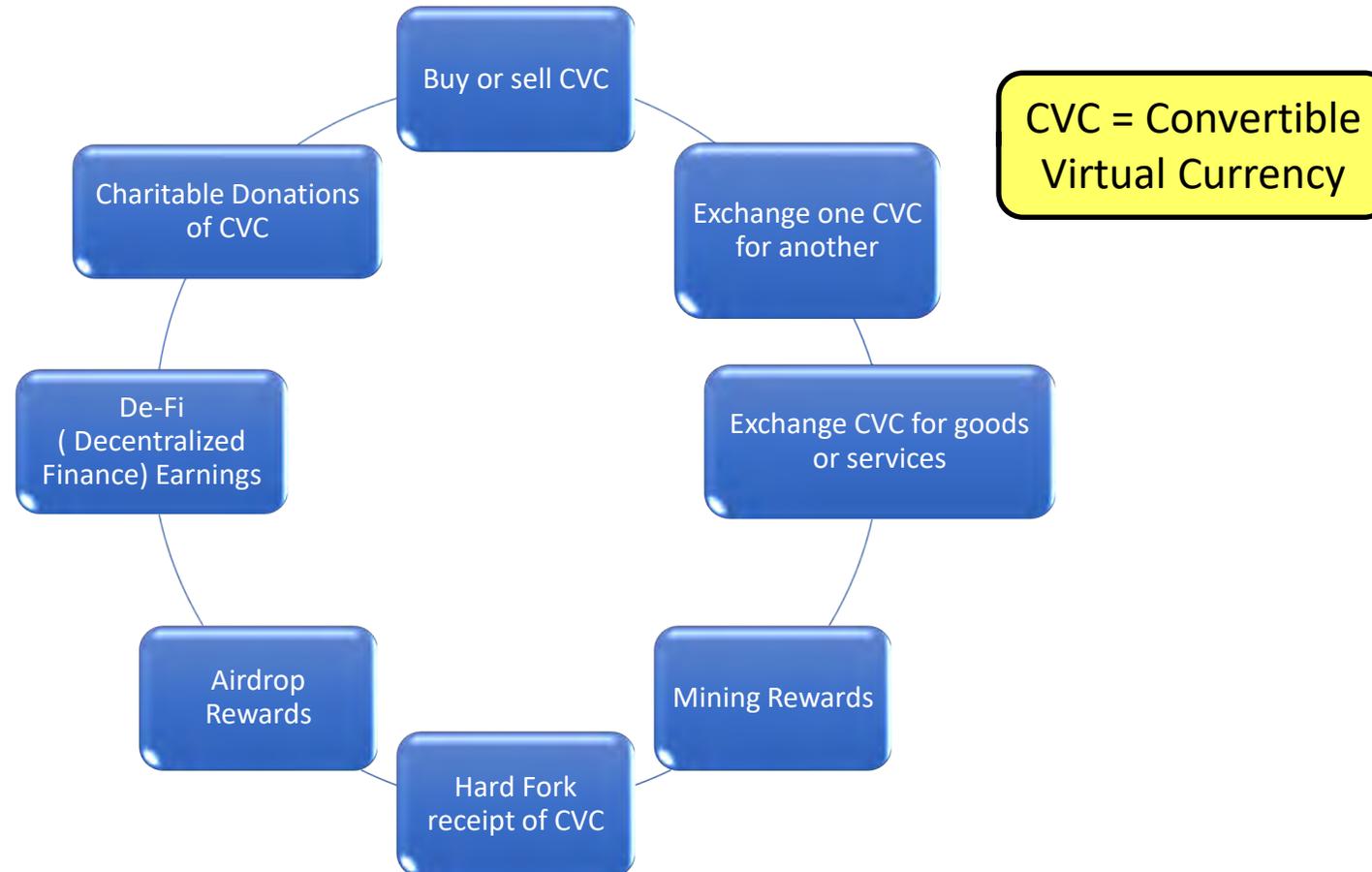


Department of the Treasury
Internal Revenue Service

IRS Notice 2014-21

- Issued 3/25/2014
- Provides “virtual currency” taxation guidance
- Defines “convertible” virtual currency (CVC)
- CVC is treated as property (business / investment / personal) for tax purposes
- CVC is not treated as currency
- CVC income reported at fair market value as of date received

Taxable Virtual Currency Events



Legislative Initiatives

- ✓ House Financial Services and Agricultural committees taking the lead
- ✓ Goal is to provide a framework to regulate cryptocurrencies
- ✓ Define which jurisdiction various digital assets fall under
- ✓ Security vs. Commodity
- ✓ Regulate trading platforms and exchanges
- ✓ Senate working on a regulatory framework for stablecoins
- ✓ DOJ clarifies cryptocurrency enforcement role

WRAP-UP



In Summary

- After a 15-year evolution, cryptocurrency has become a mainstream digital asset class
- Bitcoin is the only truly “decentralized” cryptocurrency
- Cryptocurrency valuation continues to be very volatile
- The next few years will likely define the long-term investment potential of cryptocurrency

Thank you!!!

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