



Microsoft Power Platform

Virtual Training Day: Fundamentals



© Copyright Microsoft Corporation. All rights reserved.

**FOR USE ONLY AS PART OF VIRTUAL TRAINING DAYS PROGRAM. THESE MATERIALS ARE NOT AUTHORIZED FOR
DISTRIBUTION, REPRODUCTION OR OTHER USE BY NON-MICROSOFT PARTIES.**



Module 1: Introduction to Microsoft Power Platform

Introduction

In this module, we will explore, understand and learn about:

- What is Microsoft Power Platform
 - Learn the components and features of Power Platform
 - Power Apps
 - Power BI
 - Power Automate
 - Common Data Service
- Data Connectors
- Pulling it all together
 - Identify when to use each Power Platform component application to create business solutions
 - Learn the value of using the Power Platform to create business solutions



Lesson 1: What is Microsoft Power Platform

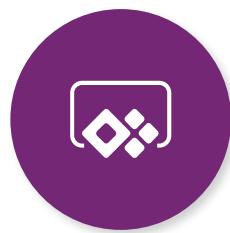
Microsoft Power Platform

The low-code platform that spans Office 365, Azure, Dynamics 365, and standalone applications

Innovation anywhere. Unlocks value everywhere.



Power BI
Business analytics



Power Apps
Application development



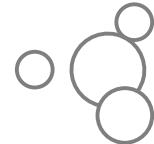
Power Automate
Process automation



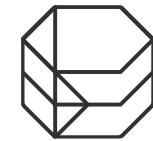
Power Virtual Agents
Intelligent virtual agents



**Data
connectors**



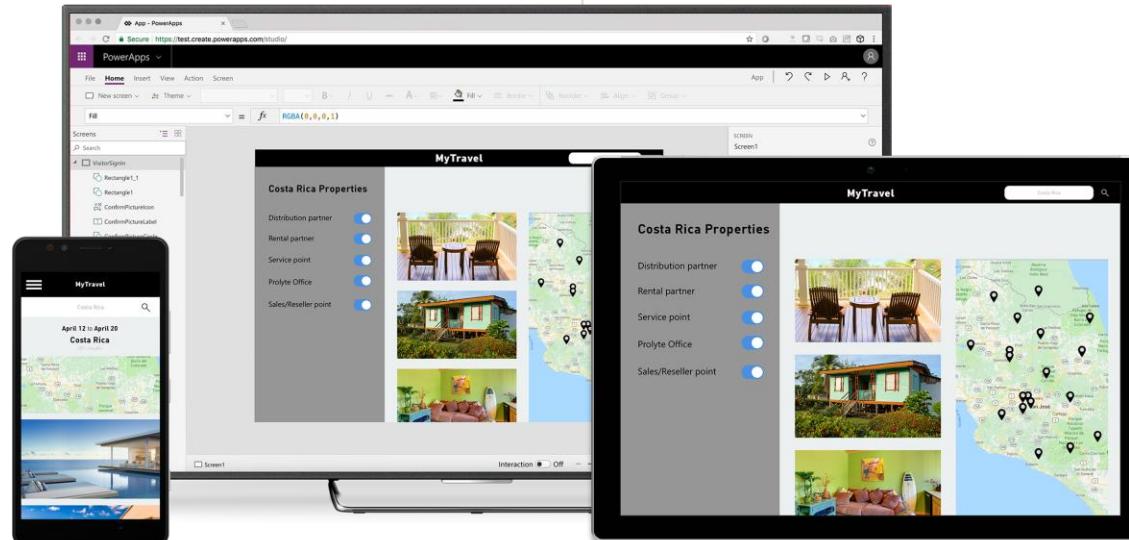
AI Builder



**Common
Data Service**

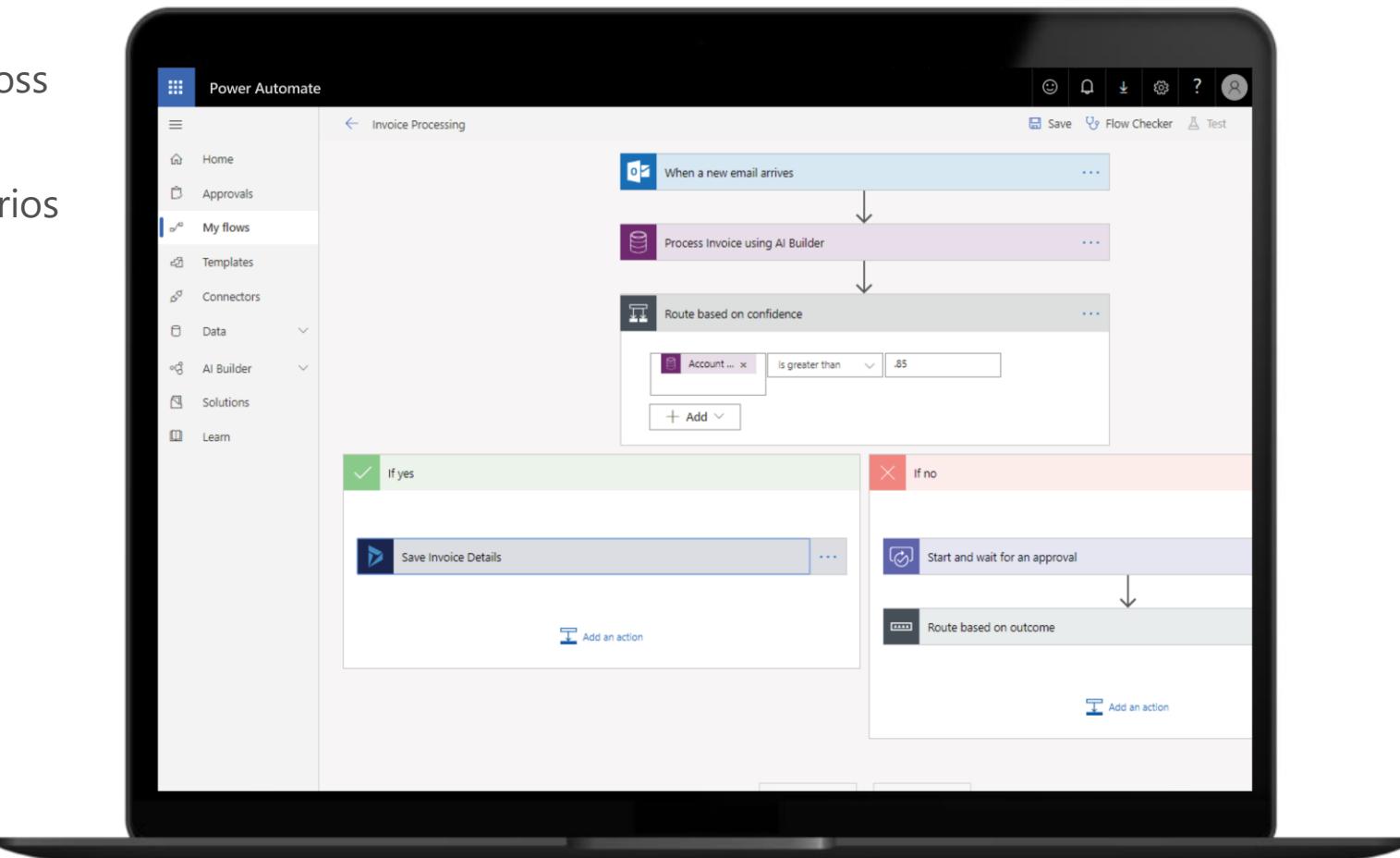
Build and consume solutions for web and mobile with Power Apps

- Build highly customized task- and role-based canvas apps with data from one or multiple sources
- Generate immersive model-driven apps, starting from your data model and business processes
- Consume fully accessible apps across web and mobile, embedded or standalone, on any device



Automate and integrate business processes with Power Automate

- Automate and model business processes across your apps and services
- From simple automations to advanced scenarios with branches, loops, and more
- Trigger actions, grant approvals, and get notifications right where you work
- Automate legacy, on-prem and cloud-based applications and services



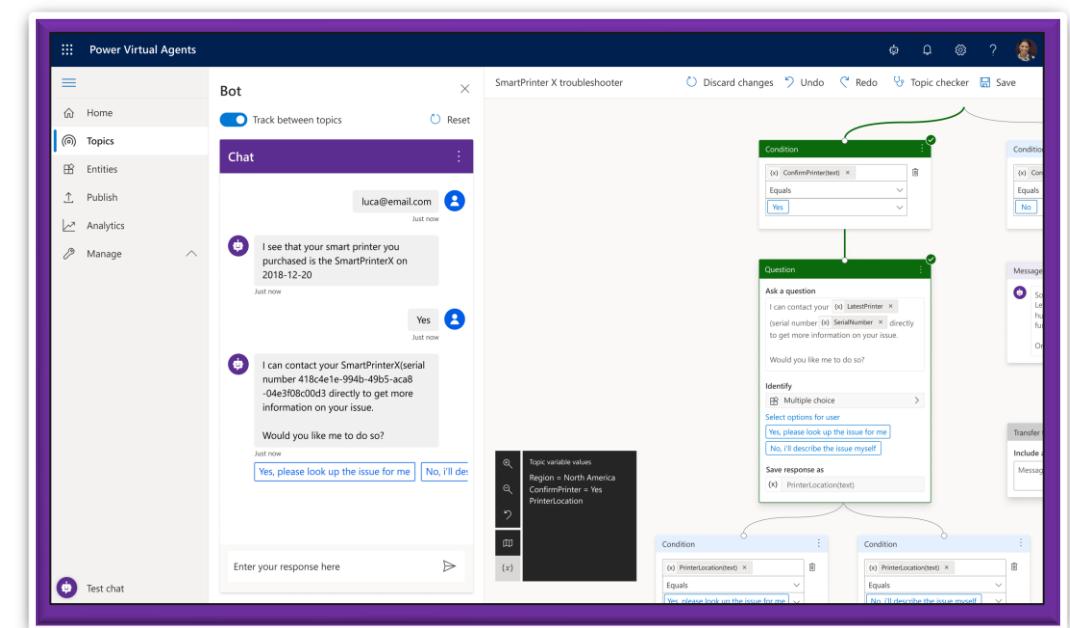
Gain insights from your data regardless of where it lives with Power BI

- Connect to all your data and get a consolidated view across your business through a single pane of glass
- Create ad-hoc analysis, live dashboards and interactive reports that are easy to consume on the web and across mobile devices
- Build smart apps by infusing insights from your data and drive action with the power of the Power Platform



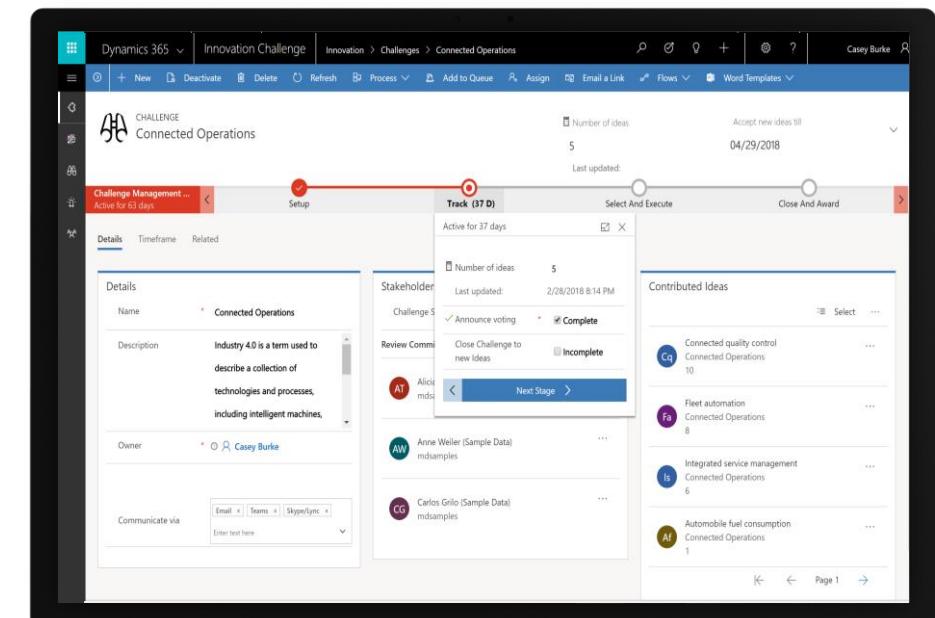
Build powerful virtual agents with Power Virtual Agents

- Enable subject matter experts to easily create powerful virtual agents using a guided, no-code graphical interface—all without the need for data scientists or developers.
- Enable the virtual agent to take action on the customer's behalf. Easily integrate your virtual agent with hundreds of services and systems out of the box or create custom workflows.
- Keep an eye on how your virtual agent is performing by using conversational metrics and dashboards. Get in-depth AI-driven insights to improve bot performance.



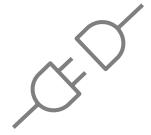
Put all your data to work with Common Data Service

- Jumpstart apps using a standardized data model with business logic, security and integration built-in
- Extend to your own needs and integrate across your apps and services
- Seamless Dynamics 365, Office 365, and Azure integration, augmented with data from industry partners





Lesson 2: Data Connectors



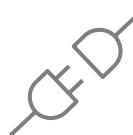
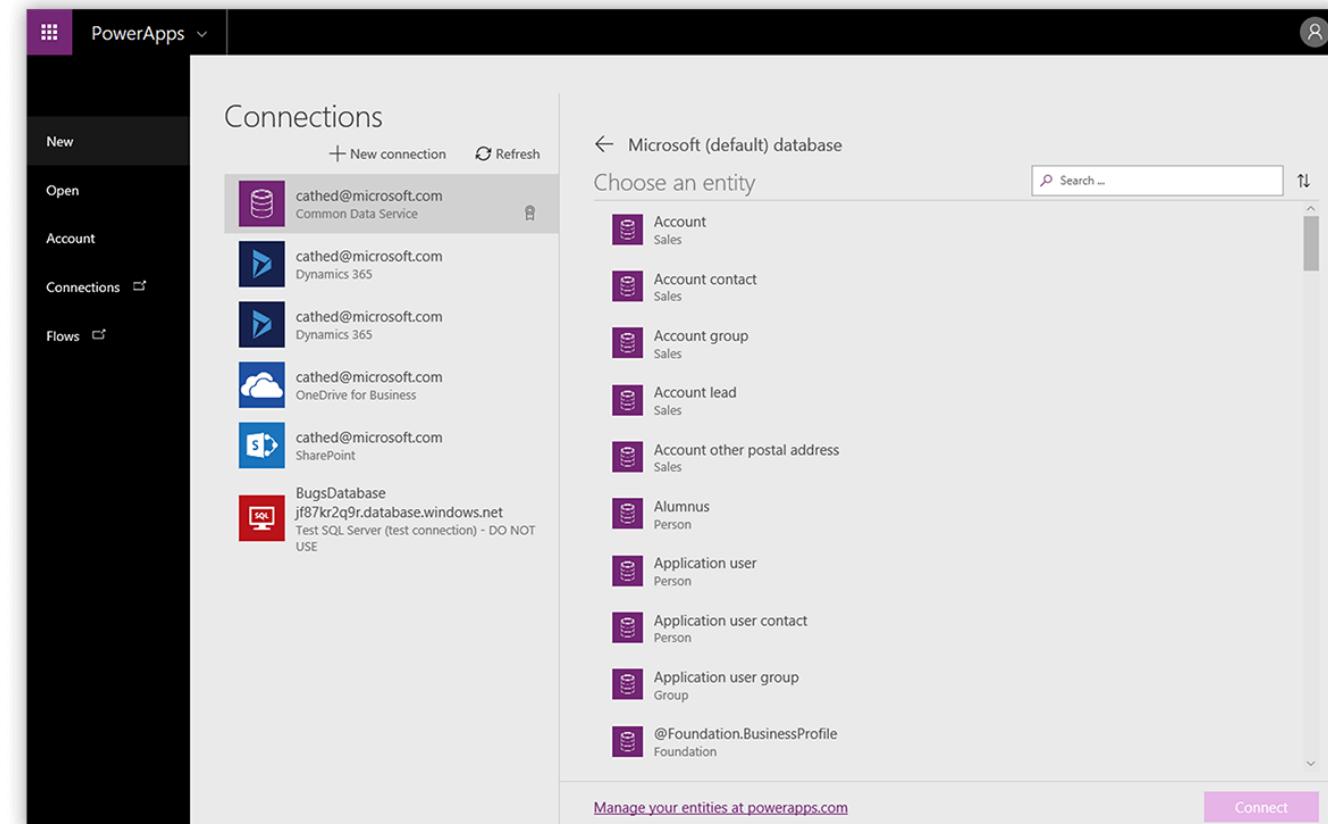
Data Connectors

- Connectors are available for use in multiple products:
 - Power Automate 
 - Power Apps 
 - Logic Apps 
- Custom connectors
 - An advantage of building custom connectors is that they can be used in different platforms, such as PowerApps, Power Automate, and Azure Logic Apps.
 - It allows you to extend your app by calling a publicly available API, or a custom API you're hosting in a cloud provider, such as Azure.
 - You can create custom connectors using 3 different approaches:
 - Using a blank custom connector
 - From an OpenAPI definition
 - From a Postman collection

Data Sources for Connectors

The two types of data sources are tabular and function-based:

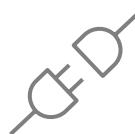
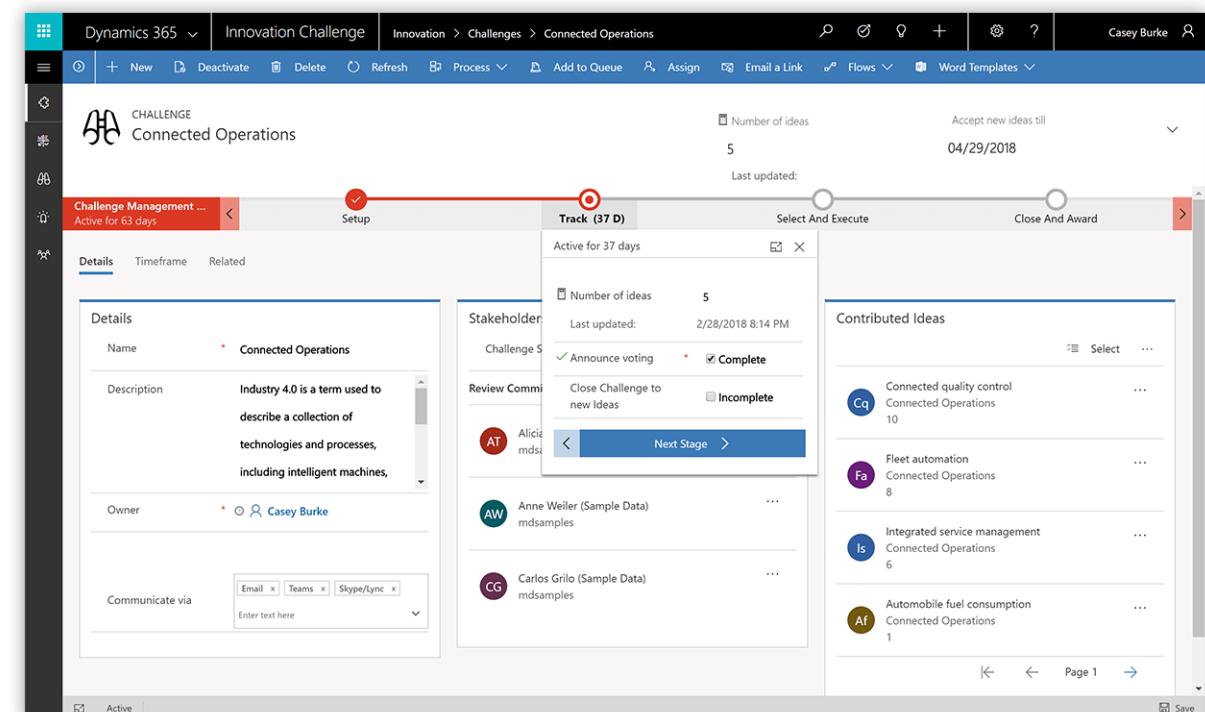
- **Tabular data:** A tabular data source is one that returns data in a structured table format. Power Apps can directly read and display these tables through galleries, forms, and other controls. Additionally, if the data source supports it, Power Apps can create, edit, and delete data from these data sources. Examples include Common Data Service, SharePoint, and SQL Server.
- **Function-based data:** A function-based data source is one that uses functions to interact with the data source. These functions can be used to return a table of data, but offer more extensive action such as the ability to send an email, update permissions, or create a calendar event. Examples include Office 365 Users, Project Online, and Azure Blob Storage.



Components of a Connector

Once you have established a data source and configured your connector, there are two types of operations you can use, triggers or actions.

- Triggers are only used in Power Automate and prompt a flow to begin. Triggers can be time based, such as a flow which begins every day at 8:00 am, or they could be based off of an action like creating a new record in a table or receiving an email. You will always need a trigger to tell your workflow when to run.
- Actions are used in Power Automate and Power Apps. Actions are prompted by the user or a trigger and allow interaction with your data source by some function. For example, an action would be sending an email in your workflow or app or writing a new line to a data source.

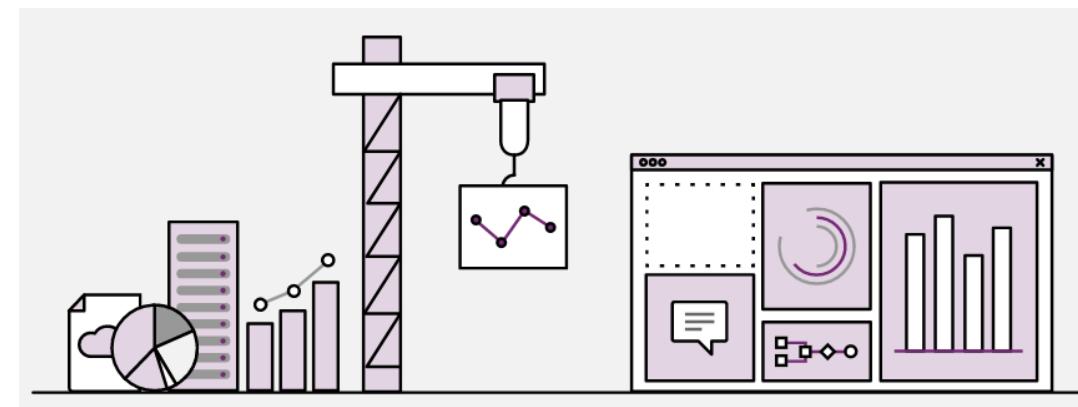




Lesson 3: Pulling it all together

Powerful alone. Better together.

- Build faster with Common Data Service: Make it easier to bring your data together and quickly create powerful apps using Common Data Service, a compliant and scalable data service and app platform that's integrated into Power Apps.
- Get a single source of truth across your organization: As Common Data Service standardizes your data through the common data model, it's easier to build and run apps using the same data. And because Dynamics 365 applications are natively built on it, you can also build apps without needing additional data integration. All with the enterprise-grade security and manageability of Power Apps.
- Automate your apps with a business process engine: Guide people through business processes, start workflows automatically, and provide rules for your data validation using business process flows. Make your apps smarter with visually defined server-side logic that can set default values or provide validation logic.
- Built on the foundation of the common data model: By defining a set of over 200 standard business entities, the common data model makes it easier for both you and third-parties to build apps. Tailor the model to your specific business needs by extending with custom entities and fields.



Summary

Microsoft Power Platform offers a point-and-click approach which makes it easy for anyone familiar with Microsoft Office to create custom business solutions, data visualizations, and automated workflows.

It enables users to do three key actions on data that help them drive business:

- Gain insights from data (Analyze)
- Drive intelligent business processes via apps they build (Act)
- Automate business processes (Automate).

Power BI helps you analyze and visualize data on a unified platform with data from internal and external sources.

Power Apps helps you build and deploy customized apps that work across web and mobile, embedded or standalone, on any device.

Connectors are bridges that allow you to send information from your data source to your app or workflow and back.

Power Automate helps you create automation workflows, from simple to advanced scenarios.

© Copyright Microsoft Corporation. All rights reserved.

**FOR USE ONLY AS PART OF VIRTUAL TRAINING DAYS PROGRAM. THESE MATERIALS ARE NOT AUTHORIZED FOR
DISTRIBUTION, REPRODUCTION OR OTHER USE BY NON-MICROSOFT PARTIES.**



Module 2: Introduction to Microsoft Power Apps and Common Data Services

Introduction

In this module, we will explore, understand and learn about:

- What is Power Apps and the business value it creates
 - Learn what is Power Apps and the business value it creates
 - Learn how one of the world's largest airports is digitizing its processes using Power Apps
- Discover the Common Data Service
 - Explain what environments, entities, fields, and relationships are in common data service
 - Describe the difference between Common Data Service and Common Data Model
 - Explain use cases and limitations of business rules and process flows



Lesson 1: What is Power Apps and the business value it creates

A powerful tool for productivity

Streamline business processes with integrated apps and workflows in your hub for teamwork and productivity



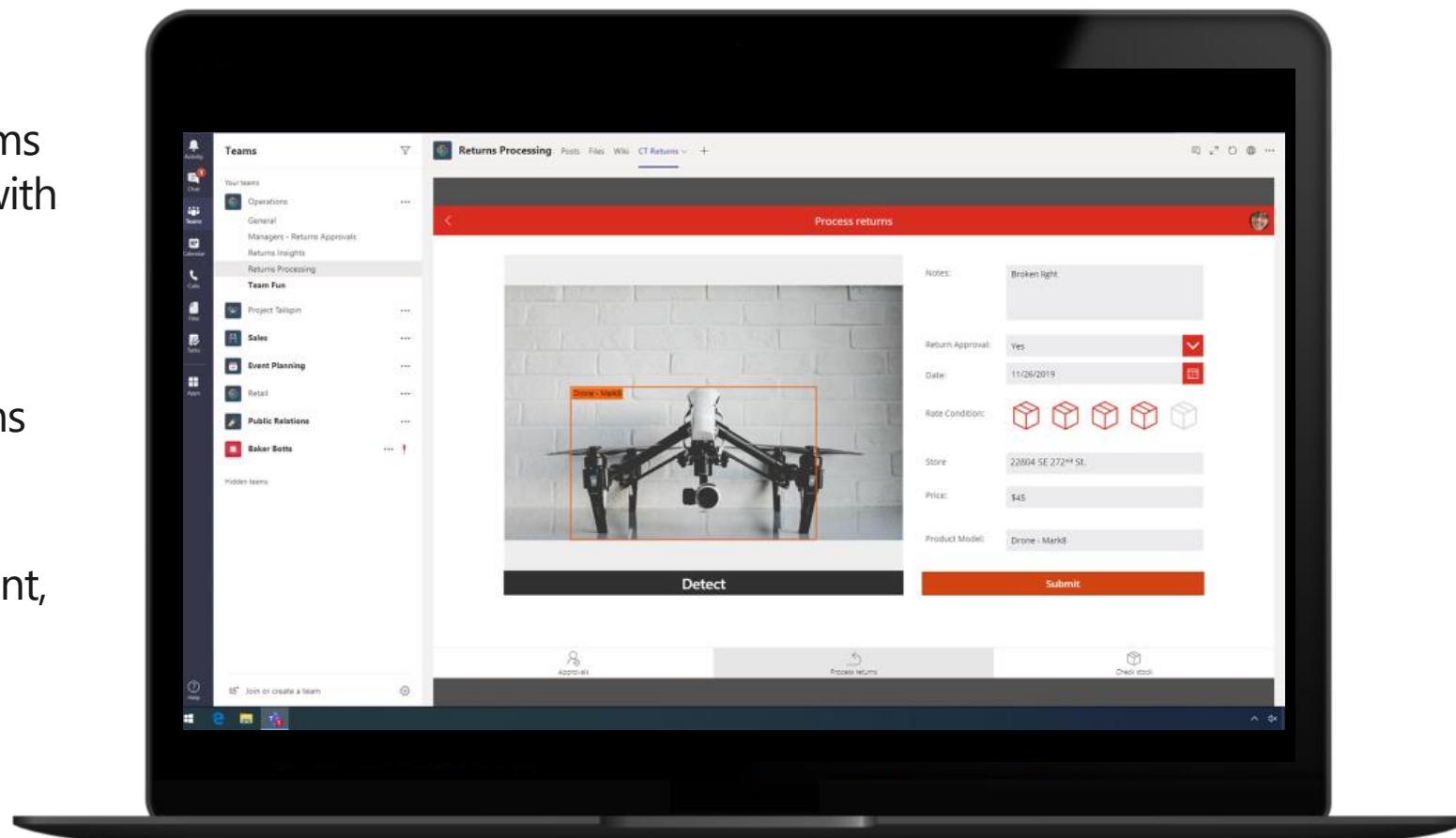
Develop low-code apps and forms that enhance your productivity with Power Apps for Office 365



Integrate and share apps and workflows within Microsoft Teams



Collect, manage, and distribute content and data using SharePoint, Microsoft Forms, and Excel



Low-code backend with Common Data Service



- Jumpstart apps using an extensible data model with business logic, security and integration built in.



- Enable AI through built-in cognitive services powered by AI Builder and Azure.



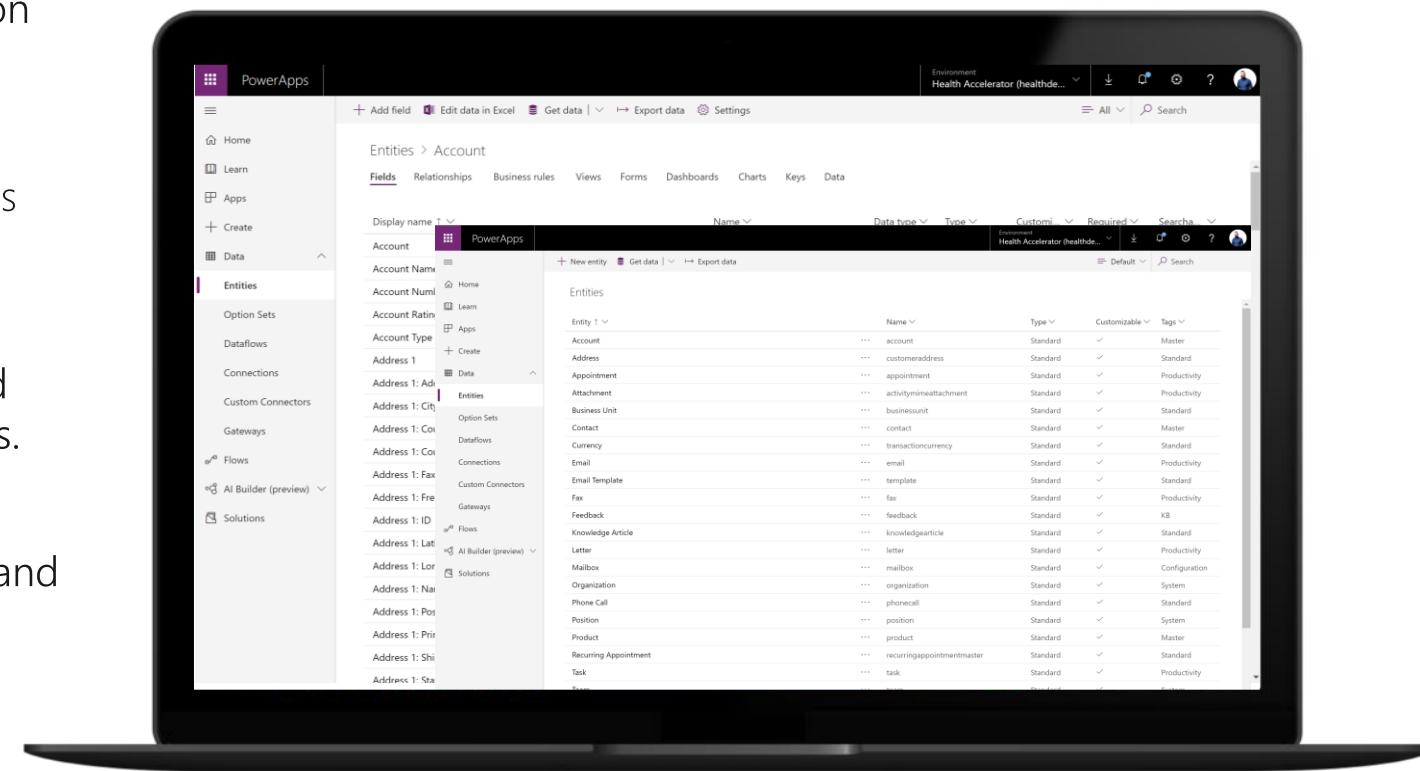
- Extend data and processes to external and anonymous users with Power Apps portals.



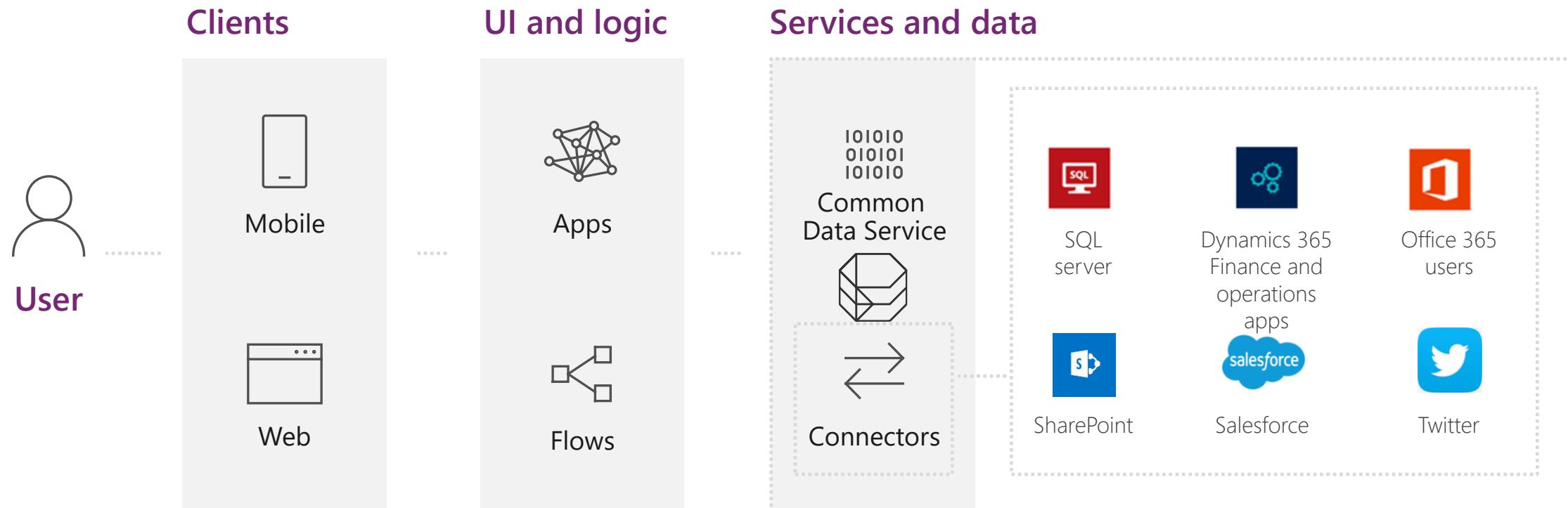
- Support all your data: relational data, file and blob storage, logs and search indexing.



- Effortless Dynamics 365, Office 365 and Azure integration as well as powerful integration capabilities.



Work with your data where it lives



Different types of Power Apps for different scenarios

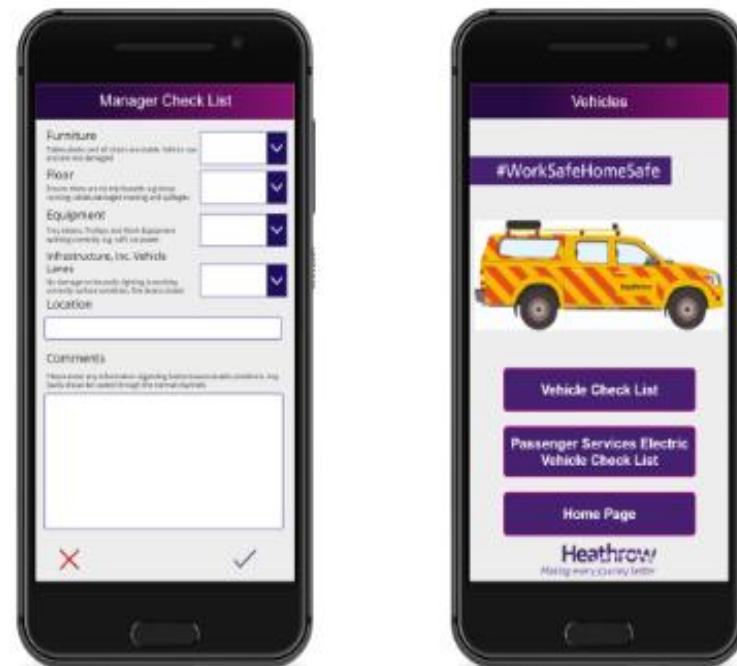
Power Apps can create three types of apps: canvas, model-driven, and portals. Each suited to different scenarios and end users.

- Canvas apps
- Model-driven apps
- Portals



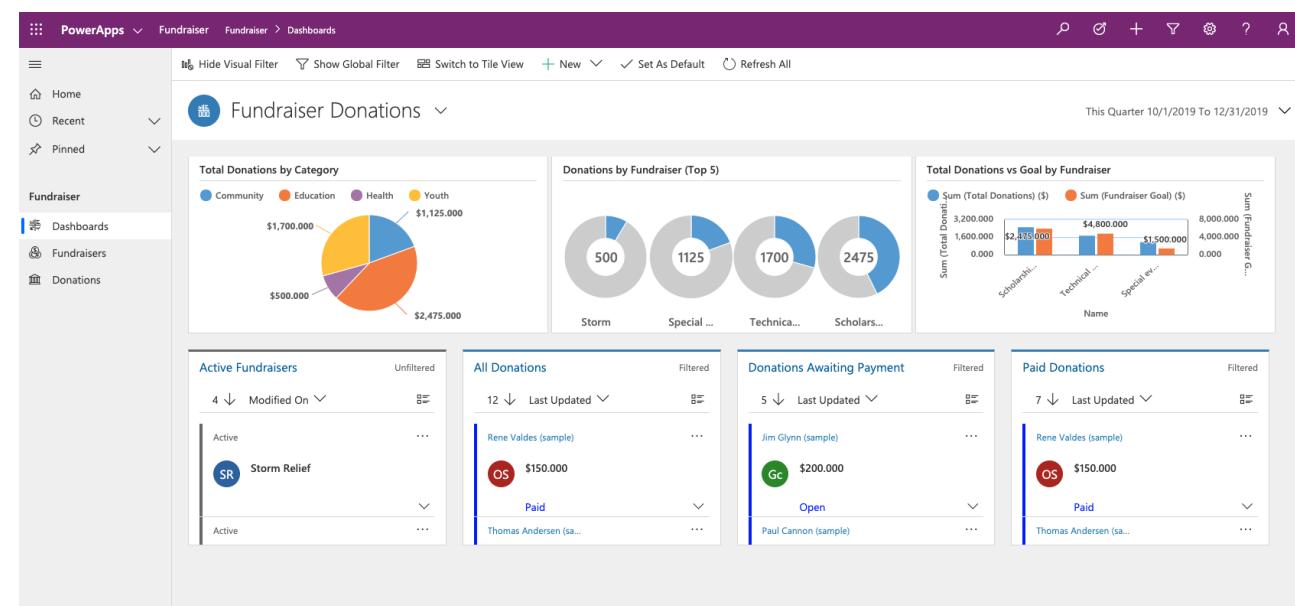
Canvas apps

- Canvas apps are a great option when you want to build an app from a blank canvas. You start by choosing the screen size: tablet or mobile, then you have a blank screen from which to build.
- You can interact with data in your app by adding data sources. Drag and drop various controls and add the desired functionality by writing Excel style formulas. Canvas apps provide you complete flexibility when building your apps.



Model-driven apps

- Model-driven apps build from data in the Common Data Service. Power Apps will build you a great looking, fully functional app to act upon and interact with this data. With model-driven apps, there is no need to worry about choosing the app size; it is responsive, meaning it works on mobile or tablet with no extra work by you.
- You define the relationships, forms, views, business rules, and more at the data layer, inside of the Common Data Service, giving you enough control to get your business result without writing all of the formulas yourself.



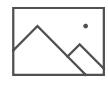
Low-code solution for responsive websites with portals



- Create multilingual, responsive websites to engage with internal and external customers, partners and employees.



- Use anonymous access or any of the commercial or enterprise login providers like Microsoft Account, LinkedIn, Azure AD B2C and more.



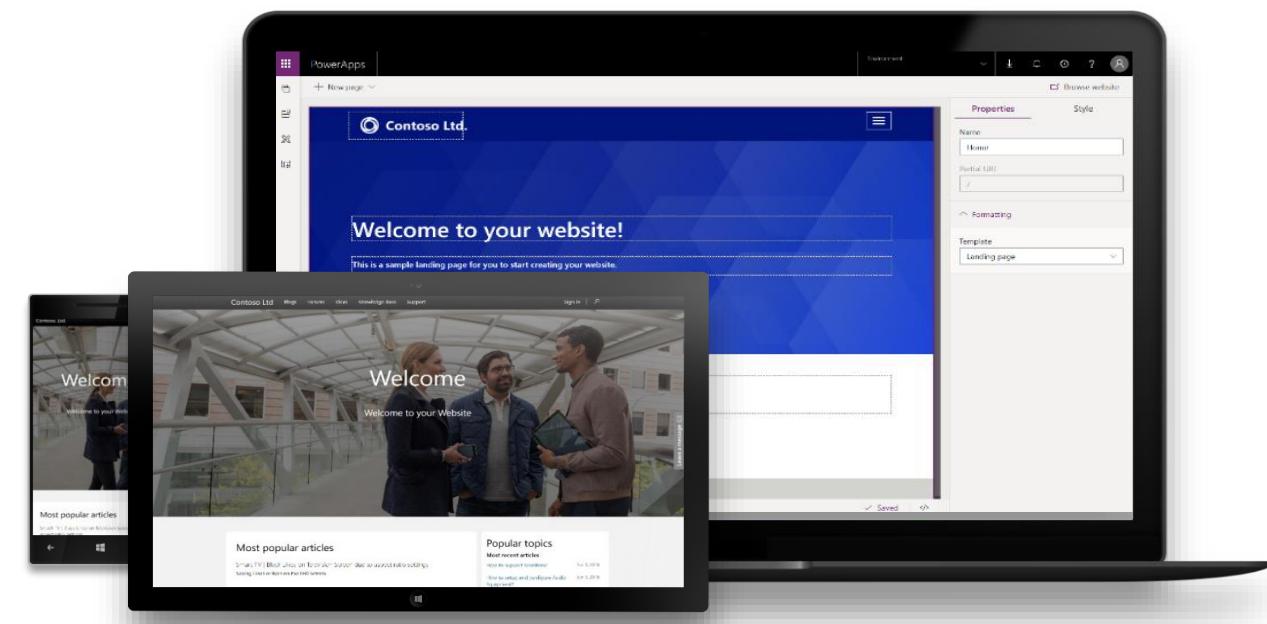
- Use WYSIWYG designer to create website content and enrich with CDS/Dynamics data using familiar constructs like forms, views, charts, dashboards.



- Pro-dev extensibility and templating capabilities to design complex business processes.



- Dynamics 365 provides integrated starter templates like customer self service, partner management, event management and community self service.



Add artificial intelligence to your app with no code

- Power Apps has "democratized" artificial intelligence by providing a wizard-based interface for building and training your model. This unlocks the power of Azure Machine Learning and Cognitive services without writing a single line of code or creating complex machine learning models.
- Currently, there are four available AI models in Power Apps:
 - **Prediction** - This model predicts whether something will happen or not based on previous data history. More details in the following section.
 - **Form processor** - This model extracts text from an image like the business card reader.
 - **Object detector** - This model identifies objects from an uploaded image or taken photo and then provides a count of the number objects present.
 - **Text classification** - This model categorizes text by its meaning, making it easier to analyze.



Security and Administration

- To manage security for Power Apps you can access <https://admin.powerplatform.microsoft.com/>
- Here you will find options for creating and managing environments, monitoring licenses, working with Data Loss Prevention policies and managing Common Data Service Data Integration projects.
- This allows you to manage the Power Apps throughout your tenant from one single place.

The screenshot shows the Microsoft Power Platform admin center interface. The left sidebar has a dark theme with white text and icons. It includes sections for Environments, Analytics, Capacity, Common Data Service, Power Automate, Power Apps, Resources, Dynamics 365 apps (which is currently selected and highlighted in purple), Help + support, Data integration, Data gateways (preview), Data policies (preview), Admin centers (with Dynamics 365, Power Apps, Power Automate, and Power BI sub-sections), and Environment variables. The main content area is titled "Dynamics 365 apps" and contains a table with columns for Name, Status, and Publisher. The table lists various Dynamics 365 applications, all of which are currently enabled. The publisher for most items is Microsoft Dynamics 365, except for a few which are Microsoft Dynamics CRM Package or Microsoft.

Name	Status	Publisher
AI Builder	Enabled	Microsoft Dynamics 365
Company News Timeline	Enabled	Microsoft CRM Package
Customer Insights Customer Card Add-in (Preview)	Enabled	Microsoft Dynamics 365
CVAA Solution	Enabled	Microsoft Dynamics 365
Dual-write application orchestration solution	Enabled	Microsoft Dynamics 365
Dual-write core solution	Enabled	Microsoft Dynamics 365
Dynamics 365 ContextualHelp	Enabled	Microsoft Dynamics 365
Dynamics 365 Customer Service Application	Enabled	Microsoft Dynamics 365
Dynamics 365 for Field Service	Enabled	Microsoft Dynamics 365
Dynamics 365 for Project Service Automation	Enabled	Microsoft Dynamics 365
Dynamics 365 for Sales, Enterprise Edition App	Enabled	Microsoft Dynamics 365
Dynamics 365 Healthcare Accelerator Sample Data	Enabled	Microsoft
Environment variables	Enabled	Microsoft Dynamics 365
Finance and Operations Services Integration	Enabled	Microsoft Dynamics 365
FreeTrialBaseSolution	Enabled	Microsoft CRM Package

Customer case study - Heathrow Airport



"I don't just want to make a living. I want to make a difference."

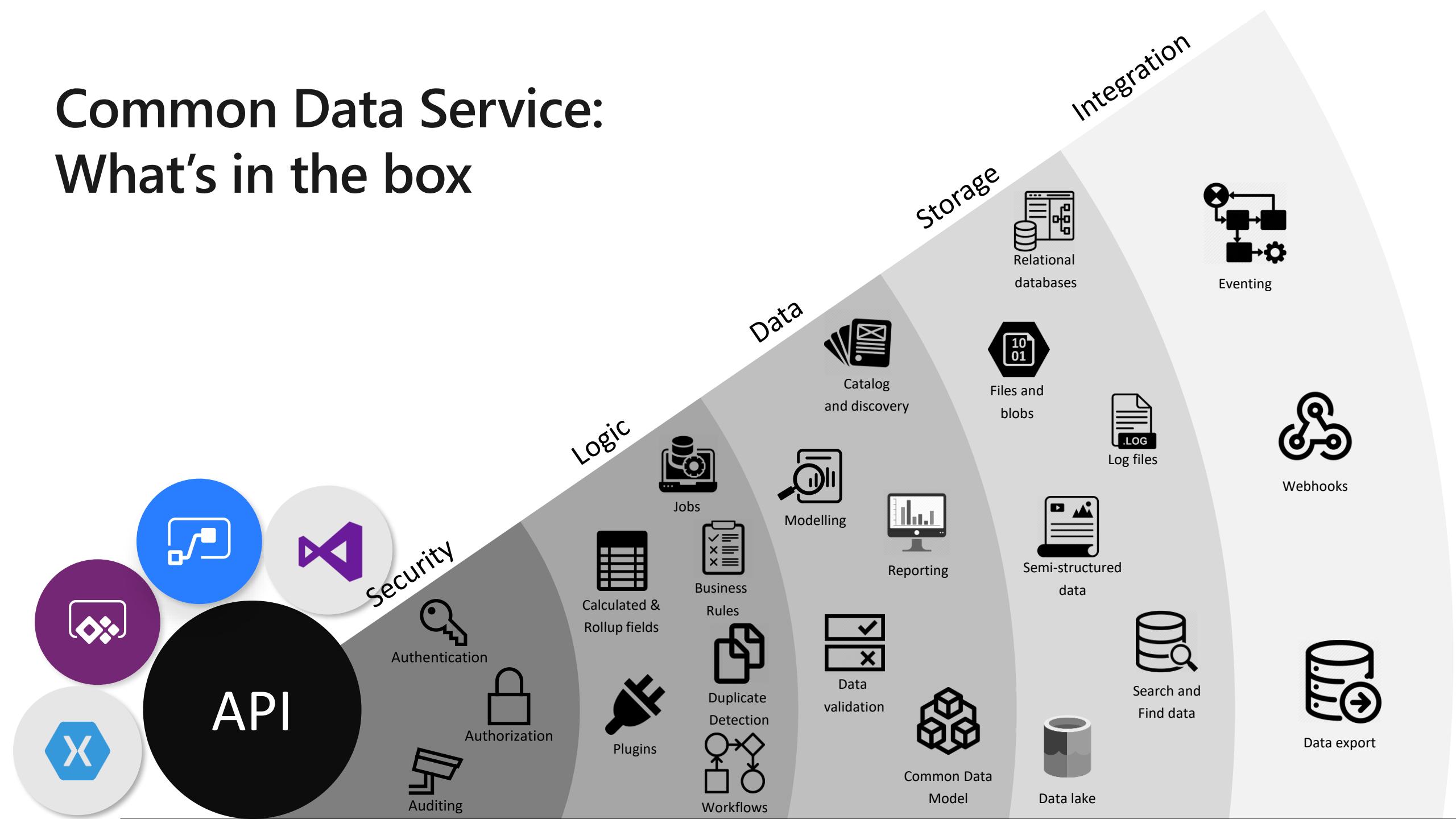
Samit Saini,
IT User Adoption Specialist, Heathrow





Lesson 2: Discover the Common Data Service

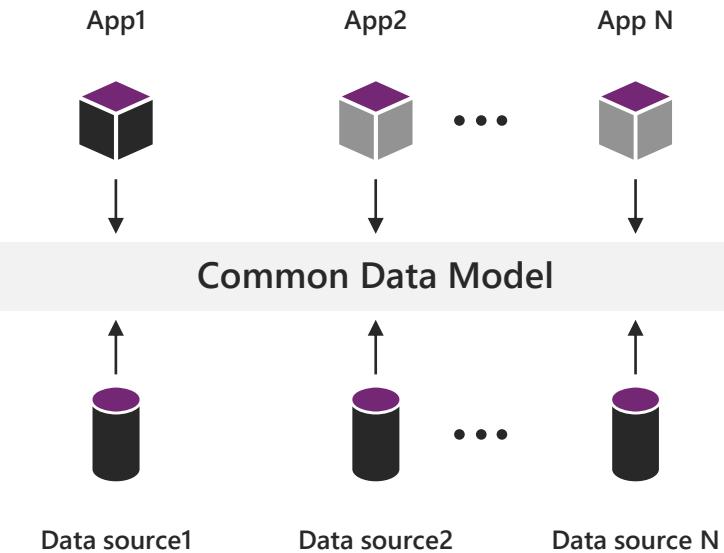
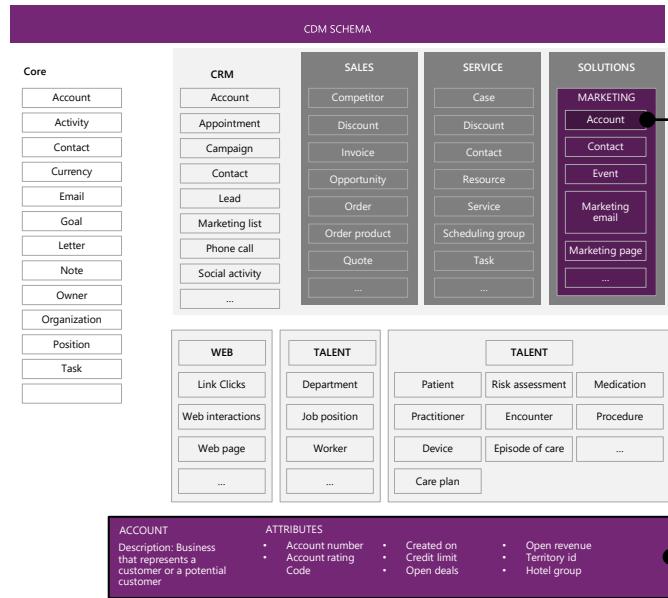
Common Data Service: What's in the box



Overview of Common Data Service

- Common Data Service offers a great deal of functionality such as:
 - **Security:** Common Data Service handles authentication with Azure Active Directory (AAD) to allow for conditional access and multi-factor authentication. It supports authorization down to the row and field level and provides rich auditing capabilities.
 - **Logic:** Common Data Service allows you to easily apply business logic at the data level. Regardless of how a user is interacting with the data, the same rules apply. These rules could be related to duplicate detection, business rules, workflows, or more.
 - **Data:** Common Data Service offers you the control to shape your data, allowing you to discover, model, validate, and report on your data. This control ensures your data looks the way you want regardless of how it is used.
 - **Storage:** Common Data Service stores your physical data in the Azure cloud. This cloud-based storage removes the burden of worrying about where your data lives or how it scales. These concerns are all handled for you.
 - **Integration:** Common Data Service connects in different ways to support your business needs. APIs, webhooks, eventing, and data exports give you flexibility to get data in and out.

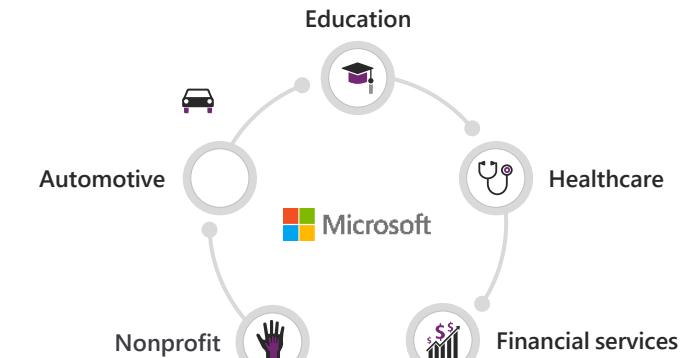
Common Data Service implements the Common Data Model



Open source and shared data model that provides semantic consistency for data.



Allows makers to more quickly develop applications and integrators to more easily interoperate across multiple systems.



A growing set of solutions and partners that contribute to the effort by implementing CDM or extending with industry-specific domains.

Data integration capabilities built-in to the Common Data Service



Integrate directly with CDS using the Excel Power Query features relied on by millions of users each month.



Built-in management features like Common Data Model entity mapping UX, environments and scheduled refresh.



300+ transformations to clean and reshape data.



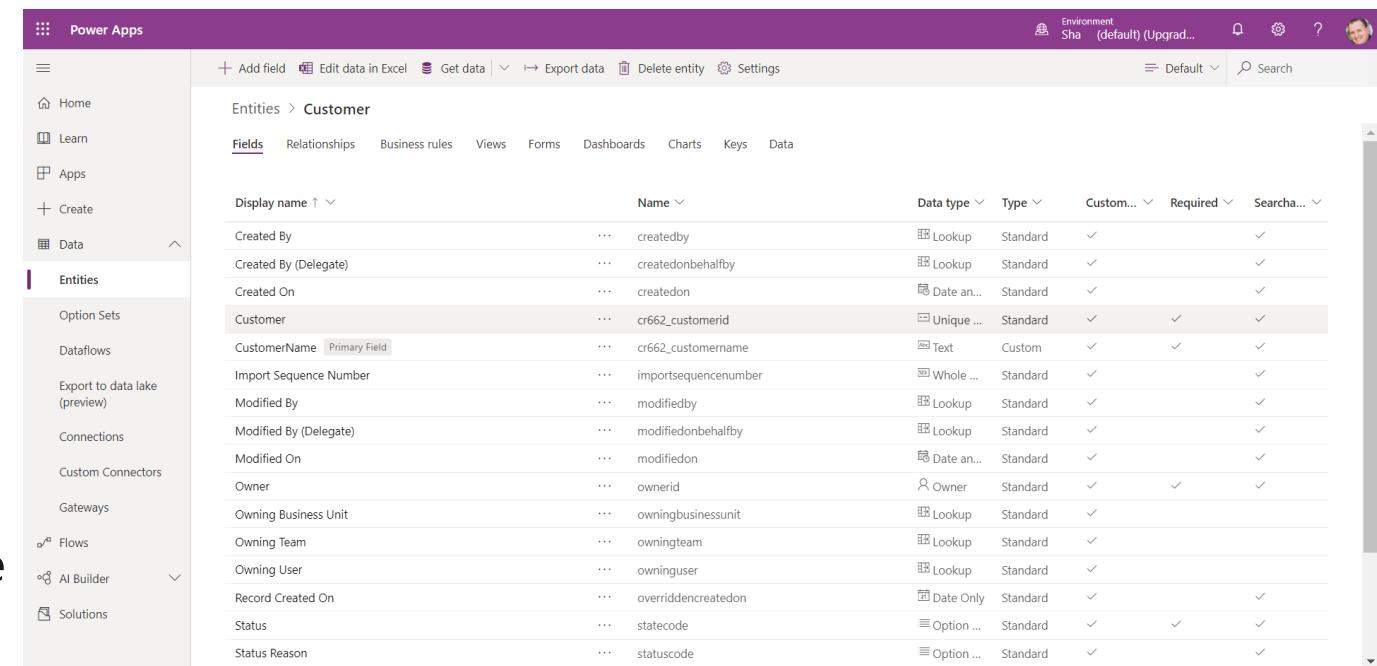
Reuse data models across end-user experiences for Power Apps and other frontends

	name	accountnumber	address1_city	address1_country	address1_state/province	address1_line1	address1_postalcode
1	Microsoft	ACC-01001-BGFAJA	Redmond	(null)	(null)	1 Microsoft Way	WA 98007
2	Best o' Sales	ACC-01000-BGFAJA	Barcelona	Spain	(null)	45 Placa d'Europa	08907
3	Southridge Video	BAKXJYGF	Bothell	United States	WA	22833 Bothell Way SE	98021
4	Prosteware, Inc.	BBASBGH7	Seattle	United States	WA	516 1st Ave W	98109
5	Litware	ABC09M33	Redmond	United States	WA	16500 N.E. 74th	98052
6	Blue Yonder Airlines	ACTBDC3	Sydney	Australia	(null)	111100 Epping Road	0200
7	Fourth Coffee	ABC09M32	Bellevue	United States	WA	44 Bellevue Way NE	98004
8	The Phone Company	BBASBGHS	Kansas City	United States	Missouri	15299 West Jackson	04983
9	Takipin Toys	BBC08080	Seattle	United States	WA	2500 SW Barton	98126
10	Northwind Traders	BTBS3G34	Renton	United States	WA	4300 NE 4th	98056
11	Wingtip Toys	BABC09SH	Seattle	United States	WA	3205 Harrison St	98109
12	City Power & Light	ACSN2N54	Bothell	United States	WA	18921 Bothell Way N.E.	98011
13	Woodgrove Bank	BBASBGHT	Sammamish	United States	WA	340 228 Ave. NE	98074
14	Alpine Ski House	AFKSEBK	Renton	United States	WA	17901 108th Ave SE	98005
15	A. Datum	AFHN2N54	Redmond	United States	WA	17196 NE Redmond Wy	98052
16	Humongous Insurance	WTFT2148	Renton	United States	WA	439 Rainier Avenue South	98055
17	Wide World Importers	BAKXJYGF	Seattle	United States	WA	305 Harrison Street	98109
18	Trey Research	BOBC3JU	Seattle	United States	WA	2580 S 156th St	98138
19	Lucene Publishing	BOBC3JW	Bellevue	United States	WA	4851 Lakemont Blvd SE	98006
20	Consolidated Messenger	GHE32P4	Sammamish	United States	WA	604 228th Ave NE	98074
21	Fabrikam, Inc.	WTF2145	Redmond	United States	WA	7625 - 170th Ave NE	98052
22	Coho Winery	ABC2BUJ7	Renton	United States	WA	200 S 3rd St	98055
23	Marge's Travel	BAKXJYGH	Seattle	United States	WA	4754 42nd Ave SW	98116
24	School of Fine Art	BOBC3JL	Seattle	United States	WA	2100 Queen Anne Ave N	98109
25	Graphic Design Institute	GHE32F05	Seattle	United States	WA	400 Pine Street	98101



Identify entities in Common Data Service

- The two types of entities are:
 - Standard** - The base set of entities that are created for every instance of a Common Data Service database. You can add more fields to any entity, but you can only delete fields from a custom entity.
 - Complex** - Entities that contain complex, server-side business logic, including real-time workflows or plug-ins. Some of the entities that are used in Dynamics 365 applications are complex. Care must be taken if you add server-side logic to ensure that users have the proper license to use the complex entity. Additional information about complex entities can be accessed by following the link within the summary unit of this module.

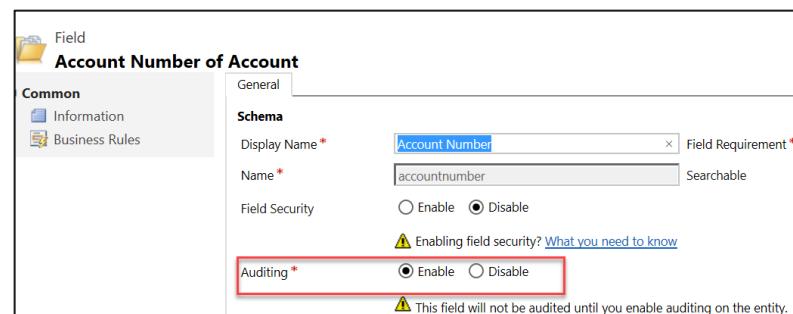


The screenshot shows the Microsoft Power Apps interface, specifically the 'Entities' section for the 'Customer' entity. The left sidebar includes options for Home, Learn, Apps, Create, Data (with Entities selected), Option Sets, Dataflows, Export to data lake (preview), Connections, Custom Connectors, Flows, AI Builder, and Solutions. The main area displays a table of fields for the Customer entity. The columns include Display name, Name, Data type, Type, Custom..., Required, and Searchable. Fields listed include Created By, Created By (Delegate), Created On, Customer (Primary Field), Import Sequence Number, Modified By, Modified By (Delegate), Modified On, Owner, Owning Business Unit, Owning Team, Owning User, Record Created On, Status, and Status Reason. The 'Customer' field is highlighted with a gray background.

Display name ↑	Name	Data type	Type	Custom...	Required	Searchable
Created By	createdby	Lookup	Standard	✓	✓	
Created By (Delegate)	createdonbehalfby	Lookup	Standard	✓	✓	
Created On	createdon	Date an...	Standard	✓	✓	
Customer	cr662_customerid	Unique ...	Standard	✓	✓	✓
CustomerName	cr662_customername	Text	Custom	✓	✓	✓
Import Sequence Number	importsequencenumber	Whole ...	Standard	✓	✓	
Modified By	modifiedby	Lookup	Standard	✓	✓	
Modified By (Delegate)	modifiedonbehalfby	Lookup	Standard	✓	✓	
Modified On	modifiedon	Date an...	Standard	✓	✓	
Owner	ownerid	Owner	Standard	✓	✓	✓
Owning Business Unit	owningbusinessunit	Lookup	Standard	✓		
Owning Team	owningteam	Lookup	Standard	✓		
Owning User	owninguser	Lookup	Standard	✓		
Record Created On	overridendcreatedon	Date Only	Standard	✓		
Status	statecode	Option ...	Standard	✓	✓	✓
Status Reason	statuscode	Option ...	Standard	✓		

Identify Fields in Common Data Service

- Fields are a way to store a discrete piece of information within a record in an entity. You might think of them as a column in Excel. Fields have types, meaning that you can store data of a certain type in a field that matches that data type. For example, if you have a solution that requires dates, then you would store the date in a field with the type of Date. Similarly, if you want to store a number, then you store the number in a field with the type of Number.
- The number of fields within an entity varies from a few fields to a hundred or more. If you need more than a few hundred fields in an entity, you might want to reconsider how you are structuring data storage for your solution because, likely, there is a better way.
- Every database in Common Data Service starts with a standard set of entities and each standard entity has a standard set of fields.



Understand relationships

Imagine that you need to create a system to manage sales orders. You will need a product list along with the inventory on hand, cost of the item, and the selling price. You also need a master list of customers with their addresses and credit ratings. Finally, you will need to manage invoices of sales that you make so you will want a way to store invoice data. The invoice should include information such as date, invoice number, and salesperson, customer information including address and credit rating, and a line item for each item on the invoice. Line items should include a reference to the product that you sold and be able to provide the proper cost and price for each product and decrease the quantity on hand based upon the quantity that you sold in that line item.

Entities that relate to one another have a relational connection. Relationships between entities exist in many forms, but the two most common are one-to-many and many-to-many, both of which are supported by Common Data Service.

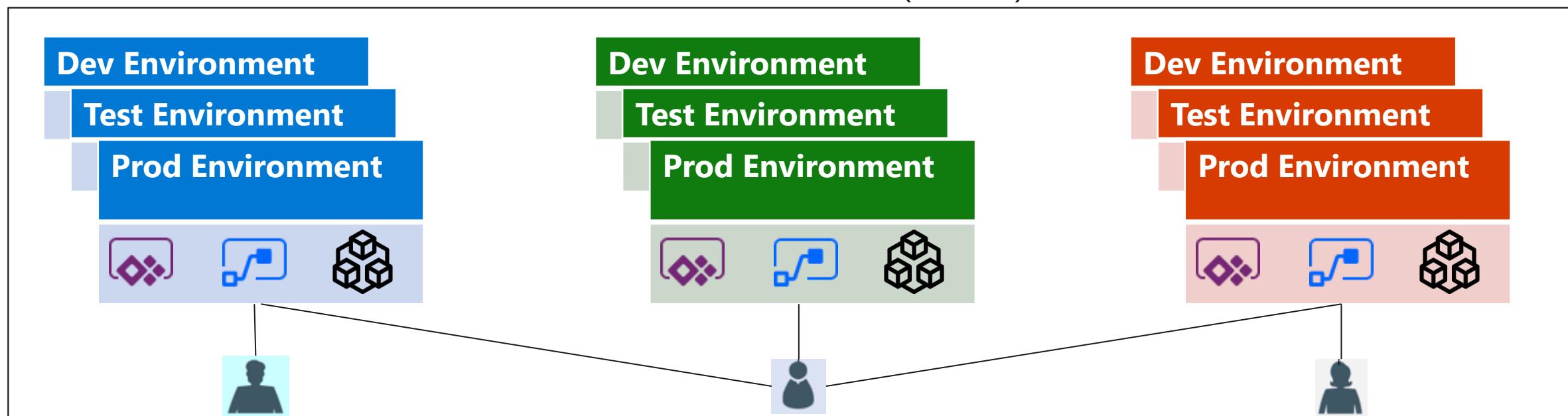
Trying to create a single entity to support the functionality that was previously described would be inefficient. A better way to approach this business scenario is to create the following four entities:

- Customers
- Products
- Invoices
- Line Items

Environments in Common Data Service

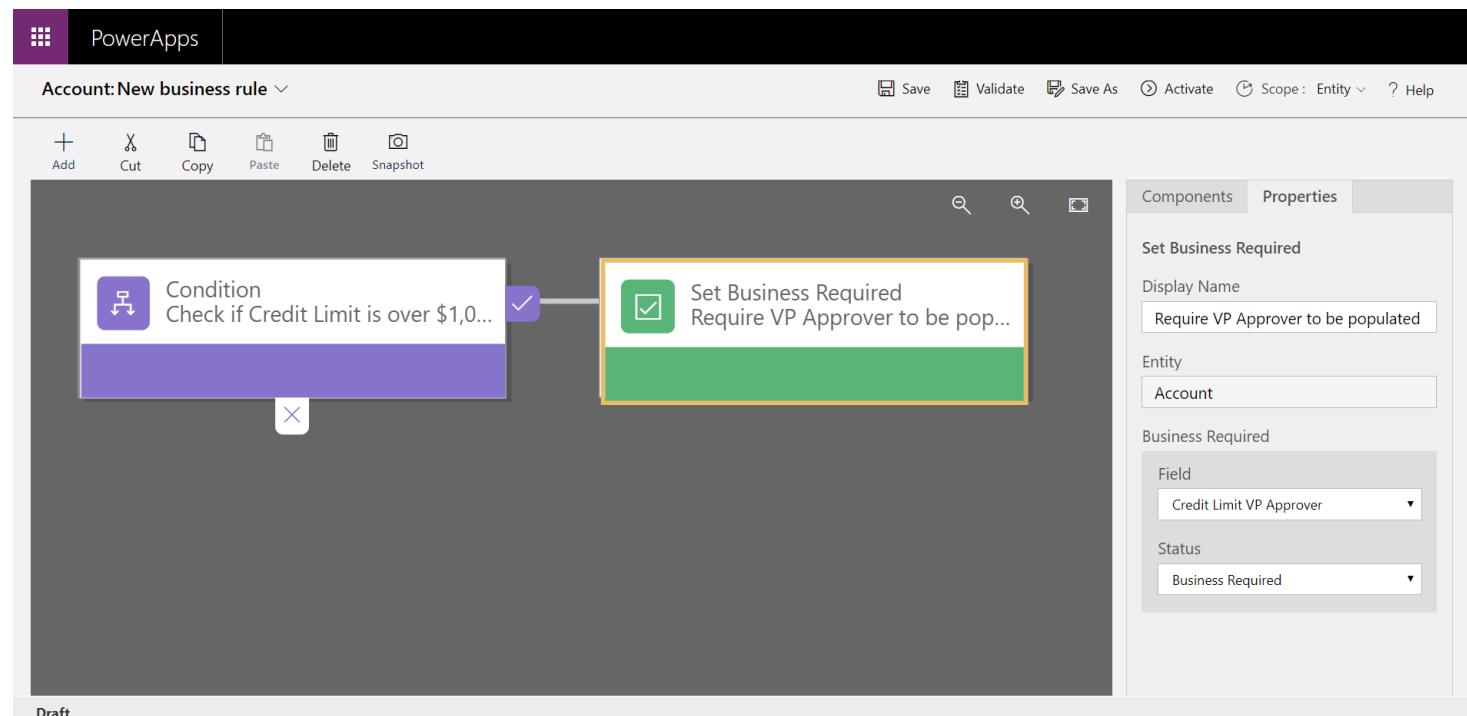
- Environments are used to store, manage, and share your organization's business data, apps, and flows in the Power Platform.
- Each environment allows you to provision one Common Data Service database for use within that environment. Common Data Service environments allow you to manage user access, security settings, and the storage that is associated with that database.
- Each environment is created under a Microsoft Azure Active Directory (Azure AD) tenant, and its resources can only be accessed by users within that tenant.
- An environment is also bound to a geographic location, like the United States. When you create a Common Data Service database in an environment, that database is created within datacenters in that geographic location.

Seahorse International (Tenant)



Business rules

- In Common Data Service you can define business rules. Business rules allow you to apply and maintain business logic at the data layer instead of the app layer. Put more simply, if you create business rules in Common Data Service, they are in effect regardless of how you interact with the data.
- An example business rule usage is when they are in canvas or model-driven apps to set or clear values in one or many fields in an entity. They can also be used to validate stored data or show error messages. Model-driven apps can use business rules to show or hide fields, enable or disable fields, and create recommendations based on business intelligence.

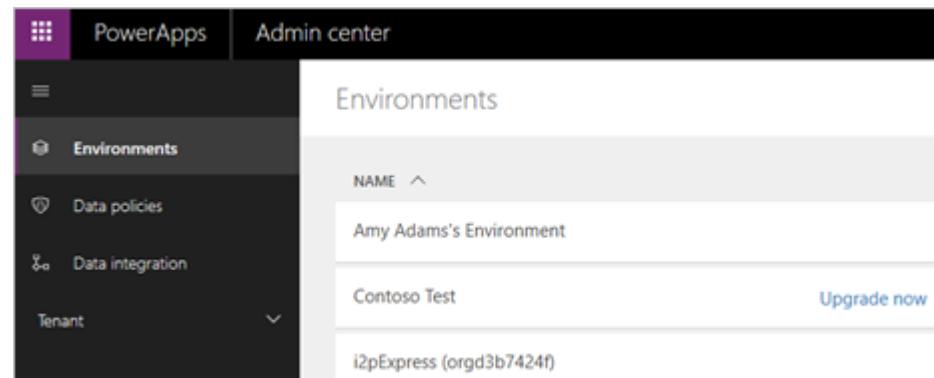


Power Apps Admin center

Most of the administration settings that you will need are available in the Power Apps Admin center. You should always check for administration settings as your first step when looking to administer Common Data Service.

Settings are grouped into the following broad categories and are accessible by selecting the link on the left-hand side of the portal, as shown in the following figure.

- **Environments** - This section lists all instances of Common Data Service.
- **Data policies** - This section lets you set up policies to restrict which data connectors can be used with Common Data Service to limit what data can flow into or out of Common Data Service entities.
- **Data integration** - This section lets you create or add pre-defined connections and monitor these connections between Common Data Service and other data stores like Salesforce or SQL Server.
- **Tenant** - This section lets you monitor licenses and quotas.



Summary

- Microsoft Power Apps allows users of any technical level to improve business processes. These apps are built using your existing skills and knowledge and without writing traditional managed code. These apps offer the ability to create highly flexible solutions built for different devices and to consume data from a multitude of sources.
 - Power Apps is a no-code/low-code platform that allows you to build apps with your business knowledge and existing skills.
 - Power Apps has different offerings to meet your needs. Canvas apps, Model-driven apps, and Portals each have their own unique properties.
 - Power Apps helps you build and deploy customized apps that work across web and mobile, embedded or standalone, on any device.
 - You can build apps that follow your business processes instead of making your business process follow the software.
- Common Data Service is a cloud-based data storage which allows you to leverage the security and connectivity of Microsoft programs. Common Data Service connects easily to all aspects of the Power Platform so that you can fully control, automate, and strengthen your business. With standard entities and fields, as well as the ability to easily define relationships between your data, Common Data Service was built for those who need powerful, scalable solutions.
 - The Common Data Service uses standard entities, fields, and relationships to help you build powerful, scalable data solutions
 - Make your data work for you so that you can get the most of it by splitting it up into logical chunks.
 - Using the Common Data Service, you can break your data into various environments to better manage and secure important information.

© Copyright Microsoft Corporation. All rights reserved.

**FOR USE ONLY AS PART OF VIRTUAL TRAINING DAYS PROGRAM. THESE MATERIALS ARE NOT AUTHORIZED FOR
DISTRIBUTION, REPRODUCTION OR OTHER USE BY NON-MICROSOFT PARTIES.**



Module 2: Introduction to Microsoft Power Apps and Common Data Services

Introduction

In this module, we will explore, understand and learn about:

- What is Power Apps and the business value it creates
 - Learn what is Power Apps and the business value it creates
 - Learn how one of the world's largest airports is digitizing its processes using Power Apps
- Discover the Common Data Service
 - Explain what environments, entities, fields, and relationships are in common data service
 - Describe the difference between Common Data Service and Common Data Model
 - Explain use cases and limitations of business rules and process flows



Lesson 1: What is Power Apps and the business value it creates

A powerful tool for productivity

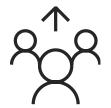
Streamline business processes with integrated apps and workflows in your hub for teamwork and productivity



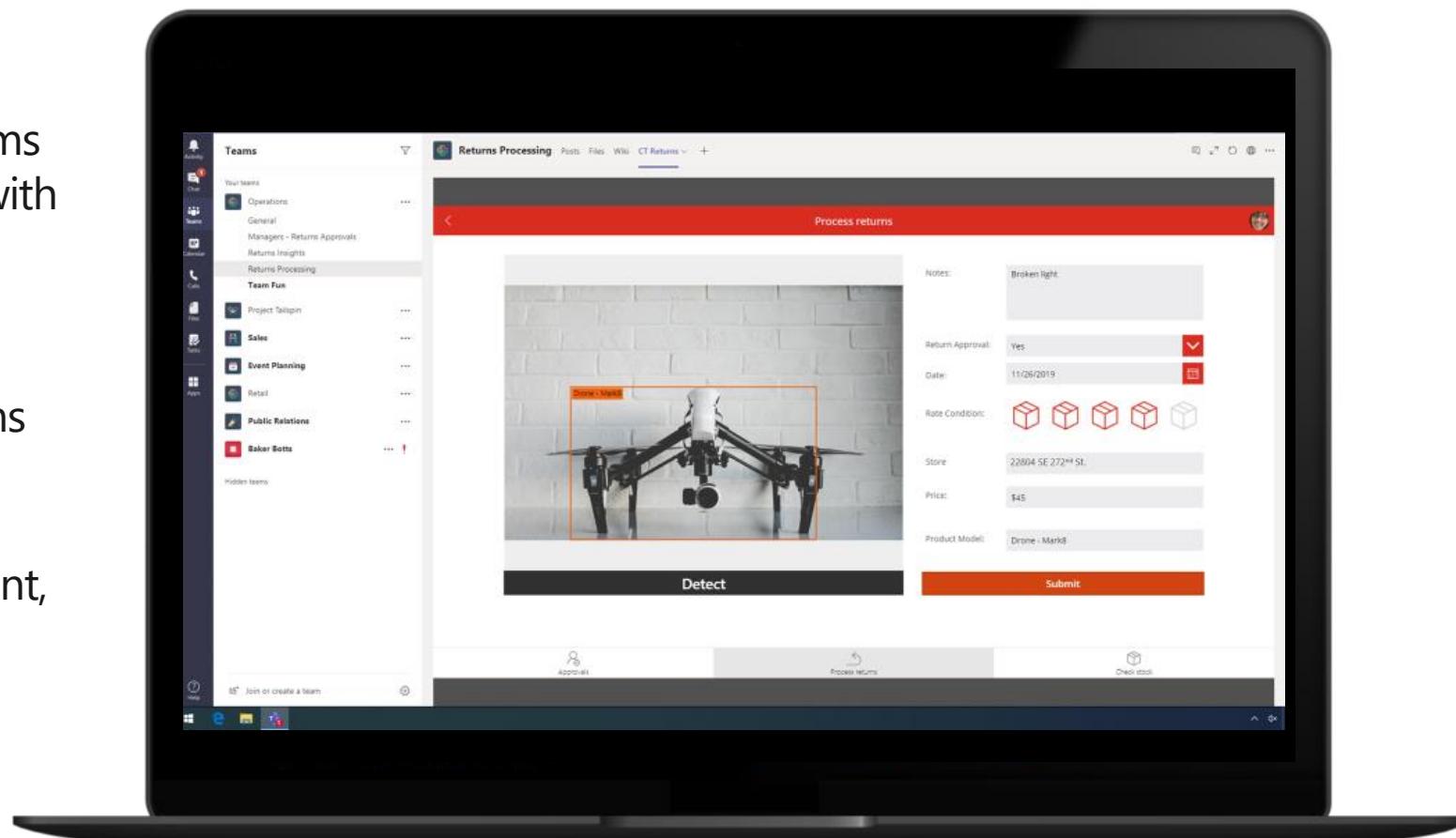
Develop low-code apps and forms that enhance your productivity with Power Apps for Office 365



Integrate and share apps and workflows within Microsoft Teams



Collect, manage, and distribute content and data using SharePoint, Microsoft Forms, and Excel



Low-code backend with Common Data Service



- Jumpstart apps using an extensible data model with business logic, security and integration built in.



- Enable AI through built-in cognitive services powered by AI Builder and Azure.



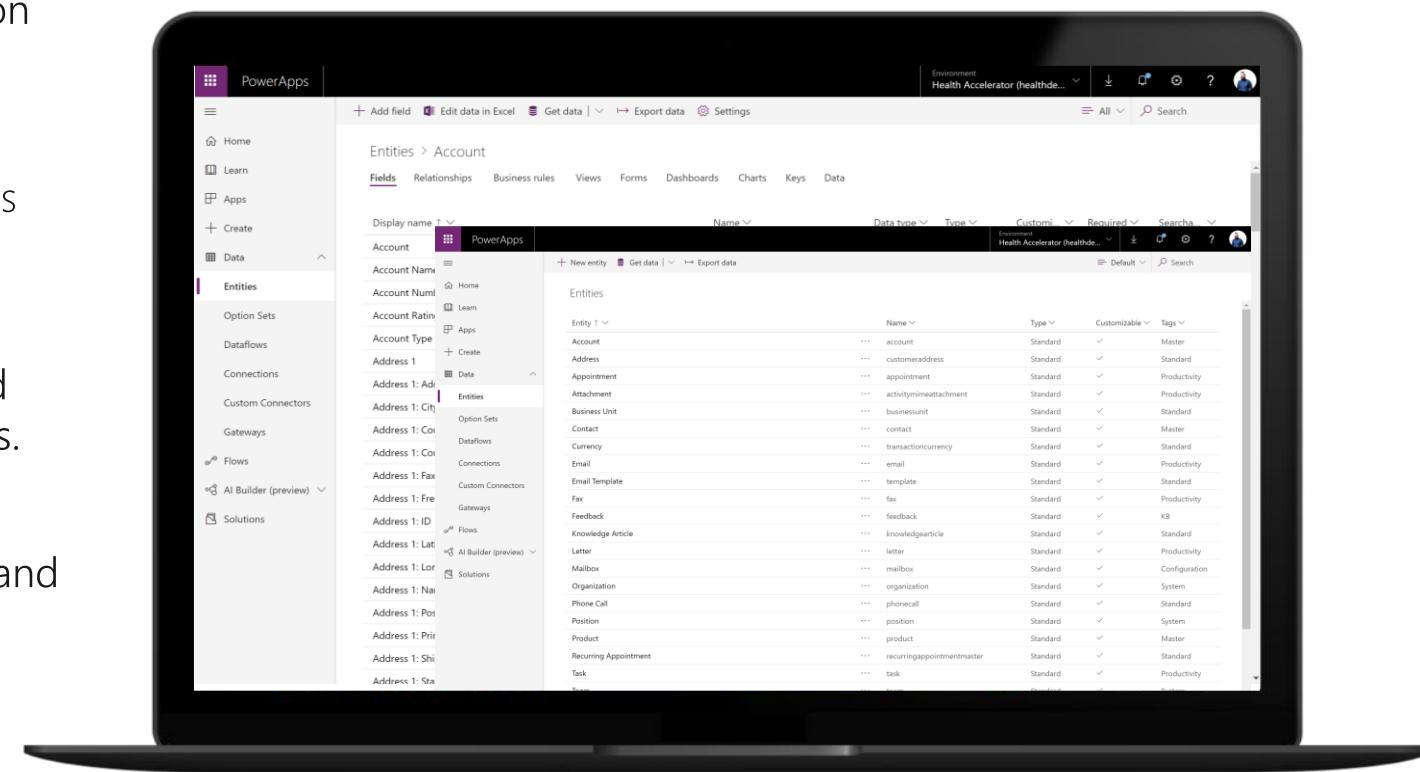
- Extend data and processes to external and anonymous users with Power Apps portals.



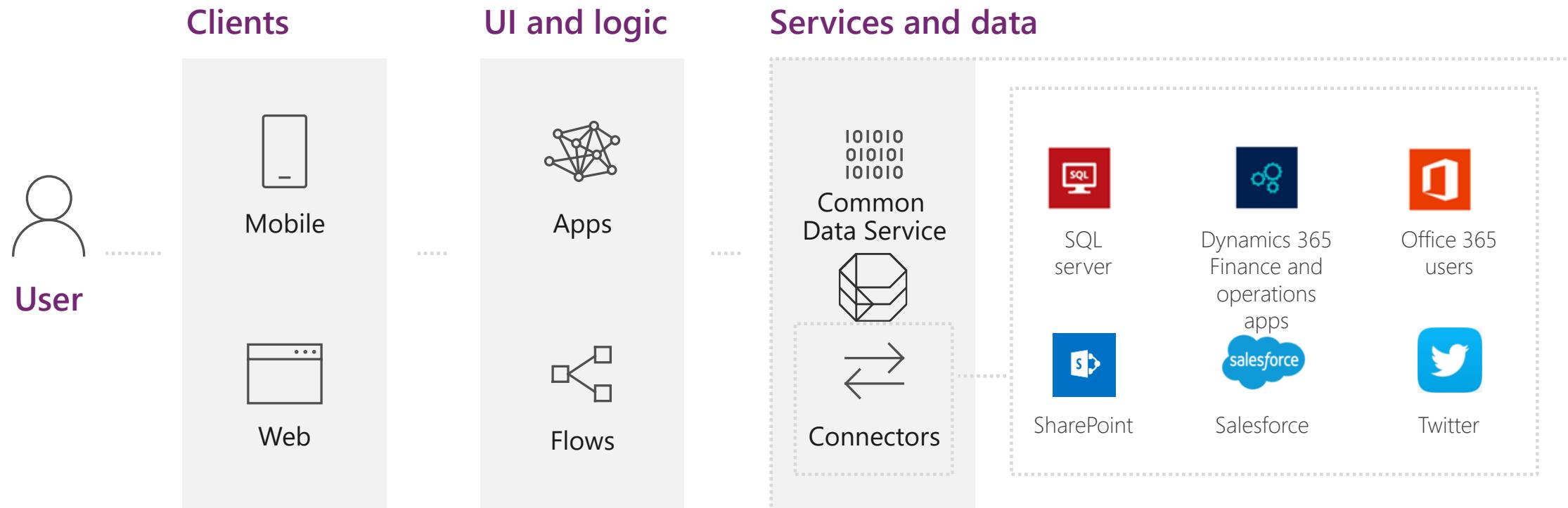
- Support all your data: relational data, file and blob storage, logs and search indexing.



- Effortless Dynamics 365, Office 365 and Azure integration as well as powerful integration capabilities.



Work with your data where it lives



Different types of Power Apps for different scenarios

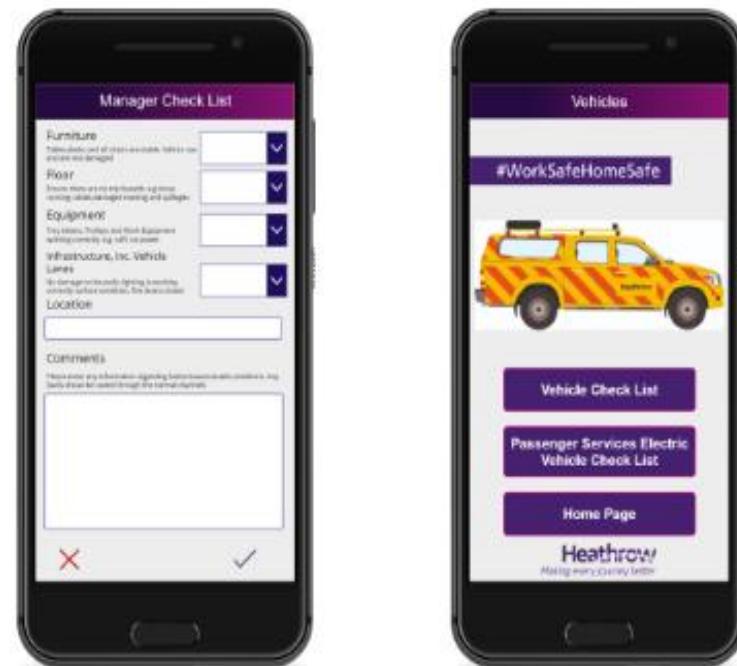
Power Apps can create three types of apps: canvas, model-driven, and portals. Each suited to different scenarios and end users.

- Canvas apps
- Model-driven apps
- Portals



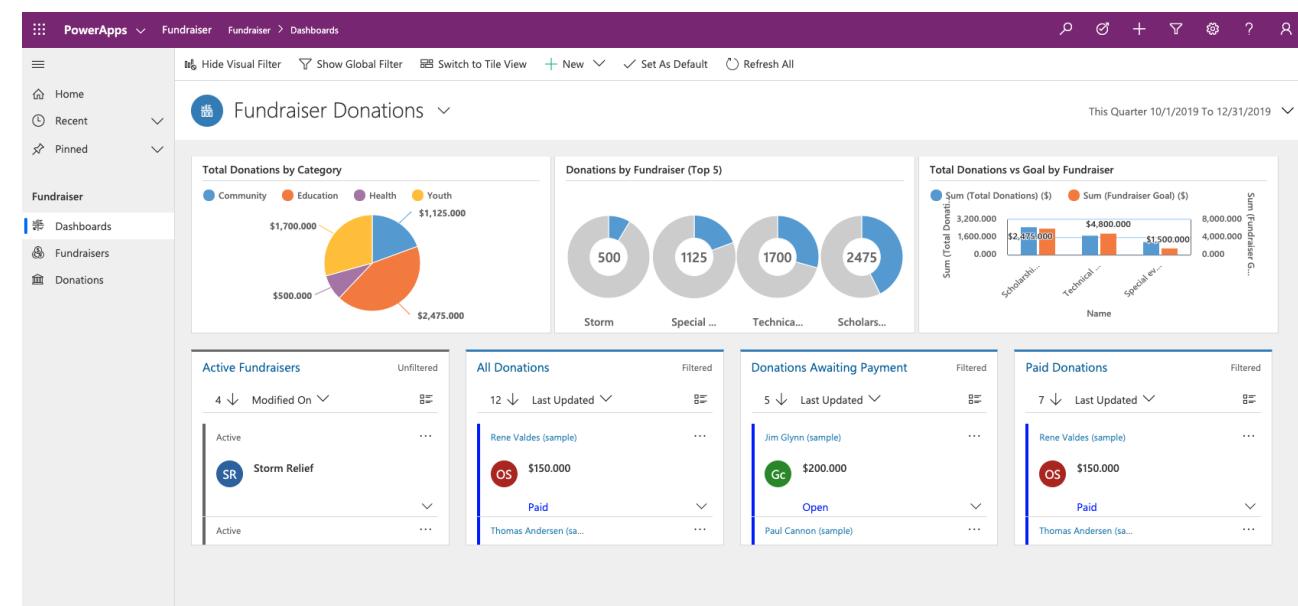
Canvas apps

- Canvas apps are a great option when you want to build an app from a blank canvas. You start by choosing the screen size: tablet or mobile, then you have a blank screen from which to build.
- You can interact with data in your app by adding data sources. Drag and drop various controls and add the desired functionality by writing Excel style formulas. Canvas apps provide you complete flexibility when building your apps.



Model-driven apps

- Model-driven apps build from data in the Common Data Service. Power Apps will build you a great looking, fully functional app to act upon and interact with this data. With model-driven apps, there is no need to worry about choosing the app size; it is responsive, meaning it works on mobile or tablet with no extra work by you.
- You define the relationships, forms, views, business rules, and more at the data layer, inside of the Common Data Service, giving you enough control to get your business result without writing all of the formulas yourself.



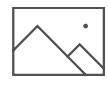
Low-code solution for responsive websites with portals



- Create multilingual, responsive websites to engage with internal and external customers, partners and employees.



- Use anonymous access or any of the commercial or enterprise login providers like Microsoft Account, LinkedIn, Azure AD B2C and more.



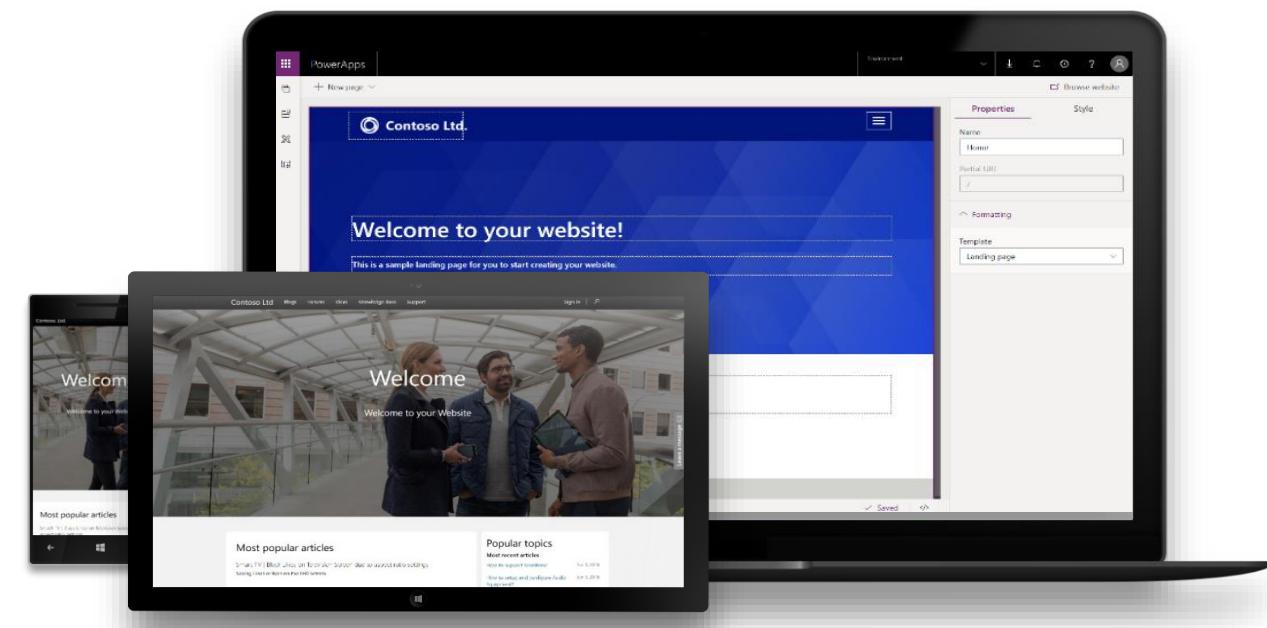
- Use WYSIWYG designer to create website content and enrich with CDS/Dynamics data using familiar constructs like forms, views, charts, dashboards.



- Pro-dev extensibility and templating capabilities to design complex business processes.



- Dynamics 365 provides integrated starter templates like customer self service, partner management, event management and community self service.



Add artificial intelligence to your app with no code

- Power Apps has "democratized" artificial intelligence by providing a wizard-based interface for building and training your model. This unlocks the power of Azure Machine Learning and Cognitive services without writing a single line of code or creating complex machine learning models.
- Currently, there are four available AI models in Power Apps:
 - **Prediction** - This model predicts whether something will happen or not based on previous data history. More details in the following section.
 - **Form processor** - This model extracts text from an image like the business card reader.
 - **Object detector** - This model identifies objects from an uploaded image or taken photo and then provides a count of the number objects present.
 - **Text classification** - This model categorizes text by its meaning, making it easier to analyze.



Security and Administration

- To manage security for Power Apps you can access <https://admin.powerplatform.microsoft.com/>
- Here you will find options for creating and managing environments, monitoring licenses, working with Data Loss Prevention policies and managing Common Data Service Data Integration projects.
- This allows you to manage the Power Apps throughout your tenant from one single place.

The screenshot shows the Microsoft Power Platform admin center interface. The left sidebar has a dark theme with white text and icons. It includes sections for Environments, Analytics, Capacity, Common Data Service, Power Automate, Power Apps, Resources, Dynamics 365 apps (which is currently selected and highlighted in purple), Help + support, Data integration, Data gateways (preview), Data policies (preview), Admin centers (with Dynamics 365, Power Apps, Power Automate, and Power BI sub-sections), and Environment variables. The main content area is titled "Dynamics 365 apps" and contains a table with columns for Name, Status, and Publisher. The table lists various Dynamics 365 applications, all of which are currently enabled. The publisher for most items is Microsoft Dynamics 365, except for a few which are Microsoft Dynamics CRM Package or Microsoft.

Name	Status	Publisher
AI Builder	Enabled	Microsoft Dynamics 365
Company News Timeline	Enabled	Microsoft CRM Package
Customer Insights Customer Card Add-in (Preview)	Enabled	Microsoft Dynamics 365
CVAA Solution	Enabled	Microsoft Dynamics 365
Dual-write application orchestration solution	Enabled	Microsoft Dynamics 365
Dual-write core solution	Enabled	Microsoft Dynamics 365
Dynamics 365 ContextualHelp	Enabled	Microsoft Dynamics 365
Dynamics 365 Customer Service Application	Enabled	Microsoft Dynamics 365
Dynamics 365 for Field Service	Enabled	Microsoft Dynamics 365
Dynamics 365 for Project Service Automation	Enabled	Microsoft Dynamics 365
Dynamics 365 for Sales, Enterprise Edition App	Enabled	Microsoft Dynamics 365
Dynamics 365 Healthcare Accelerator Sample Data	Enabled	Microsoft
Environment variables	Enabled	Microsoft Dynamics 365
Finance and Operations Services Integration	Enabled	Microsoft Dynamics 365
FreeTrialBaseSolution	Enabled	Microsoft CRM Package

Customer case study - Heathrow Airport



"I don't just want to make a living. I want to make a difference."

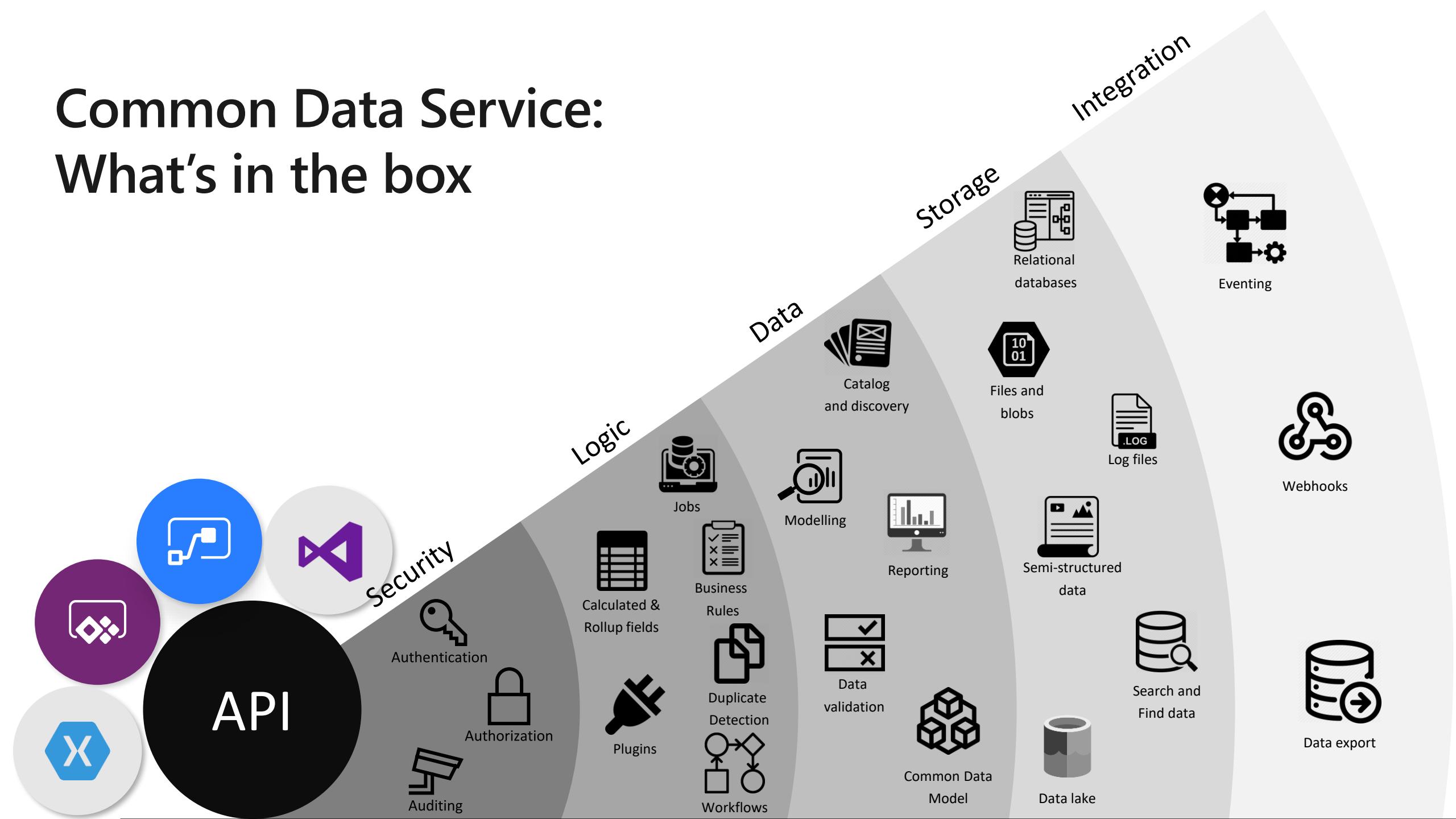
Samit Saini,
IT User Adoption Specialist, Heathrow





Lesson 2: Discover the Common Data Service

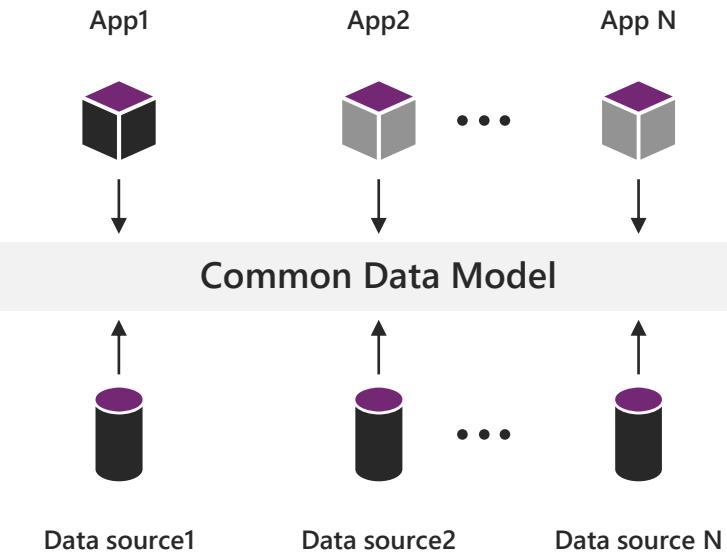
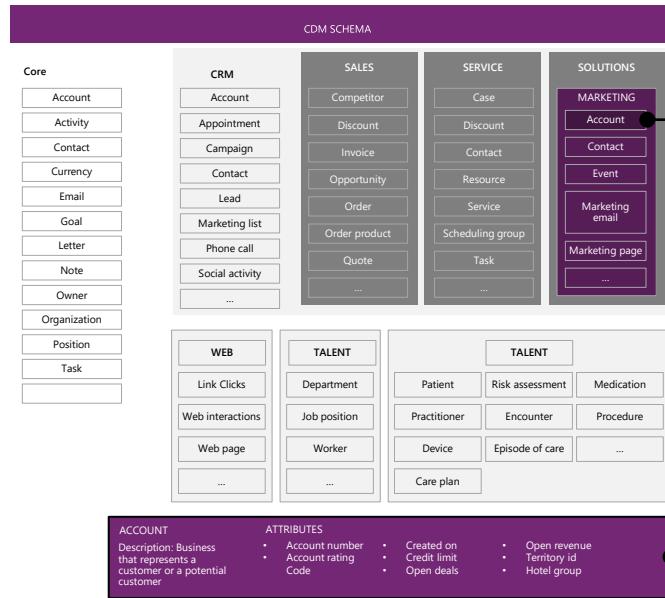
Common Data Service: What's in the box



Overview of Common Data Service

- Common Data Service offers a great deal of functionality such as:
 - **Security:** Common Data Service handles authentication with Azure Active Directory (AAD) to allow for conditional access and multi-factor authentication. It supports authorization down to the row and field level and provides rich auditing capabilities.
 - **Logic:** Common Data Service allows you to easily apply business logic at the data level. Regardless of how a user is interacting with the data, the same rules apply. These rules could be related to duplicate detection, business rules, workflows, or more.
 - **Data:** Common Data Service offers you the control to shape your data, allowing you to discover, model, validate, and report on your data. This control ensures your data looks the way you want regardless of how it is used.
 - **Storage:** Common Data Service stores your physical data in the Azure cloud. This cloud-based storage removes the burden of worrying about where your data lives or how it scales. These concerns are all handled for you.
 - **Integration:** Common Data Service connects in different ways to support your business needs. APIs, webhooks, eventing, and data exports give you flexibility to get data in and out.

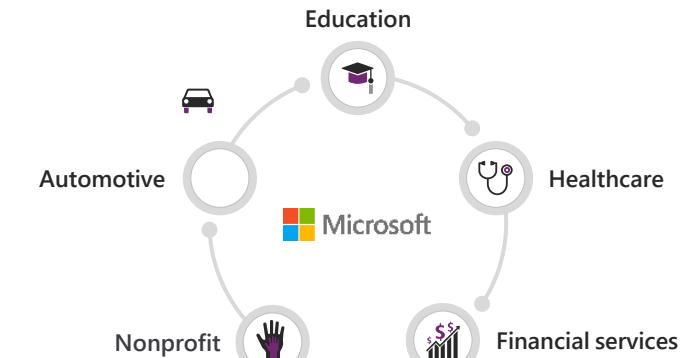
Common Data Service implements the Common Data Model



Open source and shared data model that provides semantic consistency for data.



Allows makers to more quickly develop applications and integrators to more easily interoperate across multiple systems.



A growing set of solutions and partners that contribute to the effort by implementing CDM or extending with industry-specific domains.

Data integration capabilities built-in to the Common Data Service



Integrate directly with CDS using the Excel Power Query features relied on by millions of users each month.



Built-in management features like Common Data Model entity mapping UX, environments and scheduled refresh.



300+ transformations to clean and reshape data.



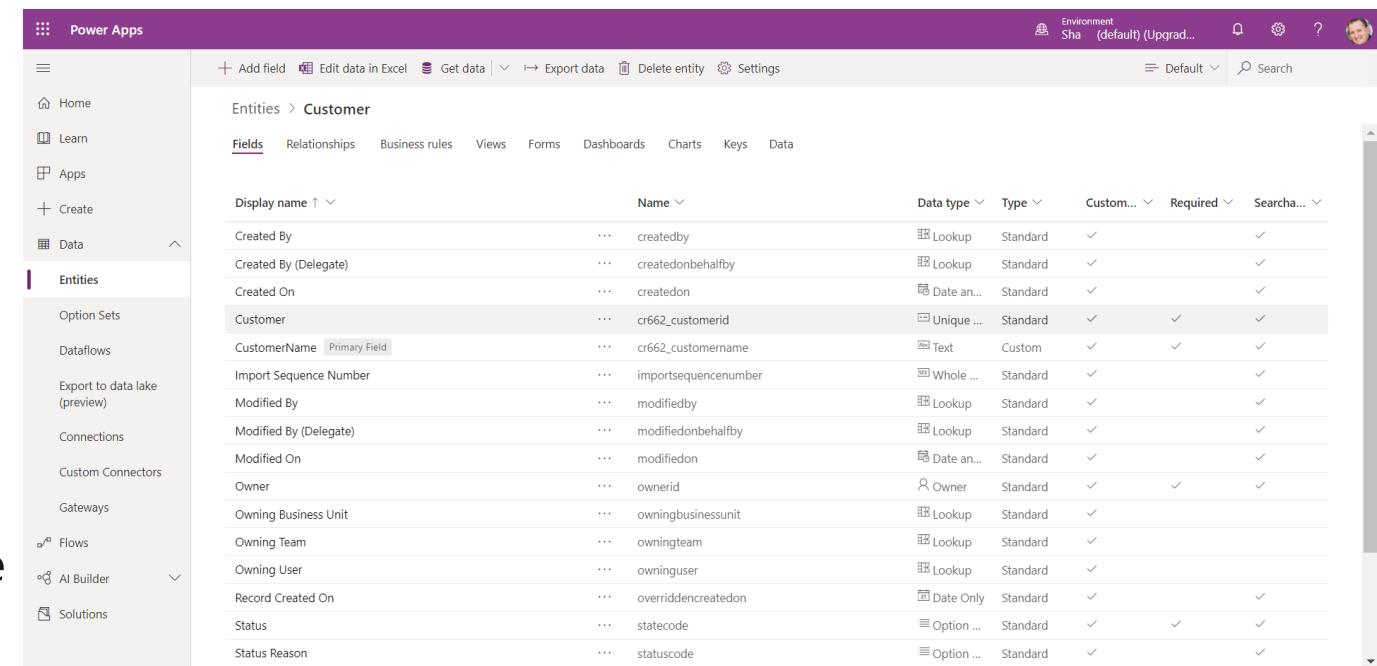
Reuse data models across end-user experiences for Power Apps and other frontends

	name	accountnumber	address1_city	address1_country	address1_state/province	address1_line1	address1_postalcode
1	Microsoft	ACC-01001-BGFAJA	Redmond	(null)	(null)	1 Microsoft Way	WA 98007
2	Best o' Sales	ACC-01000-BGFAJA	Barcelona	Spain	(null)	45 Placa d'Europa	08907
3	Southridge Video	BAKXJYGF	Bothell	United States	WA	22833 Bothell Way SE	98021
4	Prosteware, Inc.	BBASBGH7	Seattle	United States	WA	516 1st Ave W	98109
5	Litware	ABC09M33	Redmond	United States	WA	16500 N.E. 74th	98052
6	Blue Yonder Airlines	ACTBDC3	Sydney	Australia	(null)	111100 Epping Road	0200
7	Fourth Coffee	ABC09M32	Bellevue	United States	WA	44 Bellevue Way NE	98004
8	The Phone Company	BBASBGHS	Kansas City	United States	Missouri	15299 West Jackson	04983
9	Takipin Toys	BBC08080	Seattle	United States	WA	2500 SW Barton	98126
10	Northwind Traders	BTBS3G34	Renton	United States	WA	4300 NE 4th	98056
11	Wingtip Toys	BABC09SH	Seattle	United States	WA	3205 Harrison St	98109
12	City Power & Light	ACSN2N54	Bothell	United States	WA	18921 Bothell Way N.E.	98011
13	Woodgrove Bank	BBASBGHT	Sammamish	United States	WA	340 228 Ave. NE	98074
14	Alpine Ski House	AFKSEBK	Renton	United States	WA	17901 108th Ave SE	98005
15	A. Datum	AFHN2N54	Redmond	United States	WA	17196 NE Redmond Wy	98052
16	Humongous Insurance	WTFT2148	Renton	United States	WA	439 Rainier Avenue South	98055
17	Wide World Importers	BAKXJYGF	Seattle	United States	WA	305 Harrison Street	98109
18	Trey Research	BOBC3JU	Seattle	United States	WA	2580 S 156th St	98138
19	Lucene Publishing	BOBC3JW	Bellevue	United States	WA	4851 Lakemont Blvd SE	98006
20	Consolidated Messenger	GHE32P4	Sammamish	United States	WA	604 228th Ave NE	98074
21	Fabrikam, Inc.	WTF2145	Redmond	United States	WA	7625 - 170th Ave NE	98052
22	Coho Winery	ABC2BUJ7	Renton	United States	WA	200 S 3rd St	98055
23	Marge's Travel	BAKXJYGH	Seattle	United States	WA	4754 42nd Ave SW	98116
24	School of Fine Art	BOBC3JL	Seattle	United States	WA	2100 Queen Anne Ave N	98109
25	Graphic Design Institute	GHE32F05	Seattle	United States	WA	400 Pine Street	98101



Identify entities in Common Data Service

- The two types of entities are:
 - Standard** - The base set of entities that are created for every instance of a Common Data Service database. You can add more fields to any entity, but you can only delete fields from a custom entity.
 - Complex** - Entities that contain complex, server-side business logic, including real-time workflows or plug-ins. Some of the entities that are used in Dynamics 365 applications are complex. Care must be taken if you add server-side logic to ensure that users have the proper license to use the complex entity. Additional information about complex entities can be accessed by following the link within the summary unit of this module.

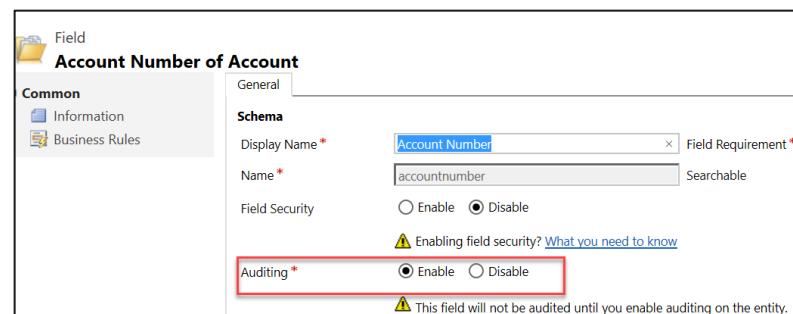


The screenshot shows the Microsoft Power Apps interface, specifically the 'Entities' section for the 'Customer' entity. The left sidebar includes options for Home, Learn, Apps, Create, Data (with Entities selected), Option Sets, Dataflows, Export to data lake (preview), Connections, Custom Connectors, Flows, AI Builder, and Solutions. The main area displays a table of fields for the Customer entity. The columns include Display name, Name, Data type, Type, Custom..., Required, and Searchable. Fields listed include Created By, Created By (Delegate), Created On, Customer (Primary Field), Import Sequence Number, Modified By, Modified By (Delegate), Modified On, Owner, Owning Business Unit, Owning Team, Owning User, Record Created On, Status, and Status Reason. The 'Customer' field is highlighted with a gray background.

Display name ↑	Name	Data type	Type	Custom...	Required	Searchable
Created By	createdby	Lookup	Standard	✓	✓	
Created By (Delegate)	createdonbehalfby	Lookup	Standard	✓	✓	
Created On	createdon	Date an...	Standard	✓	✓	
Customer	cr662_customerid	Unique ...	Standard	✓	✓	✓
CustomerName	cr662_customername	Text	Custom	✓	✓	✓
Import Sequence Number	importsequencenumber	Whole ...	Standard	✓	✓	
Modified By	modifiedby	Lookup	Standard	✓	✓	
Modified By (Delegate)	modifiedonbehalfby	Lookup	Standard	✓	✓	
Modified On	modifiedon	Date an...	Standard	✓	✓	
Owner	ownerid	Owner	Standard	✓	✓	✓
Owning Business Unit	owningbusinessunit	Lookup	Standard	✓		
Owning Team	owningteam	Lookup	Standard	✓		
Owning User	owninguser	Lookup	Standard	✓		
Record Created On	overridendcreatedon	Date Only	Standard	✓		
Status	statecode	Option ...	Standard	✓	✓	✓
Status Reason	statuscode	Option ...	Standard	✓		

Identify Fields in Common Data Service

- Fields are a way to store a discrete piece of information within a record in an entity. You might think of them as a column in Excel. Fields have types, meaning that you can store data of a certain type in a field that matches that data type. For example, if you have a solution that requires dates, then you would store the date in a field with the type of Date. Similarly, if you want to store a number, then you store the number in a field with the type of Number.
- The number of fields within an entity varies from a few fields to a hundred or more. If you need more than a few hundred fields in an entity, you might want to reconsider how you are structuring data storage for your solution because, likely, there is a better way.
- Every database in Common Data Service starts with a standard set of entities and each standard entity has a standard set of fields.



Understand relationships

Imagine that you need to create a system to manage sales orders. You will need a product list along with the inventory on hand, cost of the item, and the selling price. You also need a master list of customers with their addresses and credit ratings. Finally, you will need to manage invoices of sales that you make so you will want a way to store invoice data. The invoice should include information such as date, invoice number, and salesperson, customer information including address and credit rating, and a line item for each item on the invoice. Line items should include a reference to the product that you sold and be able to provide the proper cost and price for each product and decrease the quantity on hand based upon the quantity that you sold in that line item.

Entities that relate to one another have a relational connection. Relationships between entities exist in many forms, but the two most common are one-to-many and many-to-many, both of which are supported by Common Data Service.

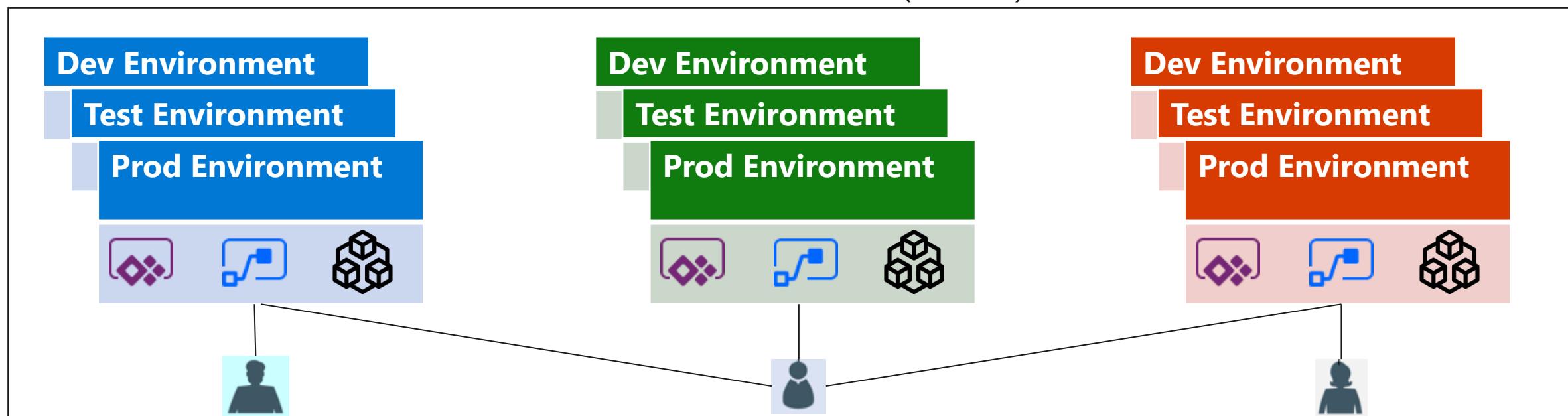
Trying to create a single entity to support the functionality that was previously described would be inefficient. A better way to approach this business scenario is to create the following four entities:

- Customers
- Products
- Invoices
- Line Items

Environments in Common Data Service

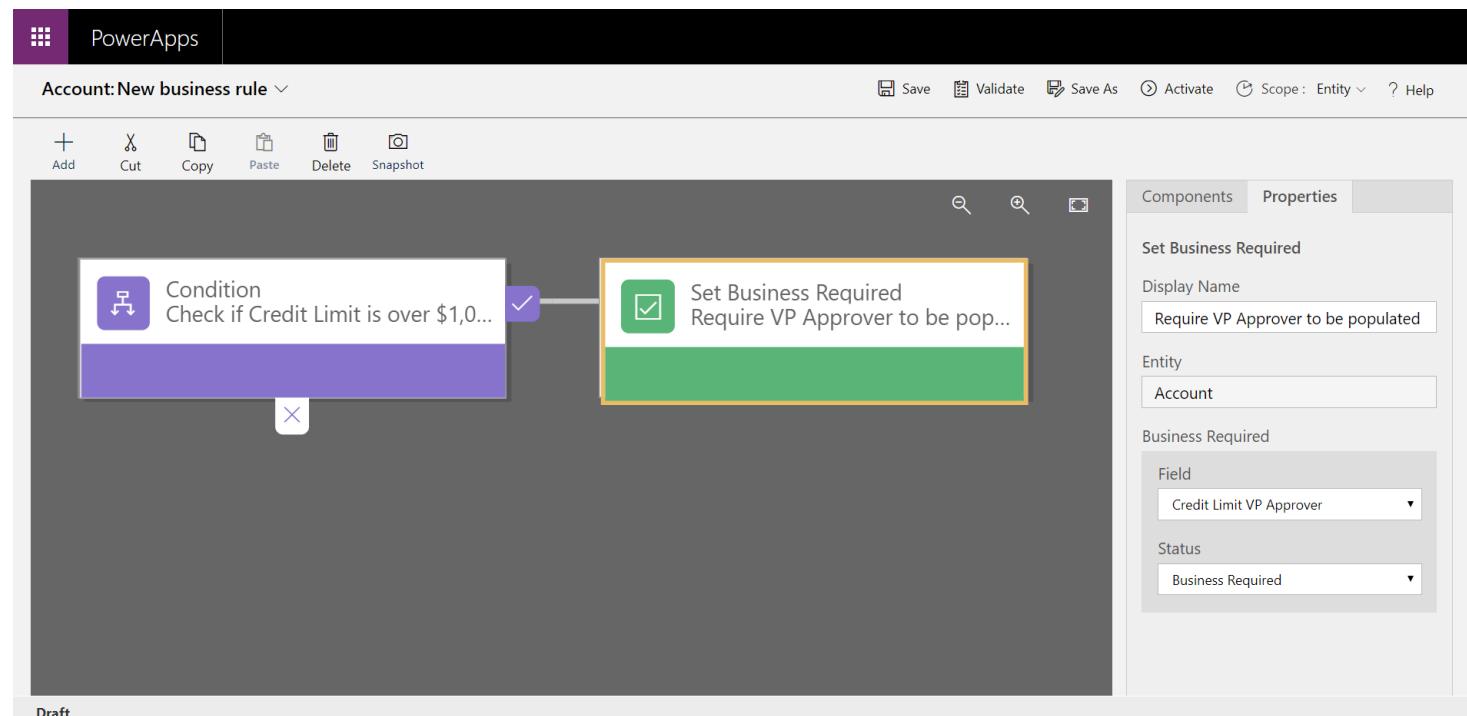
- Environments are used to store, manage, and share your organization's business data, apps, and flows in the Power Platform.
- Each environment allows you to provision one Common Data Service database for use within that environment. Common Data Service environments allow you to manage user access, security settings, and the storage that is associated with that database.
- Each environment is created under a Microsoft Azure Active Directory (Azure AD) tenant, and its resources can only be accessed by users within that tenant.
- An environment is also bound to a geographic location, like the United States. When you create a Common Data Service database in an environment, that database is created within datacenters in that geographic location.

Seahorse International (Tenant)



Business rules

- In Common Data Service you can define business rules. Business rules allow you to apply and maintain business logic at the data layer instead of the app layer. Put more simply, if you create business rules in Common Data Service, they are in effect regardless of how you interact with the data.
- An example business rule usage is when they are in canvas or model-driven apps to set or clear values in one or many fields in an entity. They can also be used to validate stored data or show error messages. Model-driven apps can use business rules to show or hide fields, enable or disable fields, and create recommendations based on business intelligence.

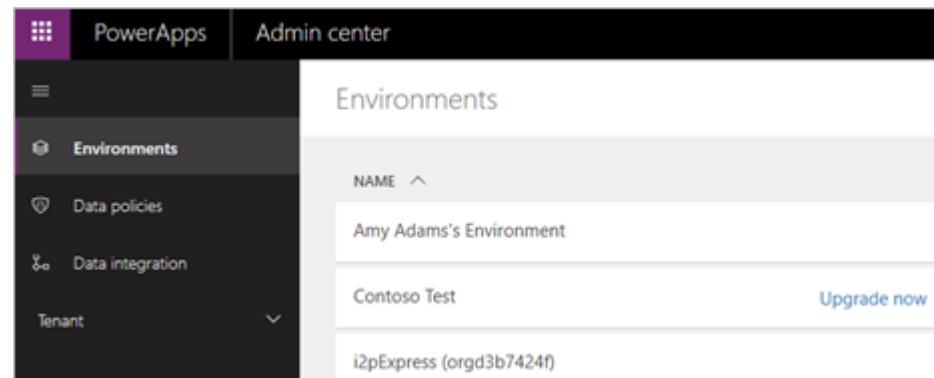


Power Apps Admin center

Most of the administration settings that you will need are available in the Power Apps Admin center. You should always check for administration settings as your first step when looking to administer Common Data Service.

Settings are grouped into the following broad categories and are accessible by selecting the link on the left-hand side of the portal, as shown in the following figure.

- **Environments** - This section lists all instances of Common Data Service.
- **Data policies** - This section lets you set up policies to restrict which data connectors can be used with Common Data Service to limit what data can flow into or out of Common Data Service entities.
- **Data integration** - This section lets you create or add pre-defined connections and monitor these connections between Common Data Service and other data stores like Salesforce or SQL Server.
- **Tenant** - This section lets you monitor licenses and quotas.



Summary

- Microsoft Power Apps allows users of any technical level to improve business processes. These apps are built using your existing skills and knowledge and without writing traditional managed code. These apps offer the ability to create highly flexible solutions built for different devices and to consume data from a multitude of sources.
 - Power Apps is a no-code/low-code platform that allows you to build apps with your business knowledge and existing skills.
 - Power Apps has different offerings to meet your needs. Canvas apps, Model-driven apps, and Portals each have their own unique properties.
 - Power Apps helps you build and deploy customized apps that work across web and mobile, embedded or standalone, on any device.
 - You can build apps that follow your business processes instead of making your business process follow the software.
- Common Data Service is a cloud-based data storage which allows you to leverage the security and connectivity of Microsoft programs. Common Data Service connects easily to all aspects of the Power Platform so that you can fully control, automate, and strengthen your business. With standard entities and fields, as well as the ability to easily define relationships between your data, Common Data Service was built for those who need powerful, scalable solutions.
 - The Common Data Service uses standard entities, fields, and relationships to help you build powerful, scalable data solutions
 - Make your data work for you so that you can get the most of it by splitting it up into logical chunks.
 - Using the Common Data Service, you can break your data into various environments to better manage and secure important information.

© Copyright Microsoft Corporation. All rights reserved.

**FOR USE ONLY AS PART OF VIRTUAL TRAINING DAYS PROGRAM. THESE MATERIALS ARE NOT AUTHORIZED FOR
DISTRIBUTION, REPRODUCTION OR OTHER USE BY NON-MICROSOFT PARTIES.**



Module 3: Build simple Power Apps

Introduction

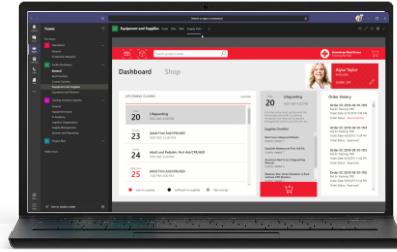
In this module, we will explore, understand and learn about:

- How to build an app solution
- Learn basic elements of Power Apps
- Build a Power Apps app
- Get started with functions in Power Apps
- Share an app

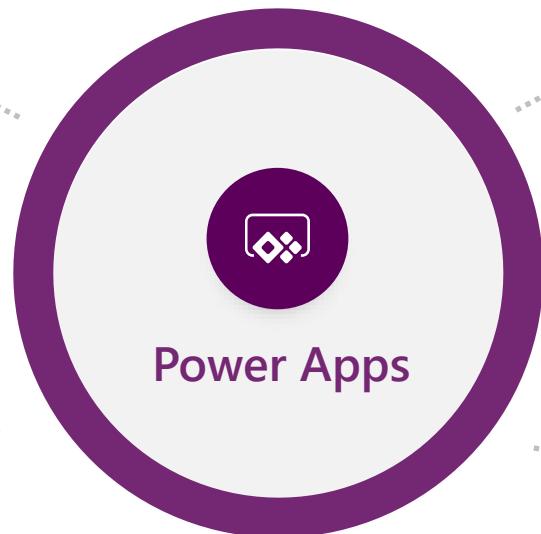


Lesson 1: How to build an app solution

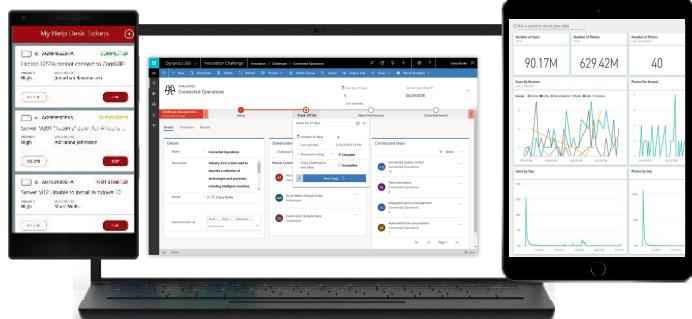
Enabling digital transformation across the organization



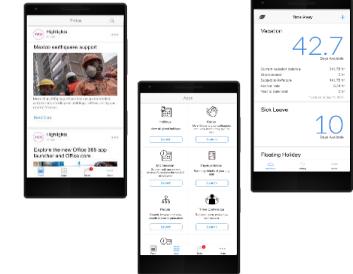
Extending Office 365
and Dynamics 365



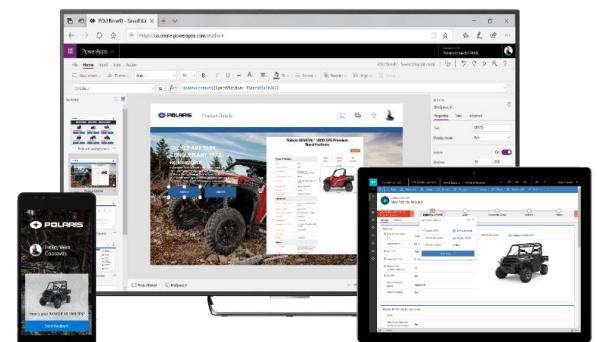
Building mission-critical
end-to-end solutions



Extending legacy
applications



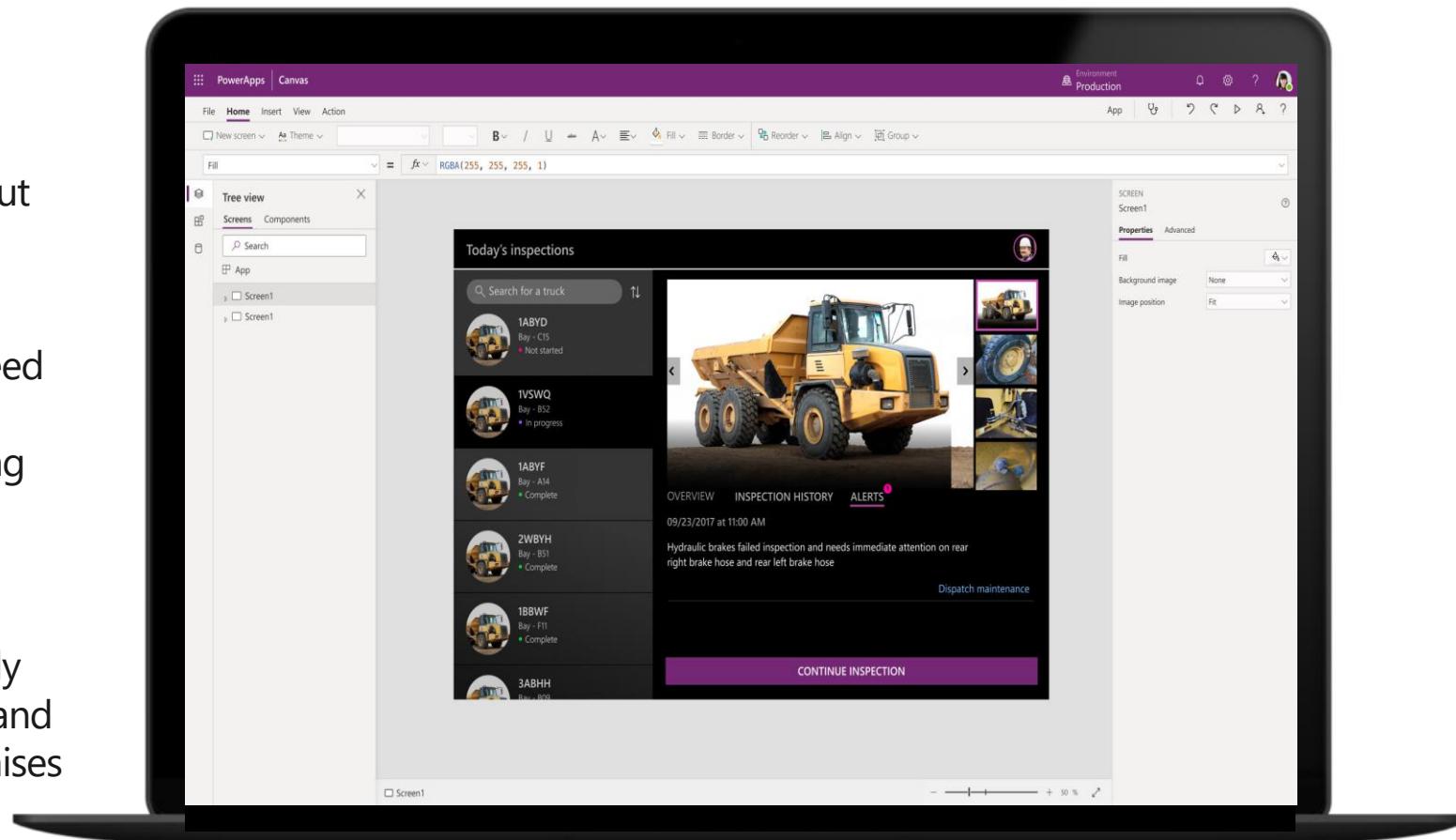
Building departmental
solutions



Give everyone the tools to be an app builder



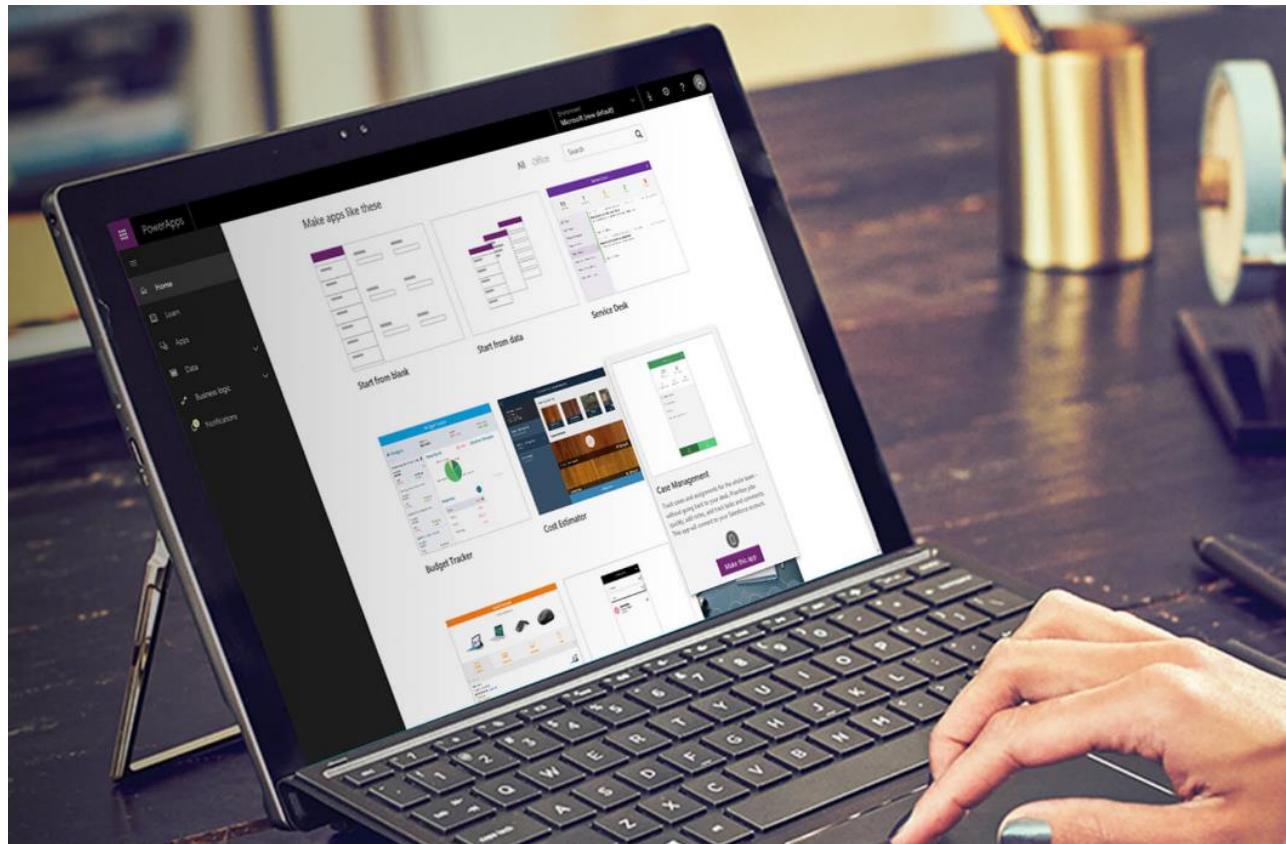
- **Get started quickly:** Empower your team to start building and launching apps right away using pre-built templates, drag-and-drop simplicity, and quick deployment—then roll out continuous improvements as needed.
- **Build apps without compromises:** Give everyone the power to build the apps they need with advanced functionality previously only available to professional developers—including pre-built AI components.
- **Enable extensibility for developers:** Provide professional developers the tools to seamlessly extend app capabilities with Azure Functions and custom connectors to proprietary or on-premises systems.



Build the right app for the job



- **Empower everyone to build apps:** Building apps with Power Apps helps everyone from business analysts to professional developers work more efficiently together. Solve business problems with intuitive visual tools that don't require code, work faster with a platform that enables data integration and distribution, and extend the platform with building blocks for professional developers. Easily build and share apps on any device.
- **Enable your business to innovate:** Power Apps enables a broad range of app scenarios to be created that infuse digital transformation into manual and outdated processes. Use both canvas and model-driven apps to build Power Apps that solve business problems for task and role-specific scenarios like inspections, field sales enablement, prospect to cash, and integrated marketing views.
- **Build highly tailored applications:** Start by designing your user experience on the Power Apps canvas. Customize every detail of your app to optimize for specific tasks and roles. Create apps for any device that uses a wide variety of controls including cameras and location, or start from a sample app showcasing common business scenarios, like expense reporting or site inspections.





Lesson 2: Learn basic elements of Power Apps

Learn basic elements



Power Apps has many different components to build solutions including screens, inputs, galleries, forms and more. Let's review some of the most common elements you will need to get started.

- **Power Apps Studio**
- **App format**
- **Galleries**
- **Forms**
- **Input Controls**
- **Intelligent Controls**
- **Functions**

Power Apps Studio



The screenshot displays the Microsoft Power Apps Studio interface. On the left, the navigation bar includes Home, Learn, Apps, Create, Data, Flows, AI Builder, and Solutions. The main area features a purple banner with the text "New to Power Apps? Get started quickly by generating your first app from your Excel data stored in the cloud." Below this, there's a section titled "Build business apps, fast" with the sub-instruction "Create apps that connect to your data and work across web and mobile. Learn about Power Apps". A "Make your own app" section shows three templates: "Canvas app from blank", "Model-driven app from blank", and "Portal from blank". Under "Start from data", icons are shown for SharePoint, Excel Online, SQL Server, Common Data Service, and Other data sources. A "Learning for every level" section offers three beginner-level tutorials: "Getting started with canvas apps", "Get started with canvas app formulas", and "Show a list of items in Power Apps". The right side of the interface shows a detailed view of a "Restock tools" screen. This screen contains a "Gallery" control displaying a grid of tool items. The "Data" pane on the right indicates the data source is "Product Items" from "Common Data Service". The "Layout" pane shows settings for "Wrap count" (8), "Template size" (72), and "Template padding" (0). The "Position" pane shows the item's position at (0, 230) with a width of 640 and height of 290. The "Color" pane shows a border color of #0078D4. The "Display mode" is set to "Edit". The "Visible" switch is turned on. The "Show scrollbar" and "Snap" switches are turned off. The "Show navigation" and "Navigation step" switches are also turned off.



App format

Power Apps ▼ Environment Guide To Learn, Inc. (default) 👤

New Open Account Connections ↗ Flows ↗

Create an app in Guide To Learn, Inc. (default)

Start with your data



Common Data Service
Premium

Phone layout



OneDrive for Business

Phone layout



SharePoint

Phone layout



SQL Server
Premium

Phone layout

→

Start with a blank canvas or a template



Blank app

Customize a blank app to fit your needs.

Phone layout

Tablet layout



App templates

Get a jumpstart with predesigned templates.

Phone layout

Tablet layout

Galleries



Power Apps

Start from template ⓘ

All Office

Search all templates

Environment Guide To Learn, Inc. (de...)

Home Learn Apps Create Data Flows AI Builder Solutions

Power Apps Training for Office Canvas app

Meeting Capture Canvas app

Power Apps Training Canvas app

Onboarding Tasks Canvas app

Help Desk Canvas app

Budget Tracker Canvas app

Site Inspection Canvas app

Service Desk Canvas app

Leave Request Canvas app

Fundraiser Model-driven app

Innovation Challenge Model-driven app

Asset Checkout Model-driven app

Case Management Canvas app

My Expenses Canvas app

Customer Success Canvas app

A screenshot of the Microsoft Power Apps gallery. The left sidebar includes links for Home, Learn, Apps, Create (Data, Flows, AI Builder), and Solutions. The main area shows a grid of app templates under the heading "Start from template". Each template card includes a preview image, the app name, and its type (e.g., Canvas app or Model-driven app). The cards are arranged in four rows: Row 1: Power Apps Training for Office, Meeting Capture, Power Apps Training, Onboarding Tasks, Help Desk. Row 2: Budget Tracker, Site Inspection, Service Desk, Leave Request, Fundraiser. Row 3: Innovation Challenge, Asset Checkout, Case Management, My Expenses, Customer Success. Row 4: (empty space).

Forms



Text = *Parent.DisplayName*

Screens

- BrowseScreen1: A list view of assets, showing items like iPad Air 2, Zen Book UX301LA, and Surface Pro 4.
- DetailScreen1: A detailed view of an asset, showing fields like ApproverEmail (Ben.Change@contoso.com), AssetType (Tablet), AssignedTo (Jack), DeviceName (iPad Air 4), ImageThumbnailURL (https://www.apple.com/pr/products/iPad-Air-4), and ImageURL (http://store.storeimages.cdn-apple.com/8544/assets/images.apple.com/is/image/AppleInc/aos/published/images/i_pa/ipad/air/ipad-air-select-fold_201410_CFO_AU2).
- EditScreen1: A form screen for editing asset details, showing fields for AssetID, ApproverEmail, AssetType, AssignedTo, DeviceName, ImageThumbnailURL, ImageURL, SecurityCode, and ID.

DataCardKey20

Options Advanced

Form customization

Assets SharePoint Refresh

Snap to columns 1

Layout Vertical

Fields

- AssetID 123
- ApproverEmail abc
- AssetType
- AssignedTo abc
- DeviceName abc
- ImageThumbnailURL abc
- ImageURL abc
- SecurityCode abc
- ID

Input Controls



Insert Content Action Screen

Text box Button Text Controls

▼ = fx RGB

- Button
- Drop down
- Date picker
- List box
- Check box
- Radio**
- Toggle

Intelligent Controls



PowerApps | AI Builder

Select the fields that influence what you want to predict

Invoice

Display name	Name	Data type
<input checked="" type="checkbox"/> Created On	createdOn	Date and Time
<input checked="" type="checkbox"/> Created By	createdBy	Lookup
<input checked="" type="checkbox"/> Customer	customerID	Lookup

Quick tips

Which fields should I select?

A Binary Classification model to predict a True or False outcome based on common data. Outcomes tend to predict future events. Predictions will appear in your environment.

Learn more

PowerApps

- Home
- Learn
- Apps
- Create
- Data
- Business logic
- AI Builder (prev...)
- Build
- Models
- Solutions

Models > Text Classification

Published version

Performance

32% Live

743 text snippets • 37 tags
Input: Feedback > User generated feedback
Trained 1 day ago

Run Quick test ...

Last trained version

Performance

78% Not published

922 text snippets • 37 tags
Input: Feedback > User generated feedback
Trained 2 mins ago

+ Add images

Need help?

Check out the documentation in the help menu at the top of the page. If you have further questions, send us an email.

Contact us

PowerApps

New version Settings ...

Need help?

Models > Text Classification

Published version

Performance

32% Live

743 text snippets • 37 tags
Input: Feedback > User generated feedback
Trained 1 day ago

Run Quick test ...

Last trained version

Performance

78% Not published

922 text snippets • 37 tags
Input: Feedback > User generated feedback
Trained 2 mins ago

Run in Common Data Service

Learn how your new text data can be tagged automatically. More

Tips

Improve model performance

Learn how to refine your model to see better results. More

Publish your model

Learn what publishing your model means and when to do it. More

Functions



Formulas combine many elements. Listed below are:

- **Functions** take parameters, perform an operation, and return a value. For example, **Sqrt(25)** returns **5**. Functions are modeled after Microsoft Excel functions. Some functions have side effects, such as **SubmitForm**, which are appropriate only in a behavior formula such as **Button.OnSelect**.
- **Signals** return information about the environment. For example, **Location** returns the device's current GPS coordinates. Signals don't take parameters or have side effects.
- **Enumerations** return a pre-defined constant value. For example, **Color** is an enumeration that has pre-defined values for **Color.Red**, **Color.Blue**, and so forth. Common enumerations are included here; function-specific enumerations are described with the function.
- **Named operators**, such as **ThisItem** and **Parent**, provide access to information from within a container.

A screenshot of the Microsoft Power Platform formula editor interface. At the top, there is a formula bar with the text "Text" and an equals sign (=). To the right of the equals sign is an "fx" button, followed by the expression "TextInput1 + TextInput2". Below the formula bar is a sidebar titled "Screens" with a search bar. Under "App", there is a tree view showing "Screen1" expanded, containing "Label1" (selected), "TextInput2", and "TextInput1". To the right of the sidebar, there are two rectangular boxes: one green box containing the number "49" and one purple box containing the number "65". At the bottom, there is a horizontal line with four circular markers, and the number "114" is displayed next to it.



Exercise 1: Build a Power Apps app

Exercise 1: Build a Power Apps app



Follow the instructions from this [link](#).

Objectives of this exercise are:

- Connect to a data source
- Explore the generated app
- Install the app on your device
- Explore the app
- Explore the browse screen
- Explore the details screen
- Explore the edit/create screen
- Customize the app
- Browse screen
- Details screen
- Edit/create screen
- Controls in Power Apps

The screenshot shows the Microsoft Power Platform Site Inspector tool interface. On the left is a preview of a card with the following data:

Field Name	Type	Value
Title	View text	Contoso Building 3
Address	View text	NE 8th
City	View text	Bellevue
Description	View text	Big 86934 sq ft lot with 4-story 48568sq reinforced concrete building. Building has elevators, sprinklers, and parking for 1 vehicles.
IsGPSCoordinates	View text	True
Latitude	View text	47.6
Longitude	View text	-122.1
Notes	View text	Buidling built in 1980 with significant renovations in 1990
SubTitle	View text	

On the right is a detailed view of the fields:

- Title**: Field name Title, Data type String, Required No.
- Address**: Field name Address, Data type String, Required No.
- City**: Field name City, Data type String, Required No.
- Description**: Field name Description, Data type String, Required No.
- IsGPSCoordinates**: Field name IsGPSCoordinates, Data type Boolean, Required No.
- Latitude**: Field name Latitude, Data type Number, Required No.
- Longitude**: Field name Longitude, Data type Number, Required No.
- Notes**: Field name Notes, Data type String, Required No.
- SubTitle**: Field name SubTitle, Data type String, Required No.



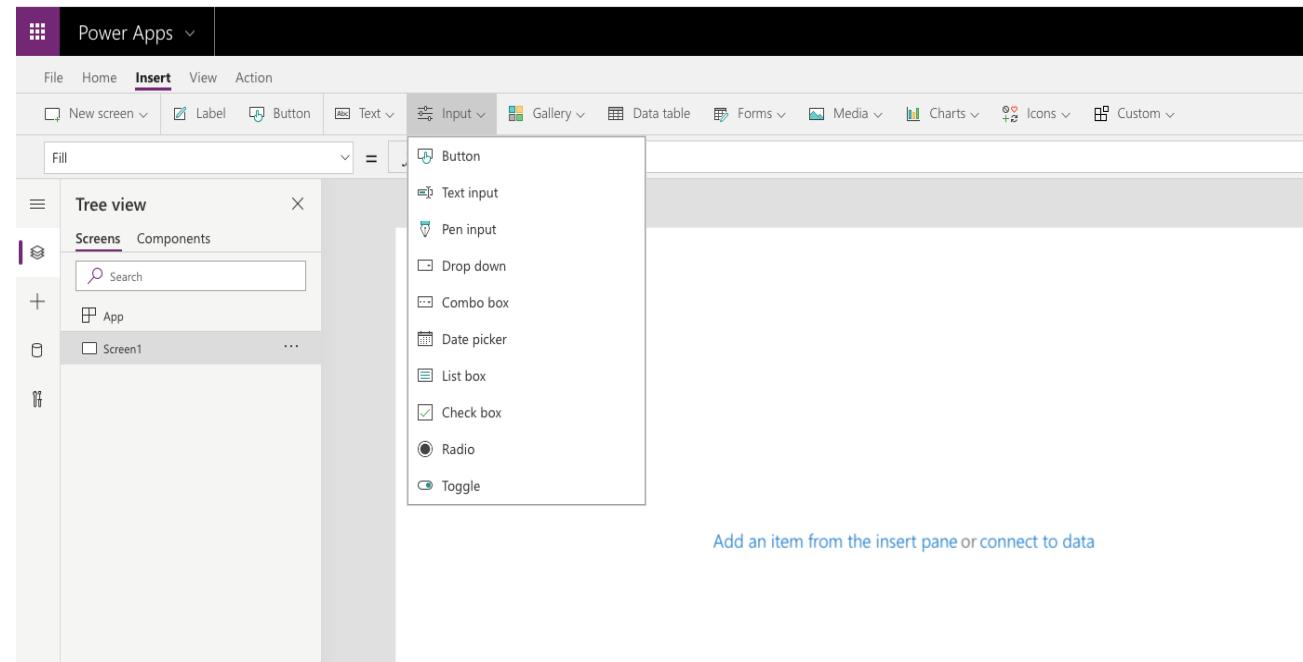
Lesson 4: Get started with functions in Power Apps

Formulas overview



Here are some common functions and an explanation of what they do:

- **Filter** - This function is often used with galleries or tables of data to narrow down the records returned from your data source. You do this by specifying one or more columns in your data set to perform a logic test on, which will allow you to return data that falls in a certain date range, has a set value, or was created by the user for example.
- **Match** - This function allows you to check a value to see if it follows a given pattern. You can use this to check if the user entered a properly formatted email address in the input field and if they did not show them a warning that a valid email is required. This function serves well for conditional formatting.
- **Distinct** - This function allows you to return the unique values from a list of data, making it easier to build dynamic dropdowns that show users only the valid values for the given field.
- **Math functions** - Power Apps includes a range of math formulas for working with your data from the simple such as Sum or Average to the complex such as Atan and Sin to work with radians.





Exercise 2: Share an app

Exercise 2: Share an app you have created in Exercise 1

Follow the instructions from this [link](#).

Objectives of this exercise are:

- Prepare to share an app
- Optional
 - Share an app with Office 365 Groups
 - Manage entity permissions
 - Share with guests

The screenshot shows the Microsoft Power Platform canvas app sharing interface. On the left, there's a navigation bar with 'Home', 'Learn', 'Apps' (which is highlighted with a red box), 'Create', 'Data', and 'Business logic'. In the center, a list of apps shows 'AppShare' (with a blue icon, also highlighted with a red box) as the selected item. Below the list are buttons for '+ Create an app', 'Play', 'Edit', and 'Share' (highlighted with a red box). A modal window titled 'Share' is open, containing a search bar 'Enter a name, email address, or Everyone' (highlighted with a red box) and two checked options: 'New users' and 'Everyone in Microsoft User'. To the right of the modal, there's a 'Data permissions' section with a note about ensuring user access to data used in the app. At the bottom right, there's an 'Assign a security role' dropdown (highlighted with a red box). The footer of the page says '© Copyright Microsoft Corporation. All rights reserved.'

Summary

- **Power Apps** allows you to build custom business apps to make powerful new solutions. The potential to increase process efficiency in the areas of communication and data. Now that you have built your first app, consider areas that could benefit from custom solutions at your business. Start by thinking of processes that frustrate you and consider how you can leverage Power Apps to improve them for everyone.
- **Power Apps** can reference elements within the app to create dynamic solutions and a friendly interface.
- With endless customization options, **Power Apps** can be used to enhance any business process.
- Creating and managing apps are simple and easy to learn, even for those without a computer programming background.

© Copyright Microsoft Corporation. All rights reserved.

**FOR USE ONLY AS PART OF VIRTUAL TRAINING DAYS PROGRAM. THESE MATERIALS ARE NOT AUTHORIZED FOR
DISTRIBUTION, REPRODUCTION OR OTHER USE BY NON-MICROSOFT PARTIES.**



Module 5: Leverage Microsoft Power BI

Introduction

In this module, we will explore, understand and learn about:

- Introduction to Power BI
 - Describe the business value and features of Power BI
 - See how Power BI works and looks from the user's perspective
- How to build a simple dashboard
 - Learn to connect to data in Power BI desktop
 - Transform and model the data you import
 - Build basic visualizations
 - Create and share a dashboard
 - Discover how to collaborate in Power BI

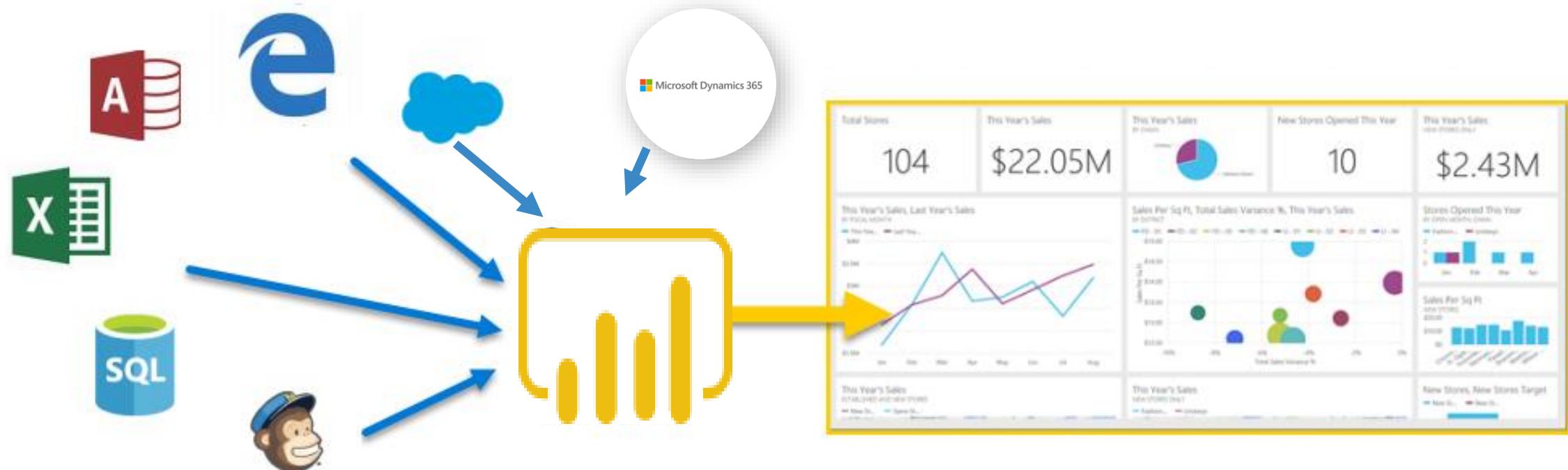


Lesson 1: Introduction to Power BI

What is Power Automate and the value it brings to you



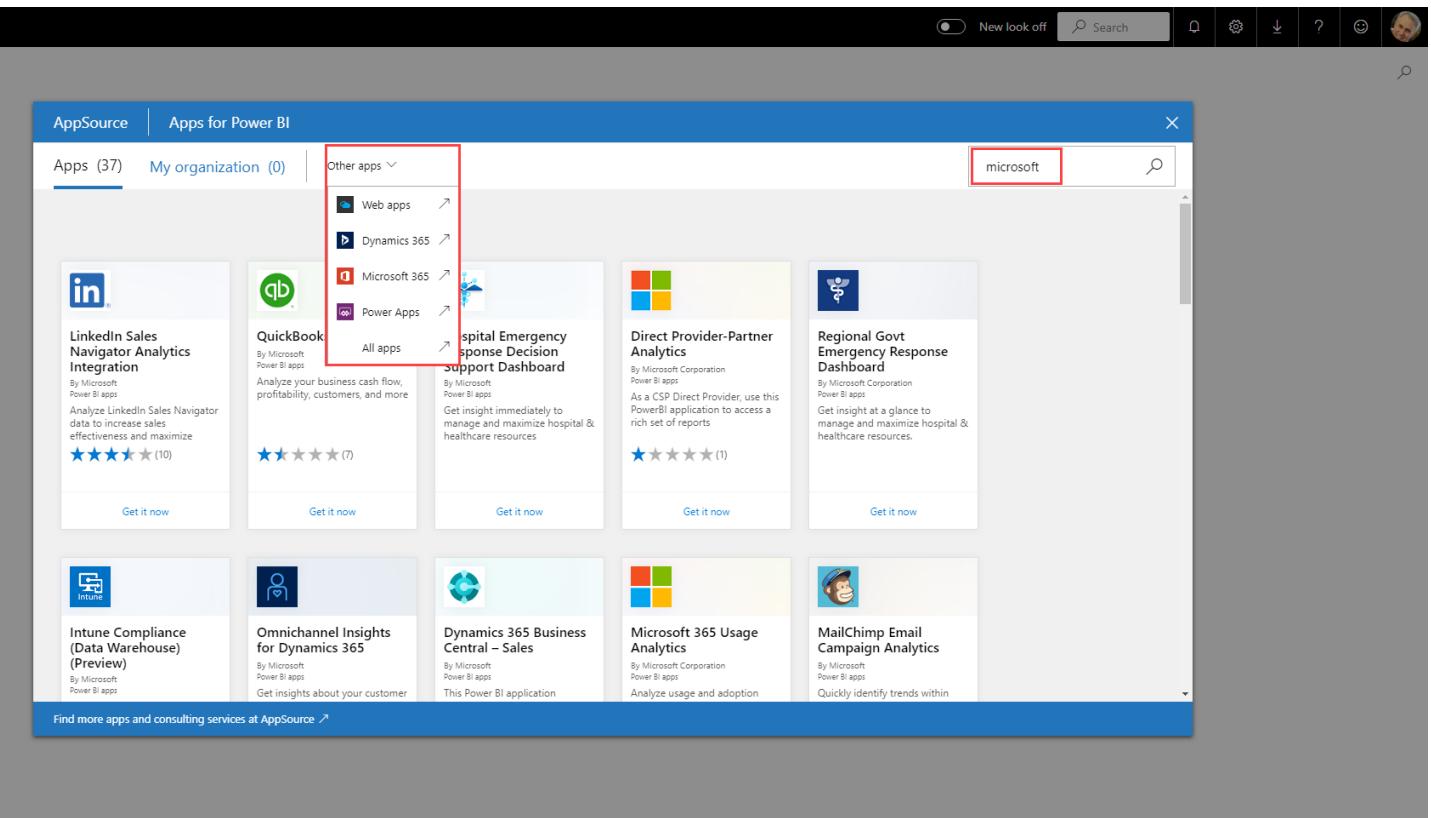
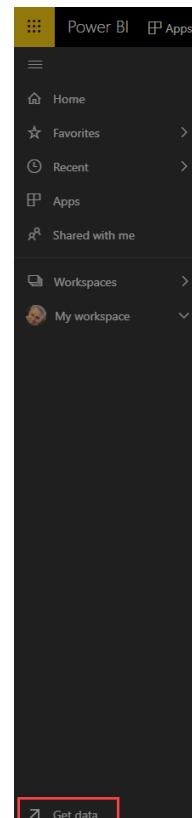
- Self-service platform helps you discover, analyze and visualize data in order to share and collaborate insights with your colleagues.
- Visualizations are interactive and scalable reports, based on collections of different data sources



Getting Data



- Excel files
- databases
- Azure data
- AppSource
- Dynamics 365
- SaaS providers
 - Salesforce
 - Facebook
 - Google Analytics
 - other SaaS services



The screenshot shows the Microsoft AppSource interface for Power BI. A red box highlights the 'Other apps' section in the top navigation bar. Another red box highlights the search bar, which contains the word 'microsoft'. Below the navigation bar, there are several app cards. One card for 'spital Emergency Response Dashboard' is highlighted with a red box. Other visible cards include 'LinkedIn Sales Navigator Analytics Integration', 'QuickBook', 'Intune Compliance (Data Warehouse) (Preview)', 'Omnichannel Insights for Dynamics 365', 'Dynamics 365 Business Central – Sales', 'Microsoft 365 Usage Analytics', and 'MailChimp Email Campaign Analytics'. At the bottom of the interface, there is a blue footer bar with the text 'Find more apps and consulting services at AppSource'.

Power BI Editor



The screenshot displays the Microsoft Power BI Desktop interface. The main area shows a dashboard titled "Executive Report - Power BI Desktop" for Chemonics, focusing on digital transformation with Microsoft Dynamics 365. The dashboard is divided into three main sections: "PRACTICE PLANNING", "PRACTICE EXECUTION", and "PRACTICE WORKFORCE PLANNING".

- PRACTICE PLANNING:** Includes a map of customer locations, a pie chart of funding sources (Funding 7.8%, Project 81.5%, Investment 0.7%), and a bar chart of project types (Software development engine, Timeframe, Fixed fee, Program, Indirect).
- PRACTICE EXECUTION:** Shows resource profiles (540 resources, 797 tasks) and a bar chart of suggested cost & revenue.
- PRACTICE WORKFORCE PLANNING:** Displays applicant statistics (25 applicants, gender distribution), current openings by department, employee details (572 employees, skills matrix), and benefit plans.

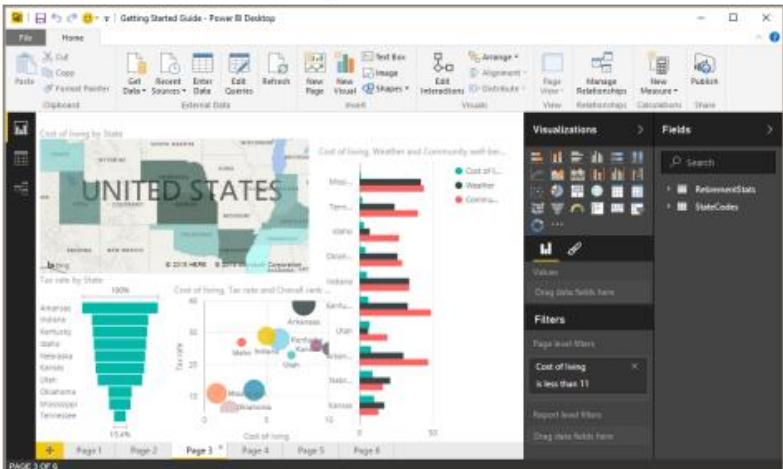
The ribbon menu at the top includes File, Home, View, Modeling, and Help. The Home tab is selected. The right side of the screen features the "VISUALIZATIONS" and "FIELDS" panes, which contain various data fields and filters for report customization.

Power BI Tools



- Desktop
- Mobile
- Service

Power BI Desktop



Power BI Mobile



Power BI service



Security and Administration



- **Security:** Similar to many Microsoft services, Power BI is built on Azure, which is Microsoft's cloud computing infrastructure and platform, ensuring the same level of security. Users log in with their credentials held in Azure Active Directory (AAD) and control the level of sharing for every report, data or dashboard, determining whether recipients can edit or only view items.
- **Administration:** Power BI administration is the management of a Power BI tenant, including the configuration of governance policies, usage monitoring, and provisioning of licenses, capacities, and organizational resources.

A screenshot of the Power BI Admin portal. The left sidebar shows navigation links like Home, Favorites, Recent, Apps, Workspaces, My workspace, Reports, Business Central T..., Cost Management, Financial Performa..., Google Analytics, Workbooks, Datasets, and Get data. The main content area is titled 'Admin portal' and shows 'Help and support settings' with options for publishing help information and receiving email notifications for service outages. Below that is 'Workspace settings' with a section for creating workspaces. A yellow callout box highlights a note about workspace creation permissions. The 'Apply to:' section includes radio buttons for 'The entire organization' (selected), 'Specific security groups', and 'Except specific security groups'. At the bottom are 'Apply' and 'Cancel' buttons. Other sections visible include 'Information protection (preview)' and 'Use datasets across workspaces'.

Transform data to insights



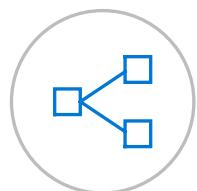
Get your data



Analyze



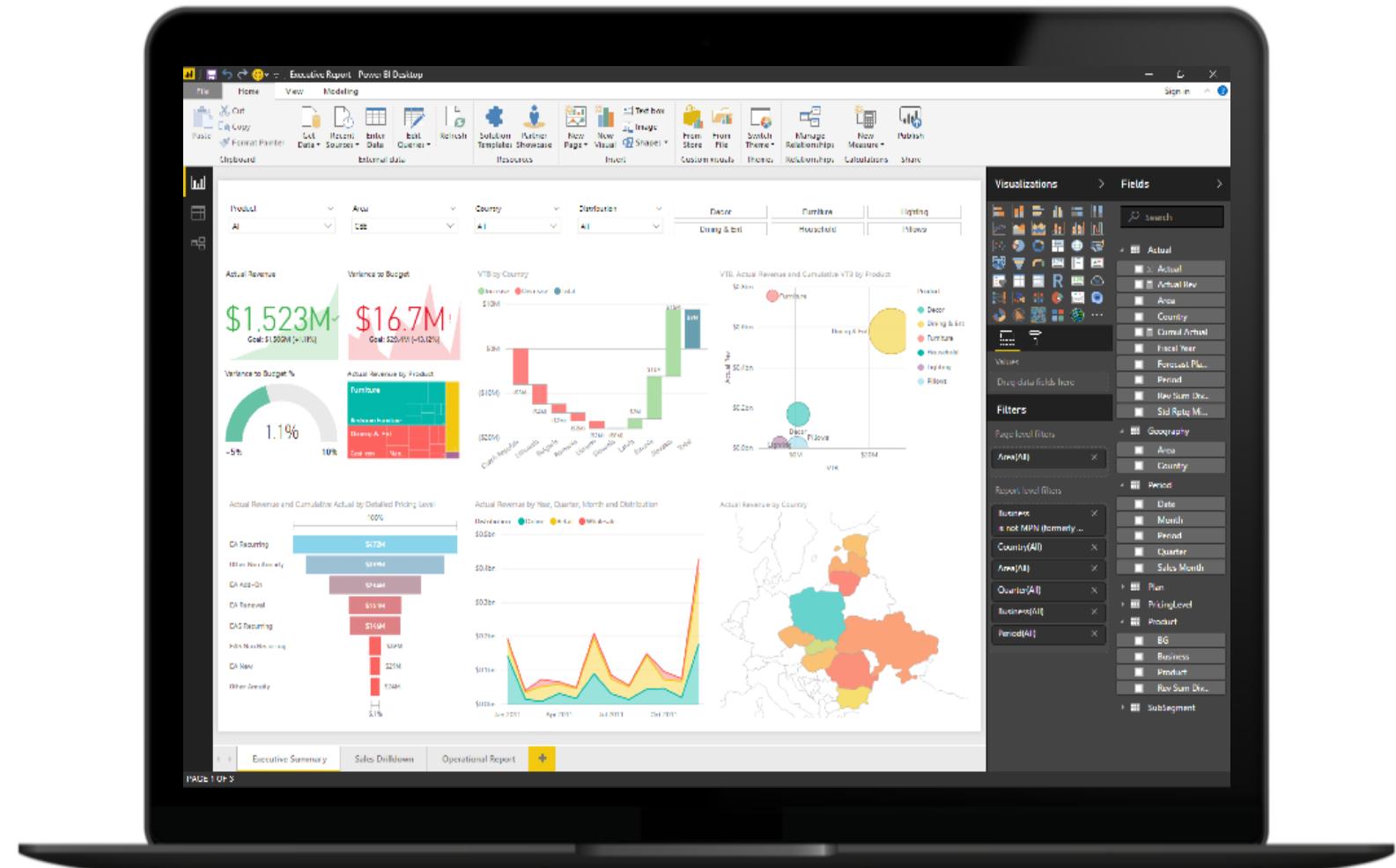
Visualize



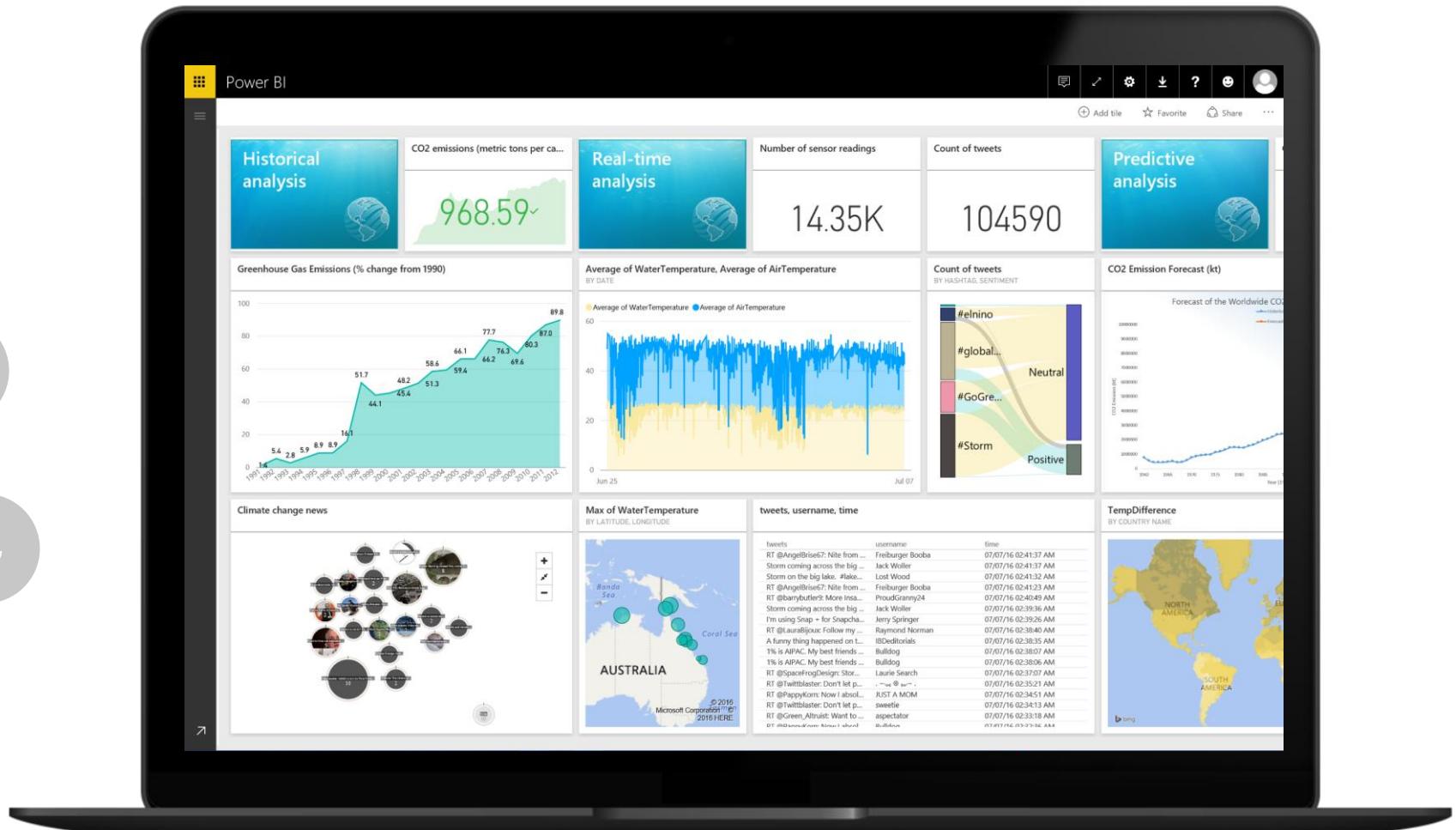
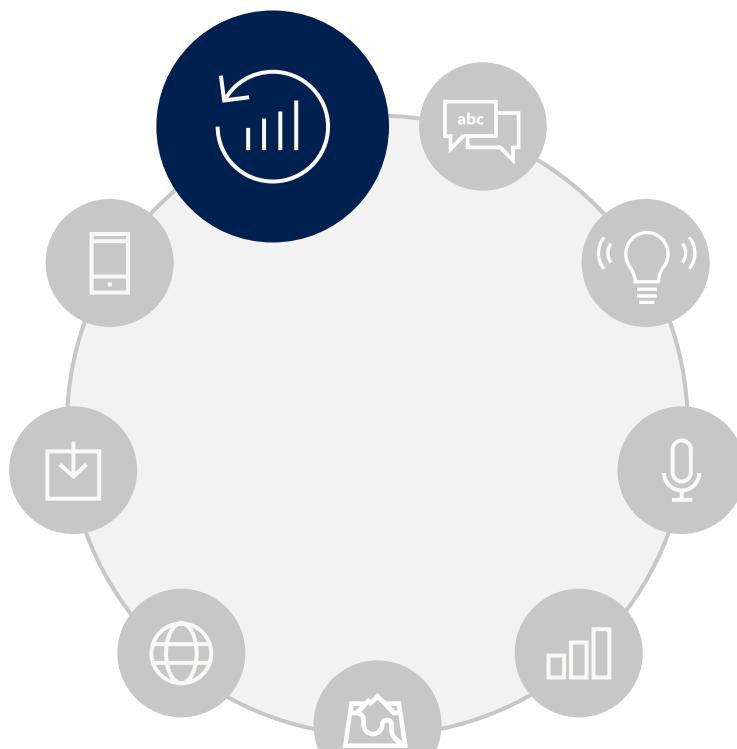
Publish



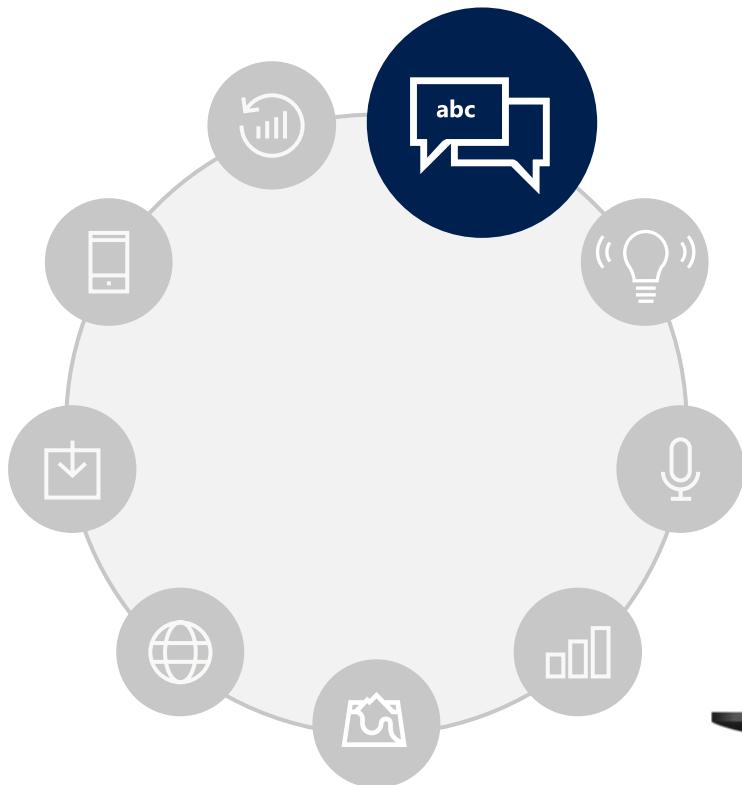
Collaborate



Get dashboards in minutes

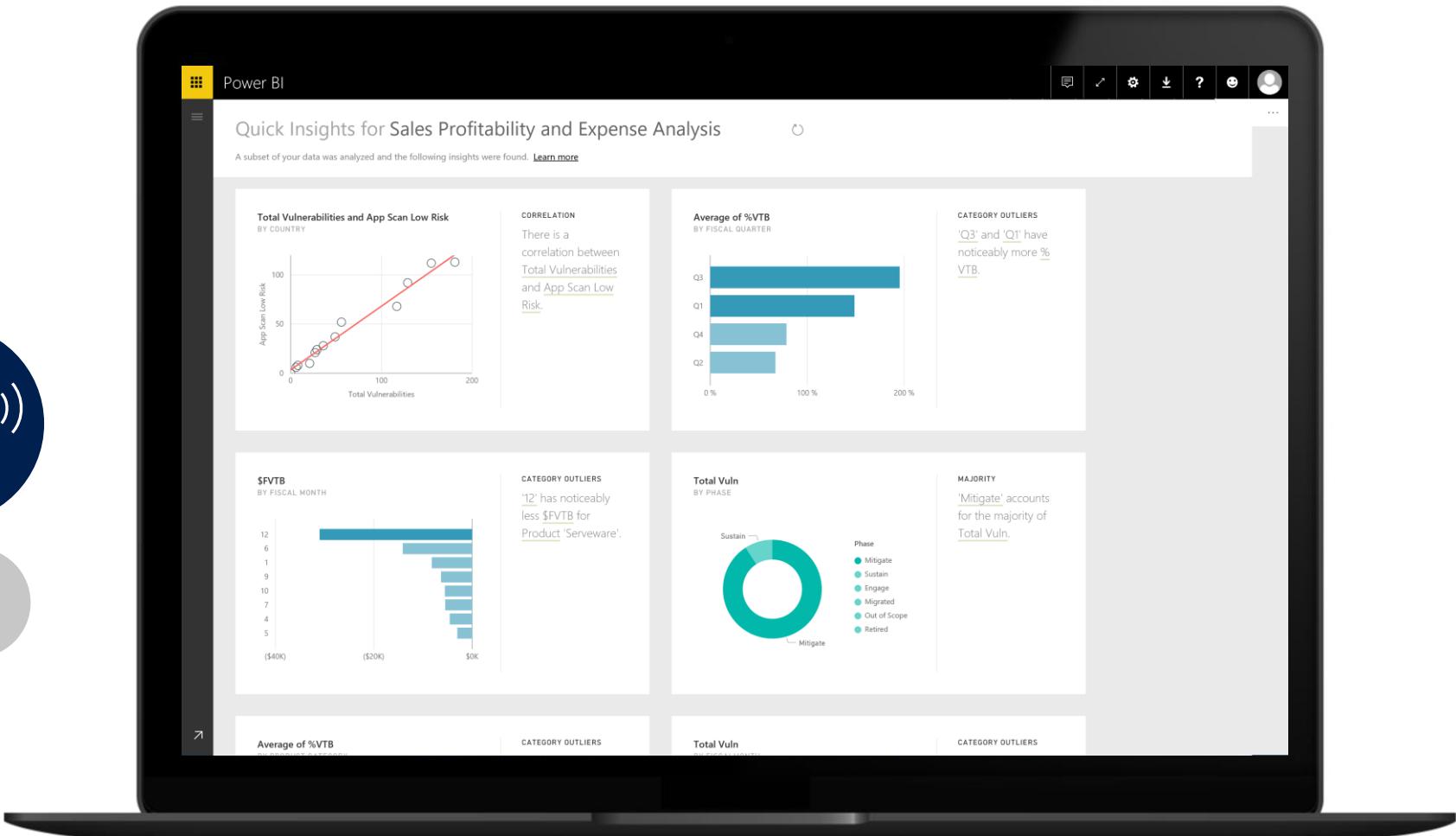


Natural language query



A screenshot of a Microsoft Power BI desktop application window titled "Climate Change demo". The main area displays a chart with the subtitle "Electricity from coal, nuclear, gas per year in USA". The chart has "Year" on the X-axis and "Coal (% of total)" on the Y-axis. The legend includes "Coal (% of total)", "Nuclear (% of total)", and "Natural Gas (% of total)". The Q&A pane on the left shows the query "Electricity from coal, nuclear, gas per year in USA". The right side of the screen shows the Power BI visualizations and fields panes, which contain various data fields and filters like "Country Code is USA".

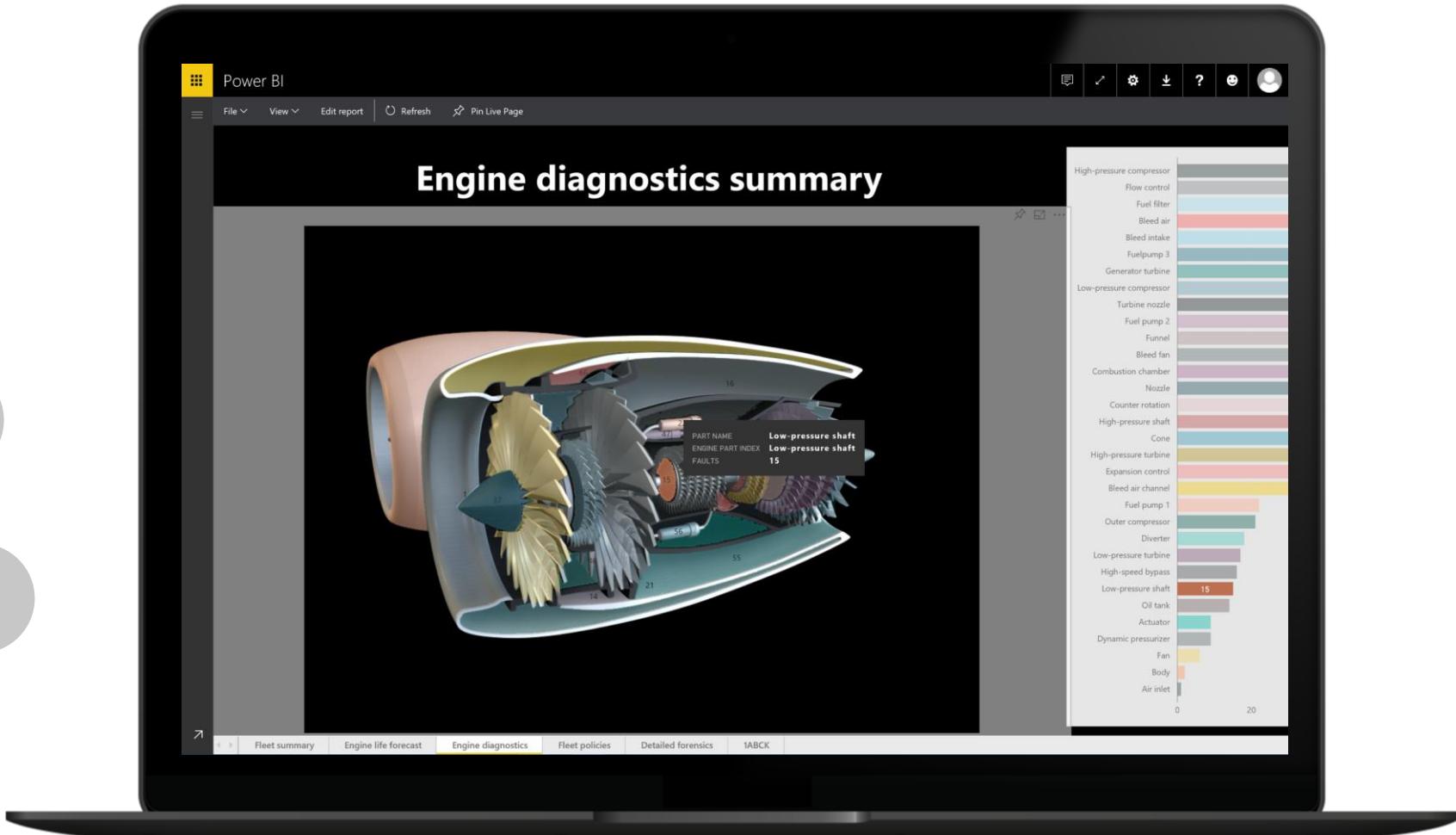
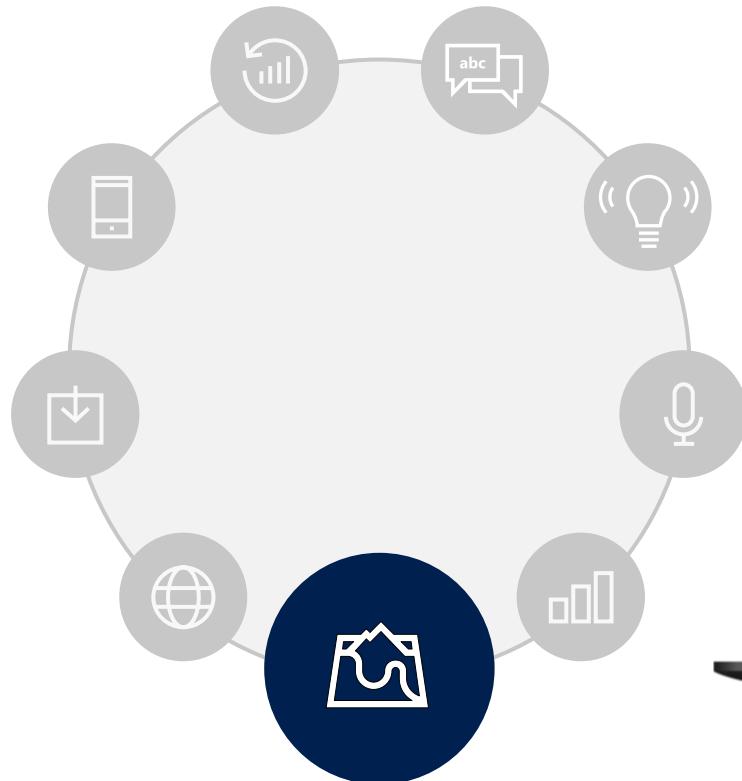
Quick Insights



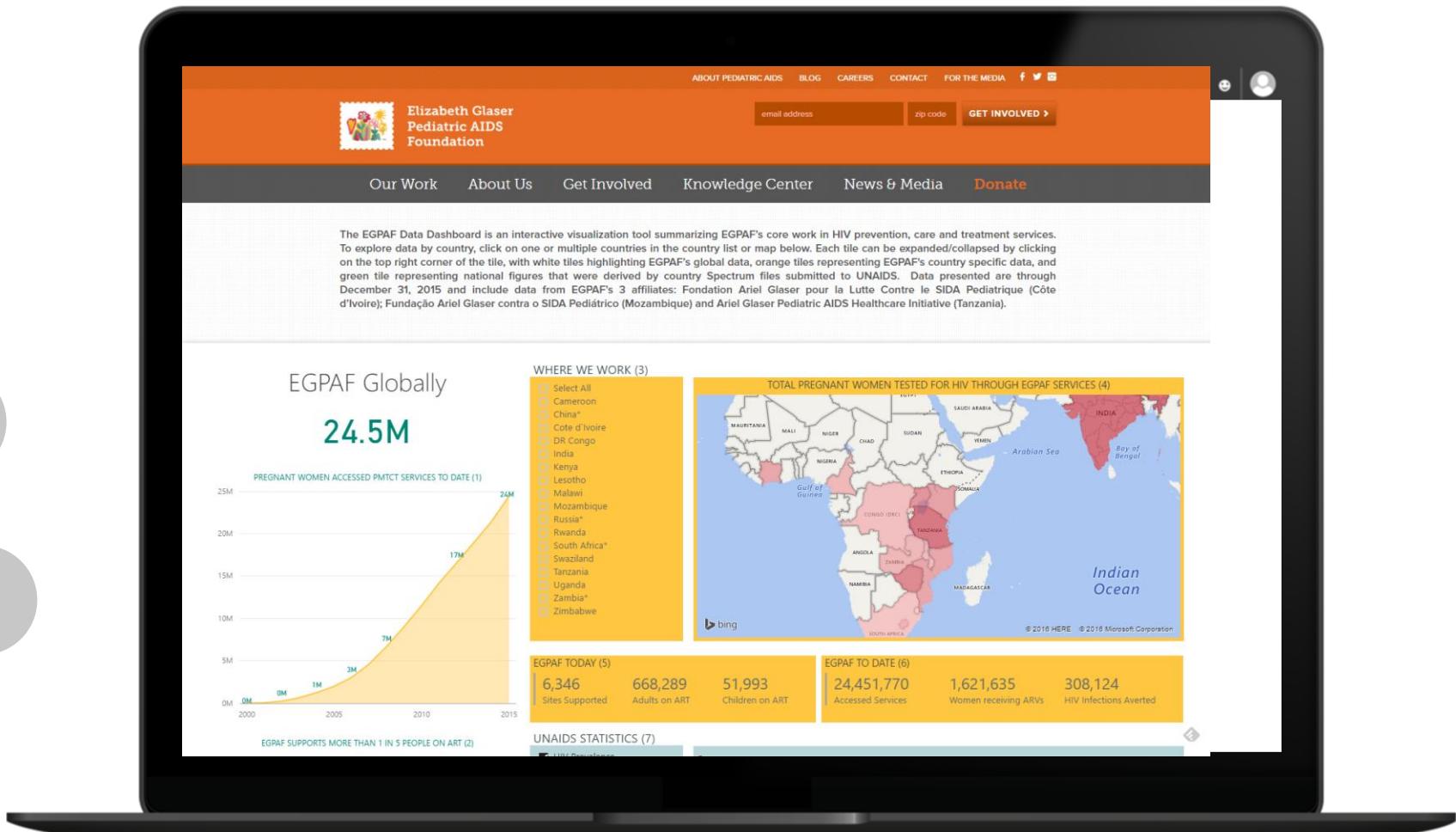
Cortana integration



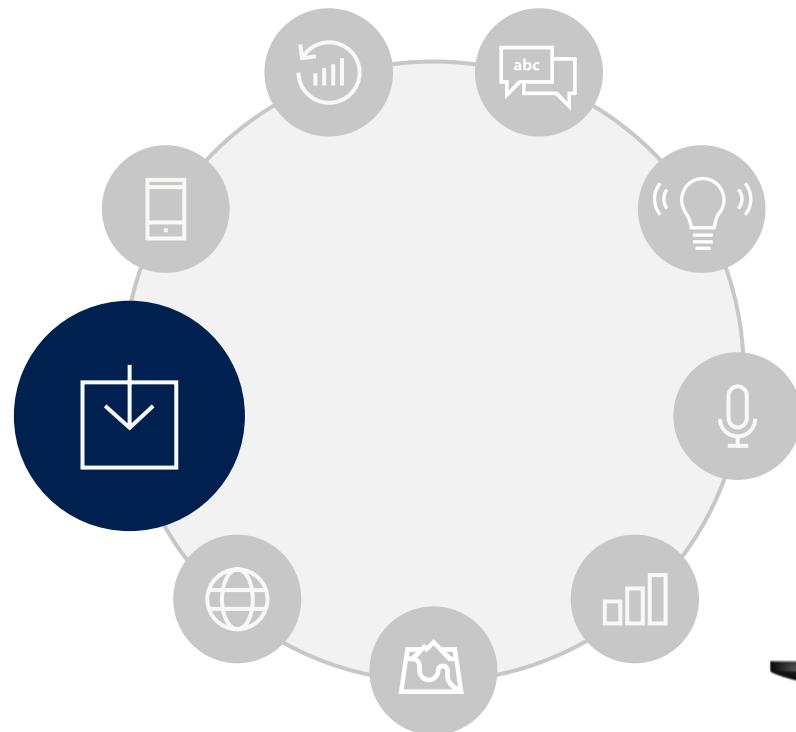
Custom visualizations



Publish to the web

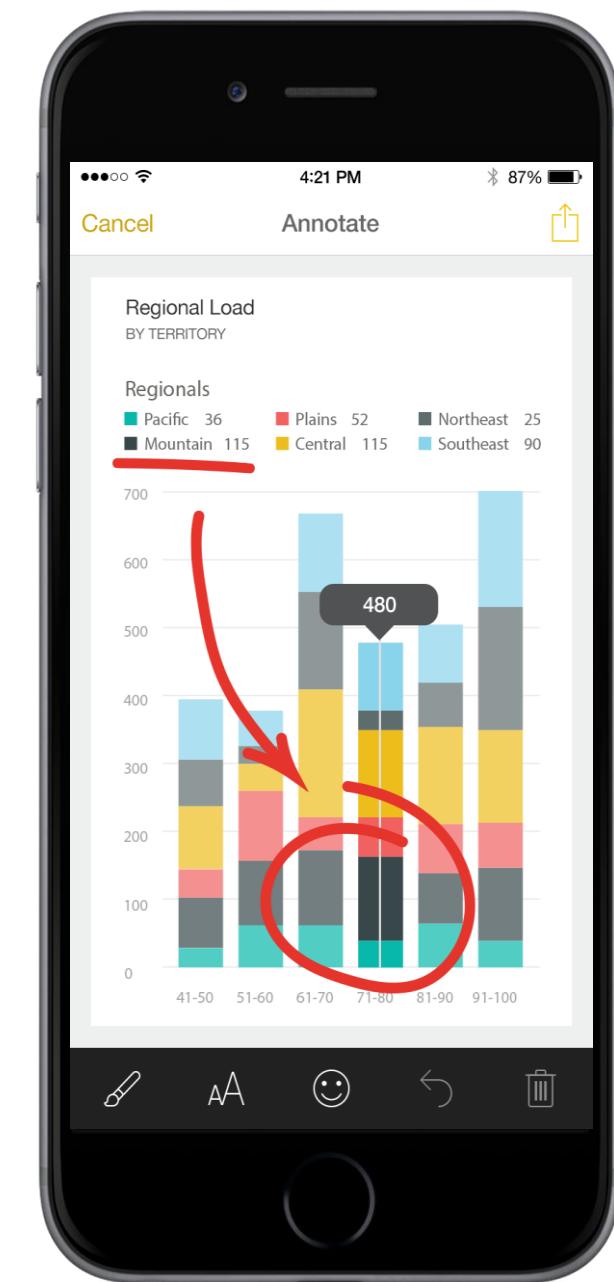


Integration with Microsoft apps & services



The screenshot shows the Microsoft Excel ribbon with the 'File' tab selected. The 'Publish' option is highlighted in the ribbon menu. The main content area displays the 'Publish' screen for 'Business analysis feature tour1 - Excel'. The 'Publish to Power BI' button is prominently displayed. Below it, there is descriptive text about using Power BI for creating reports, links to 'Go to Power BI' and 'Learn more', and a list of steps: 'Step 1: Save your document to OneDrive for Business.' and 'Step 2: Publish your document to Power BI.' A 'Save to Cloud' button is also visible.

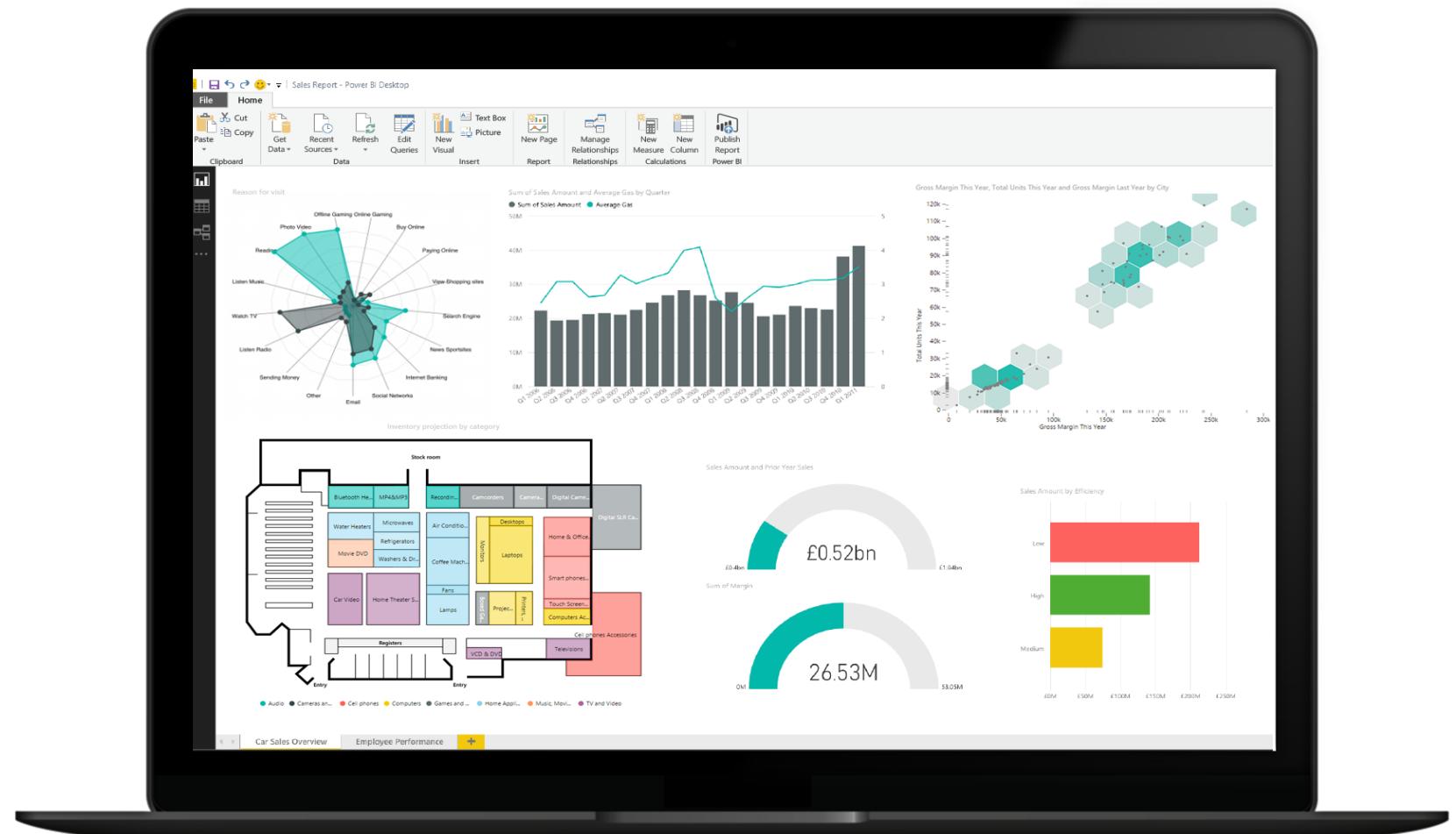
Power BI Mobile



Create powerful reports with Power BI Desktop



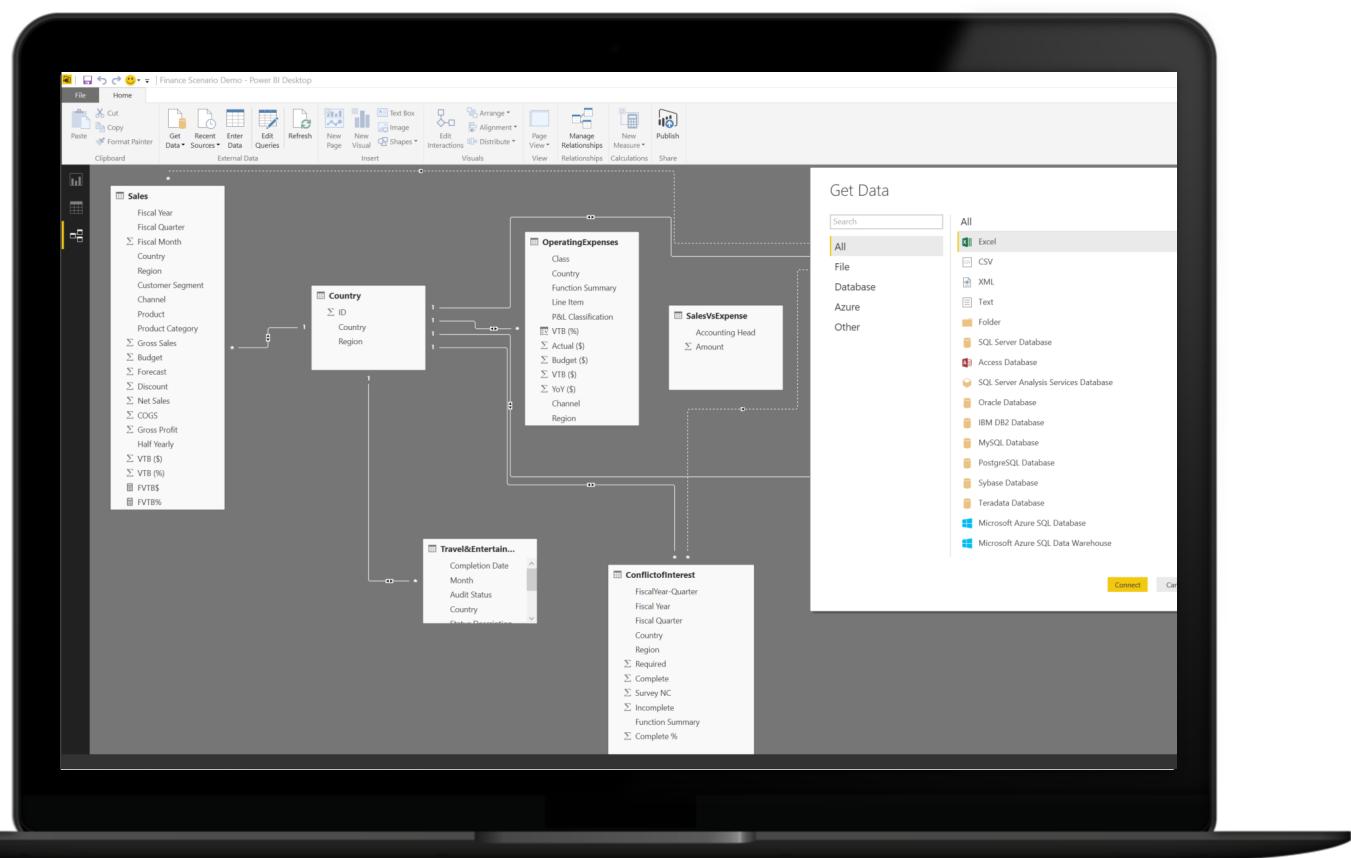
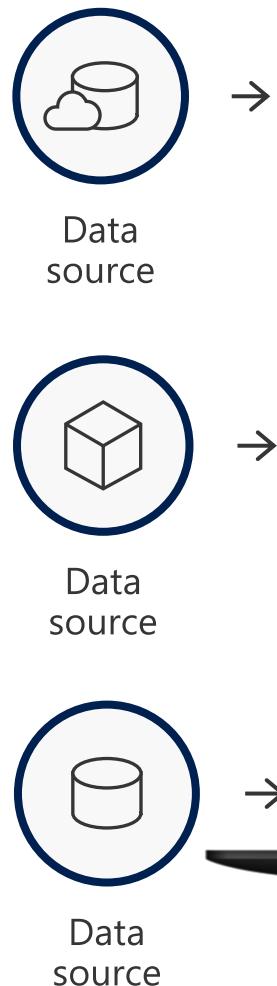
- Discovery & exploration
- Easy report authoring
- Custom visualizations
- R integration



Connect to all the data around you



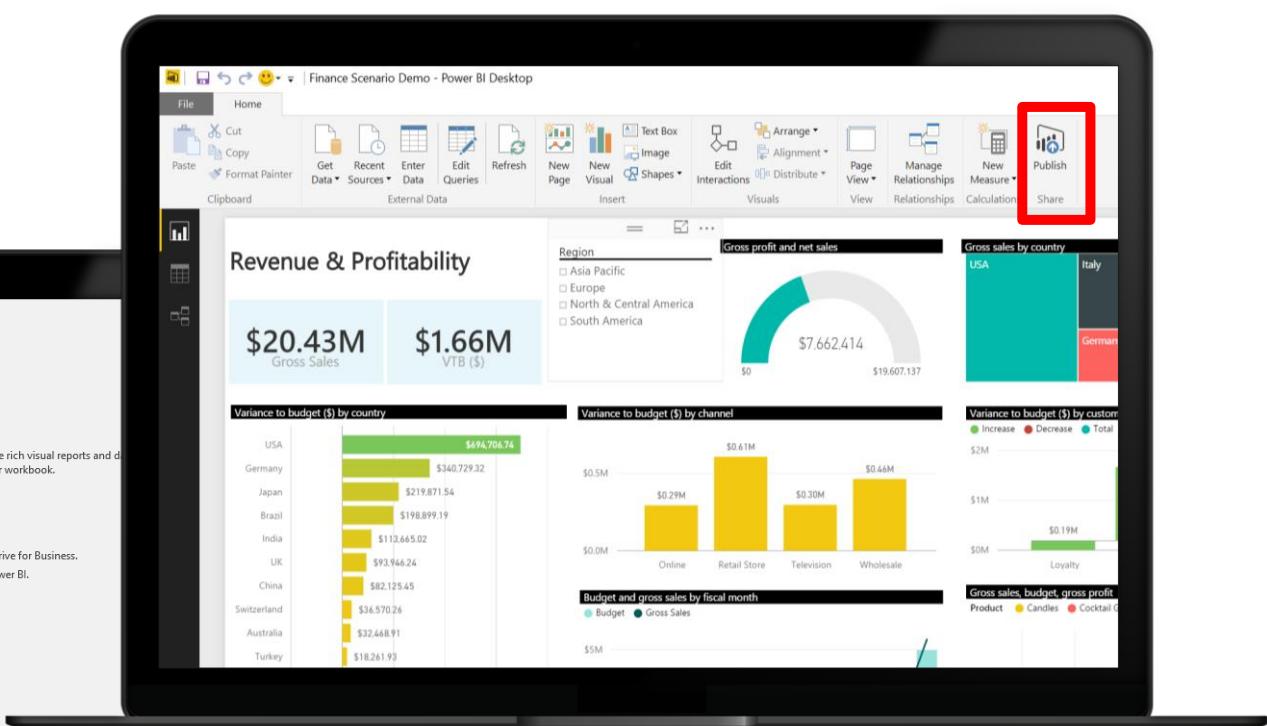
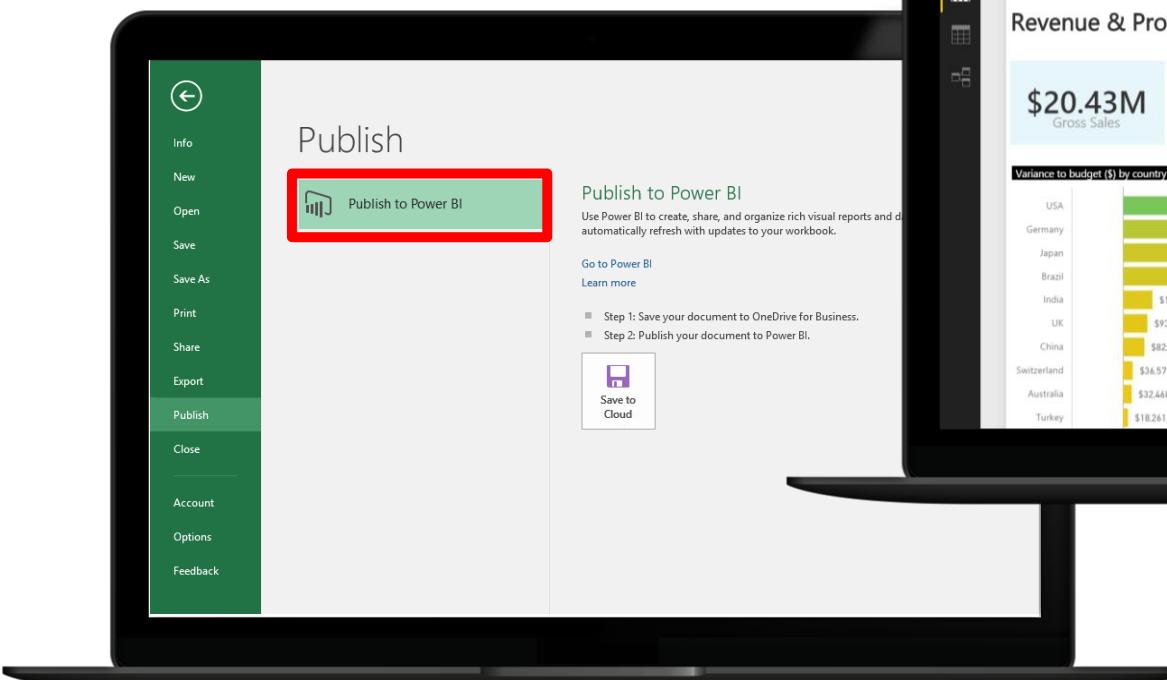
- Connect to data in the cloud and on-premises
- Shape, transform, and clean data for analysis
- Join and model data from multiple sources/types
- Extend with advanced analytics technologies like R



One-click publish to Power BI



- Power BI Desktop
Publish button on the ribbon
- Excel
Publish to Power BI button



Powerful self-service analysis



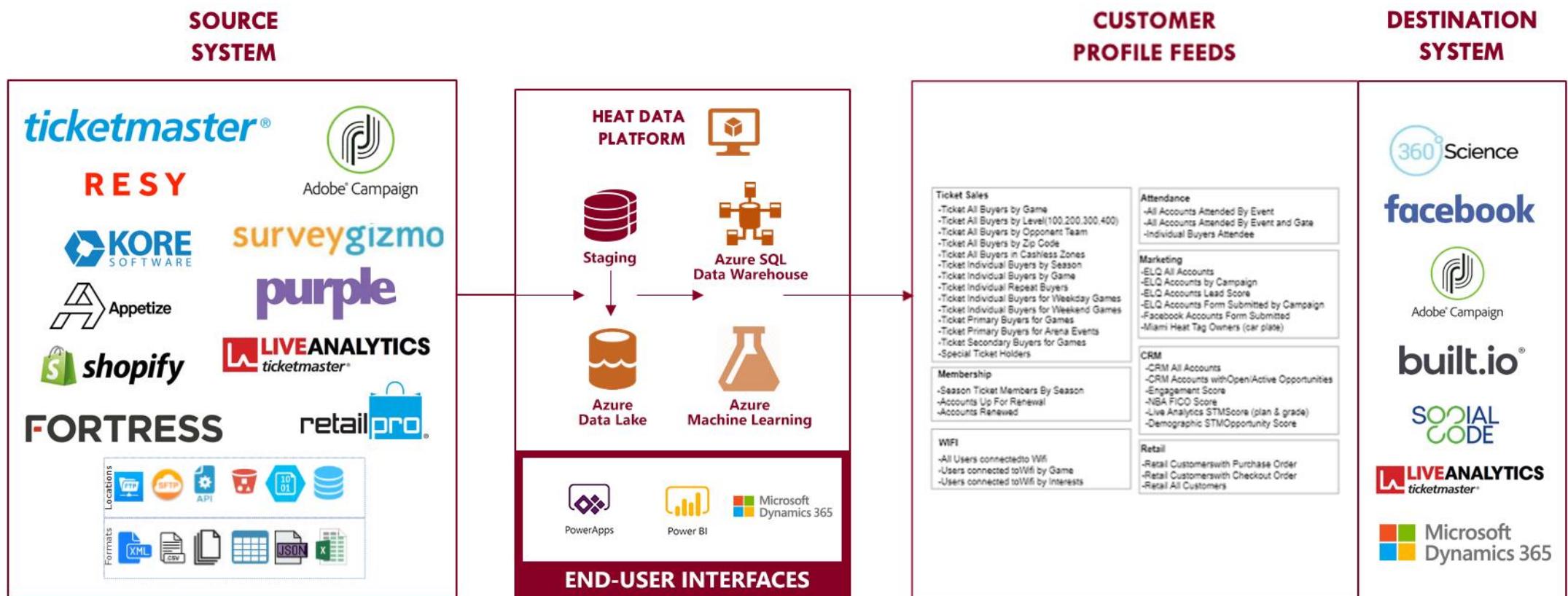
- Power BI Desktop**
Visual drag-and-drop data exploration and interactive reporting
- Excel**
Ad-hoc analysis for blending structured and unstructured data



Customer case study – Miami Heat



- Miami HEAT boosts season ticket sales by 30% and saves approximately \$1 million on operations





Exercise 1: How to build a simple dashboard

Exercise 1: Build a dashboard

Follow the instructions from the following list:

Objectives of this exercise are:

- [Connect to data](#)
- [Transform and Model data](#)
- [Visualize data](#)
- [Build a dashboard](#)
- [Collaborate and share](#)

Summary

- **Microsoft Power BI** helps business analyze existing data to receive insights and make better decisions. With the power of security backed by Azure and an intuitive interface, any skill level of user can make powerful reports and dashboards to use across the organization.
 - Microsoft Power BI is a collection of software services, apps, and connectors that work together to turn your unrelated sources of data into coherent, visually immersive, and interactive insights..
 - Leveraging Power BI and other Microsoft technologies can lead to significant returns in terms of not only revenue, but your business users' ability to make beneficial decisions..
 - Power BI is built on Azure, Microsoft's cloud computing infrastructure and platform, ensuring your data is secure and only accessible by authenticated users.
- **Power BI** allows you to easily analyze, visualize, and collaborate on data. Now you can get started leveraging these capabilities to make better business decisions.
 - Power BI Desktop is a free application for PCs that lets you gather, transform, and visualize your data.
 - Power BI Desktop connects to many types of data sources, including local databases, worksheets, and data on cloud services.
 - Power BI simplifies collaboration and improves the outcome by allowing you and your colleagues to work simultaneously on the same dashboards and reports