



# App in a Day

## Microsoft Power Platform

Power Apps

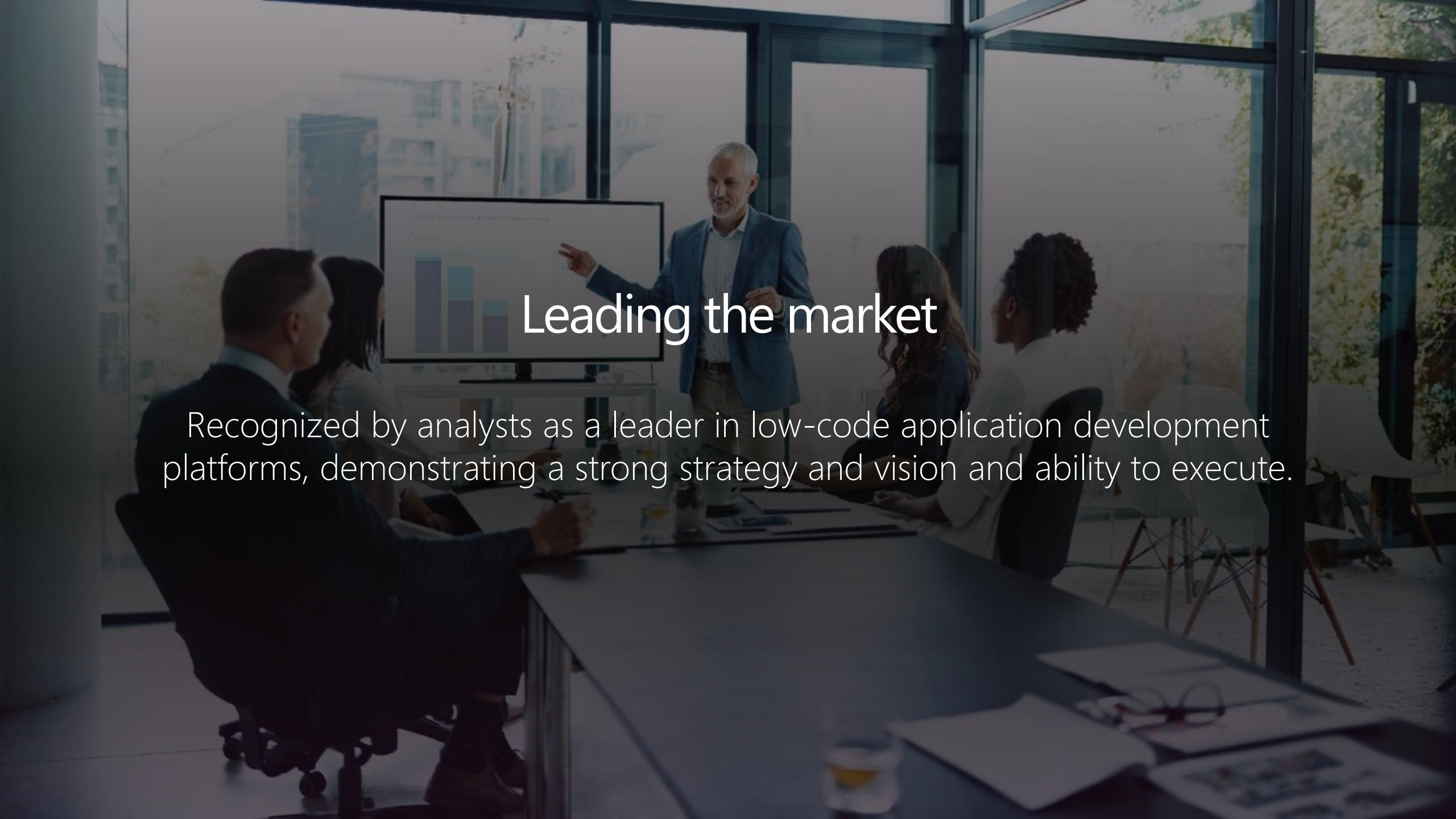
Power Automate

Microsoft Dataverse

**February 2021**

# Introduction

## Microsoft Business Applications

A professional man in a blue blazer and white shirt stands in front of a large screen displaying a bar chart, presenting to a group of four people seated around a conference table. The office has large windows showing a city skyline. The scene is dimly lit, with the main light coming from the windows.

## Leading the market

Recognized by analysts as a leader in low-code application development platforms, demonstrating a strong strategy and vision and ability to execute.



August 2019

# A leader in enterprise low-code application platforms.\*

\*Gartner "Magic Quadrant for Enterprise Low-Code Application Platforms," by Paul Vincent, Kimihiko Iijima, Mark Driver, Jason Wong, Yefim Natis, 08 August 2019.

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# Forrester, Q1 2019

A leader in low-code development platforms for application development and delivery professionals.

<https://reprints.forrester.com/#/assets/2/108/RES144387/reports>

FORRESTER® RESEARCH

## THE FORRESTER WAVE™

Low-Code Development Platforms For AD&D Professionals

Q1 2019

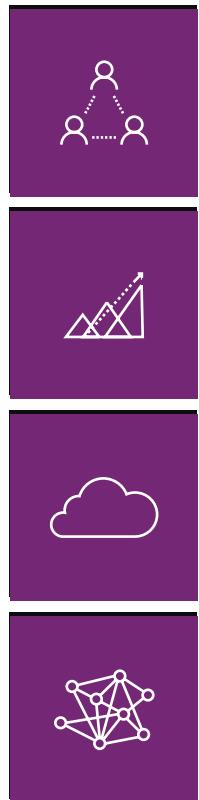


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Draft

# Power Platform Enables Digital Transformation

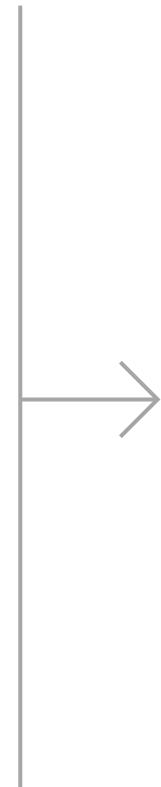


Modern workplace

Business applications

Applications  
& infrastructure

Data & AI



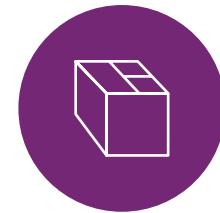
Empower  
employees



Engage  
customers



Optimize  
operations



Transform  
products

# Digital Transformation shifts processes from reactive to proactive

## Reactive



Transformation

## Proactive



# Microsoft Power Platform

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



**Power BI**  
Business analytics



**Power Apps**  
Application development



**Power Automate**  
Workflow automation



**Power Virtual Agents**  
Intelligent virtual agents



**Data verse**



**Data  
connectors**



**AI Builder**

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**Dataverse**

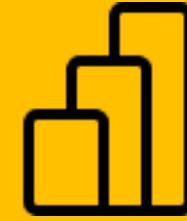


**Data connectors**

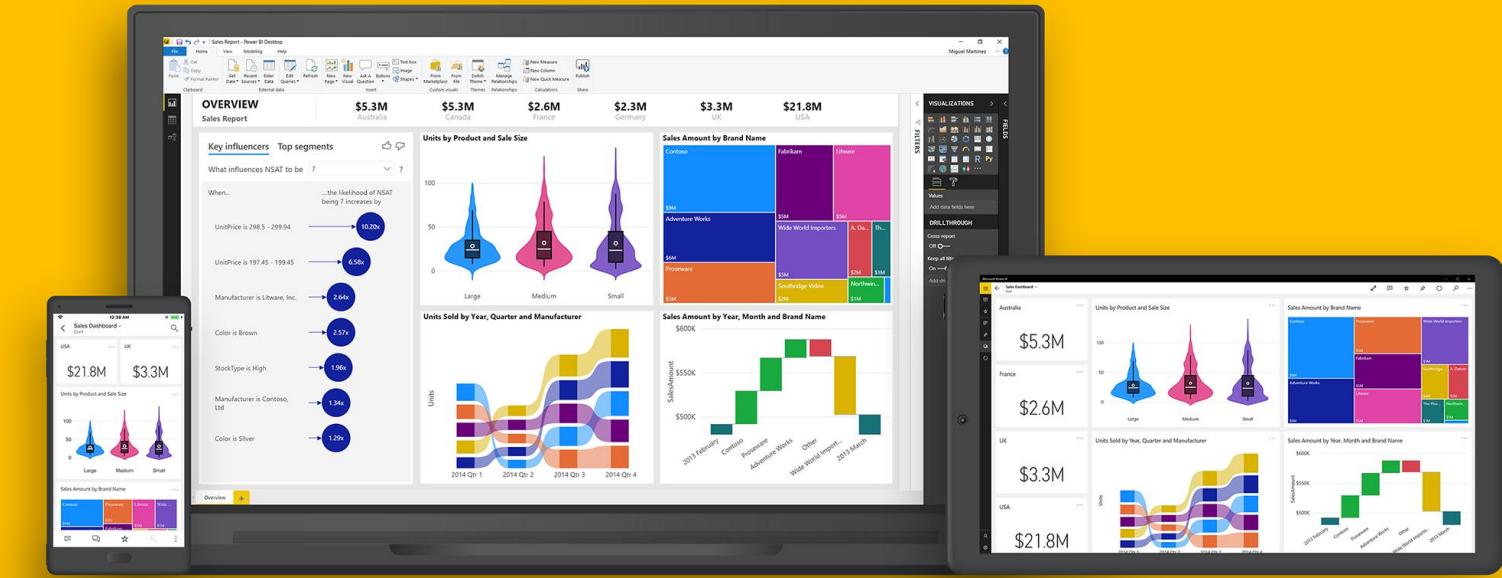


**AI Builder**

# Experience your data with Power BI



- Make sense of your data with ease, and drive quick and confident decisions across your organization
- Reduce the amount of time spent in data prep and spend more time getting answers with AI-driven insights
- Remove the complexity of managing multiple analytics solutions with a single, unified platform that gives every employee access to insights





# Anatomy of a dashboard

## Any data

Connect to any data source to find the best insights and answer tough business questions.

## Share insights with anyone

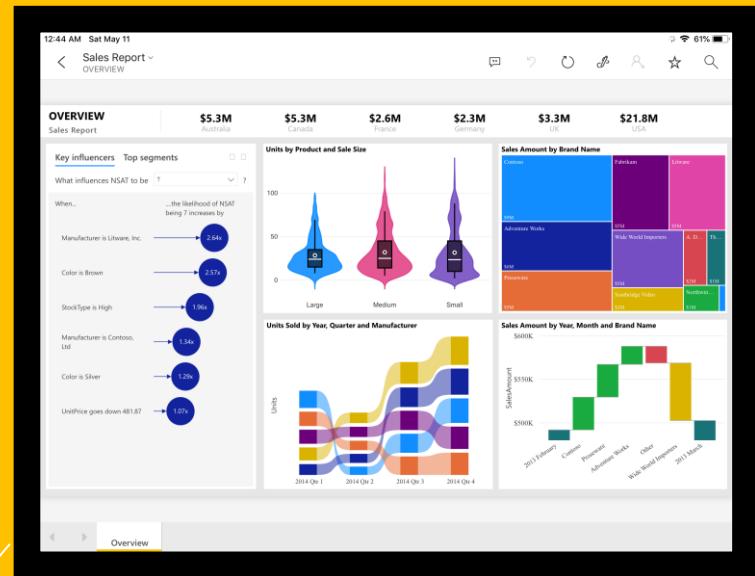
Share on prem, in the cloud, and mobile devices; even with those outside your organization

## Seamless integrations

Directly integrated with Power Automate, Power Apps, Microsoft Teams, Office 365, Dynamics 365 & Azure

## Extensibility model

No limits. Embed insights into everyday user apps to build a data culture throughout your org



## WYSIWYG design experience

PowerPoint like pixel perfect drag and drop design experience. Start from a template, report is running with live data as you build it

## Data visualizations

Select from hundreds of data visualizations or build your own to bring your data story to life

## Native intelligence

Ask questions of your data, deliver automated insights; all visualized in the context of your business

## Big data support with Azure

Leverage Azure Data Services like Date Lake and SQL Data Warehouse to optimize analysis big data

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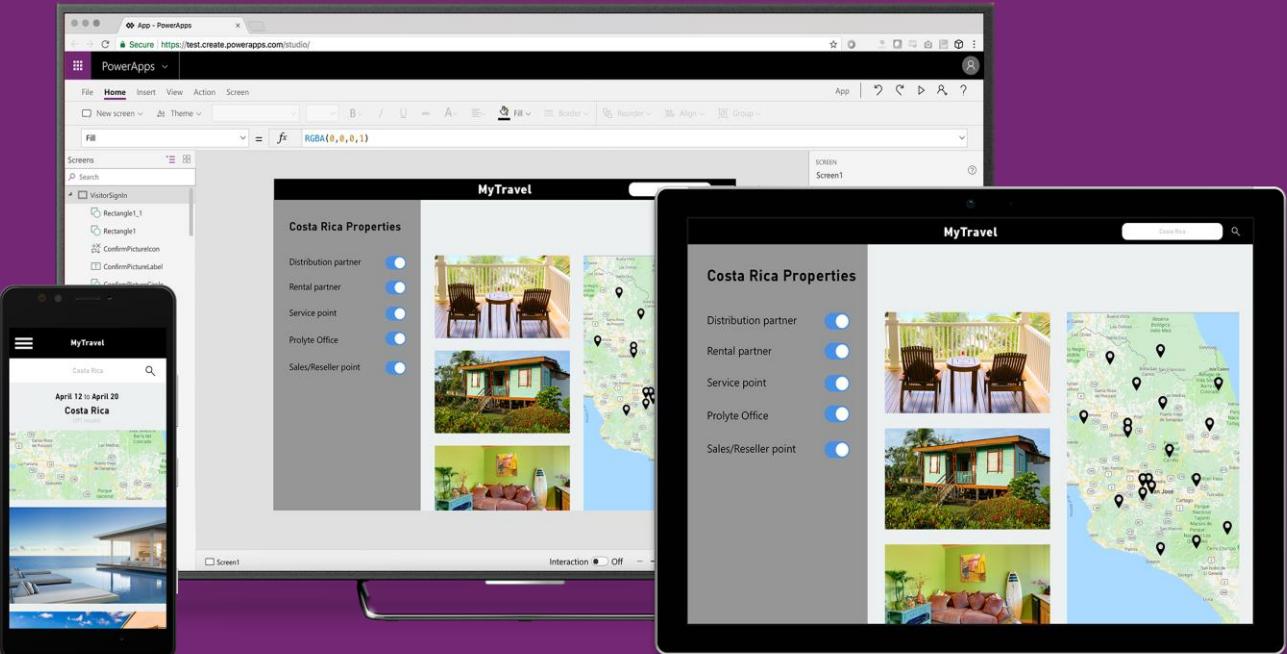
**Data  
connectors**



**AI Builder**

# Build apps for web and mobile with Power Apps

- Easily build web & mobile apps with a full featured low-code/no-code development experience
- Empower business users to solve their own problems and easily share apps while maintaining security & governance
- Pro developer extensibility enables a “no limits” platform that spans business users to professional developers





# Anatomy of an app

## Any platform support

Supports all major platforms and gives native access to device capabilities like camera, GPS, pen & ink

## Share apps like documents

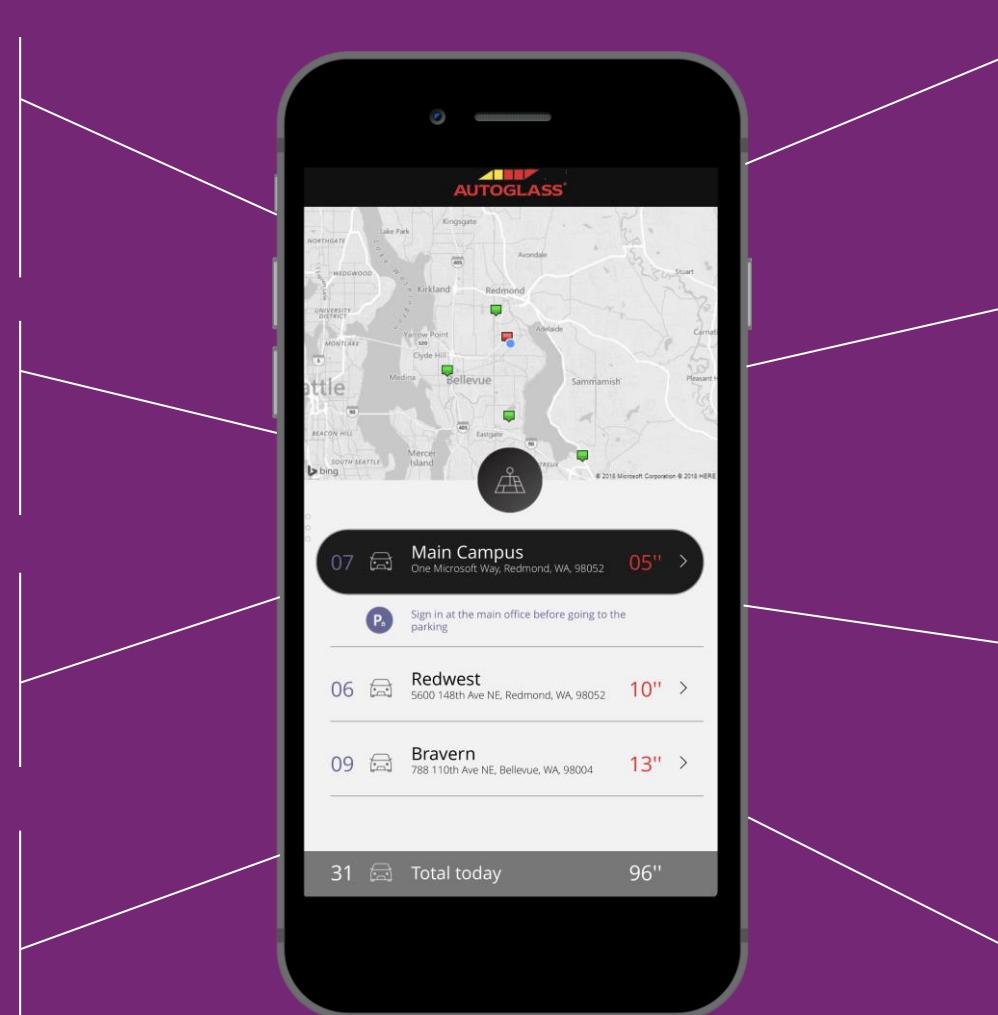
Share your app with 3 clicks and an email address. It's pushed to mobile devices in seconds

## Seamless integration

Directly integrated with Power Automate, Power BI, Microsoft Teams, Office 365, Dynamics 365 & Azure

## Extensibility model

No limits. Get a pro-dev to build you a control or connector if you need something custom



## WYSIWYG design experience

PowerPoint like pixel perfect drag and drop design experience. Start from a template, app is running with live data as you build it

## Data connectivity

Connect to over 450 services and apps with built-in connectors for everything from Adobe, to ZenDesk, to on-prem

## Built-in data platform

Use Dataverse to store app data in a standardized Common Data Model

## App logic

If you can understand formulas in Excel you can add logic to your Power App. Leverage AI Builder to democratize AI in your org

# Microsoft Power Platform

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



**Power BI**  
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Workflow automation



**Power Virtual Agents**  
Intelligent virtual agents



**Dataverse**



**Data connectors**

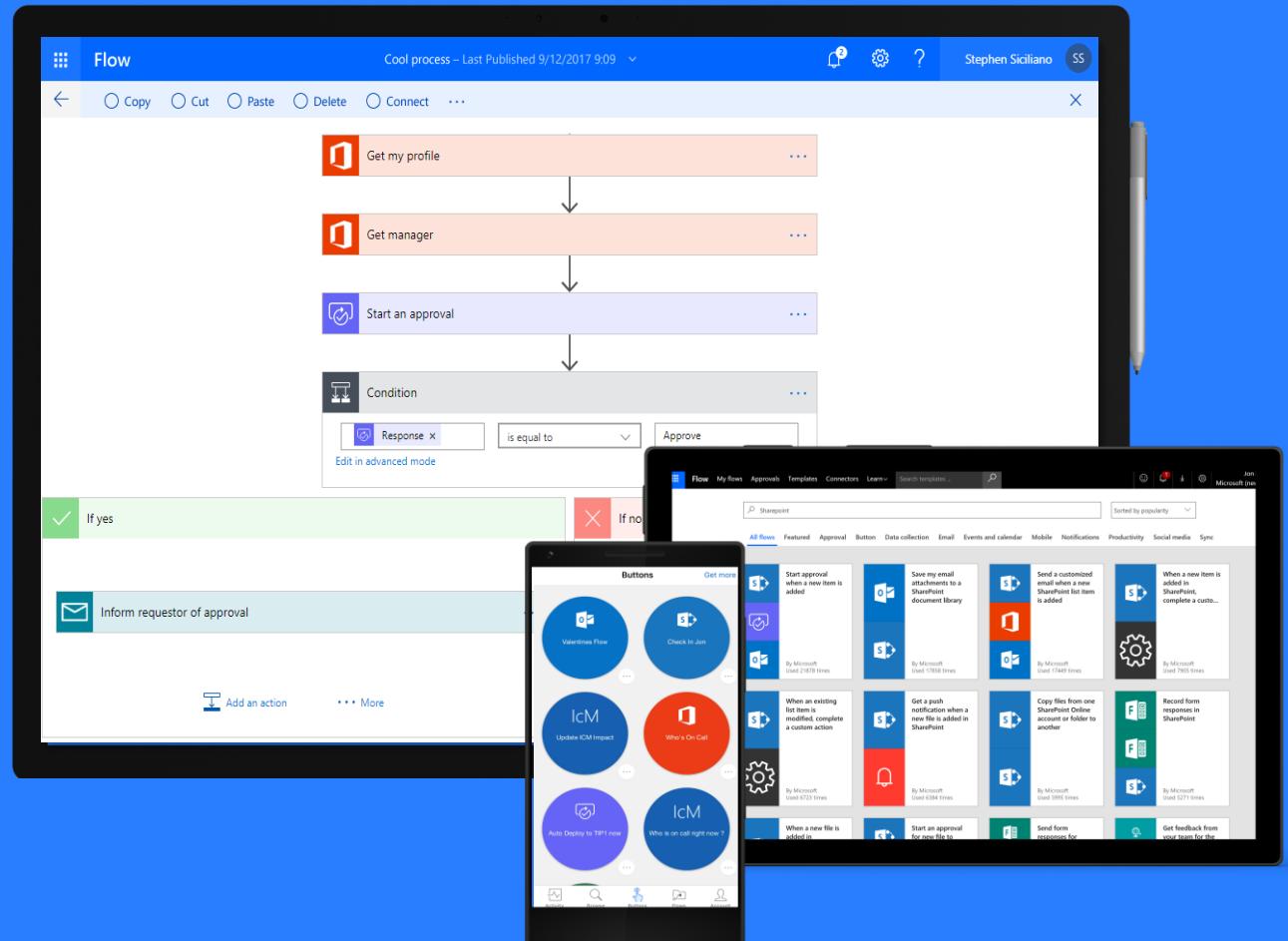


**AI Builder**



# Automate and integrate business processes with Power Automate

- Model business processes and automate workflows and your apps and services
- Deep and broad, from simple individual automation to advanced org scenarios with branches, loops, and more
- Trigger actions, grant approvals, and get notifications right where you work





# Anatomy of a workflow

## Any platform support

Supports all major platforms, available on the web or with mobile on the go

## Share flows like documents

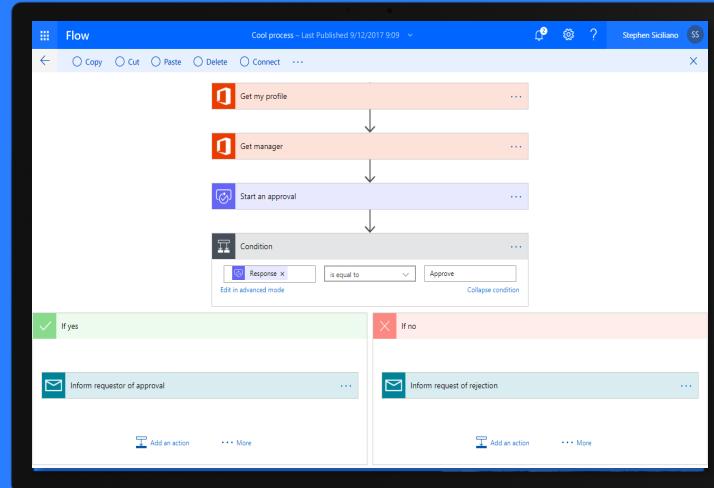
Share your flow with 3 clicks and an email address. It's pushed to users in seconds

## Seamless integration

Directly integrated with Power Apps, Power BI, Microsoft Teams, Office 365, Dynamics 365 & Azure

## Extensibility model

No limits. Automate advanced scenarios with multiple steps, branching conditions and more. Synchronize files between 1<sup>st</sup> and 3<sup>rd</sup> party systems seamlessly



## WYSIWYG design experience

PowerPoint like drag and drop design experience. Start from a template, flow is running with live data as you build it

## Data connectivity

Connect to over 300 services with built-in connectors for everything from Adobe, to ZenDesk, to on-prem

## Built-in data platform

Use the Dataverse to store app data in a standardized Common Data Model

## Logic and automation

Build flows that monitor and execute actions, leverage AI Builder to democratize AI, send emails automatically, notify people in processes

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**Power Virtual Agents**  
Intelligent virtual agents



**Dataverse**



**Data  
connectors**



**AI Builder**

# Build Intelligent no code chatbots with Power Virtual Agents



- Empower your subject matter experts to easily create powerful bots using a guided, no-code graphical interface
- Engage with customers and employees conversationally
- Point to your website, and our AI will automatically build topics to get started with
- Connect to your backend systems using hundreds of connectors that come with Power Platform

The screenshot displays the Power Virtual Agents interface. On the left, a "Test chat" window shows a conversation with a user named "luca@email.com". The bot has responded with information about a smart printer purchase and offered to contact the user directly for more details. The user can choose between "Yes, please look up the issue for me" and "No, I'll describe the issue myself". On the right, the "SmartPrinter X troubleshooter" configuration is shown as a graphical flowchart. It starts with a condition check for "ConfirmPrinter(text) Equals Yes". If true, it asks a question: "I can contact your SmartPrinterX(serial number 418c4e1e-994b-49b5-acaa-04e3f08c00d3) directly to get more information on your issue. Would you like me to do so?". This leads to a "Multiple choice" response with options "Yes, please look up the issue for me" and "No, I'll describe the issue myself". A "Save response as" step saves the response to "PrinterLocation(Text)". If the initial condition is false ("ConfirmPrinter(text) Equals No"), the bot responds with "Sorry, our records show something else. Let me connect you to one of our human agents that can assist you further. One moment please." Finally, there is a "Transfer to agent" step.

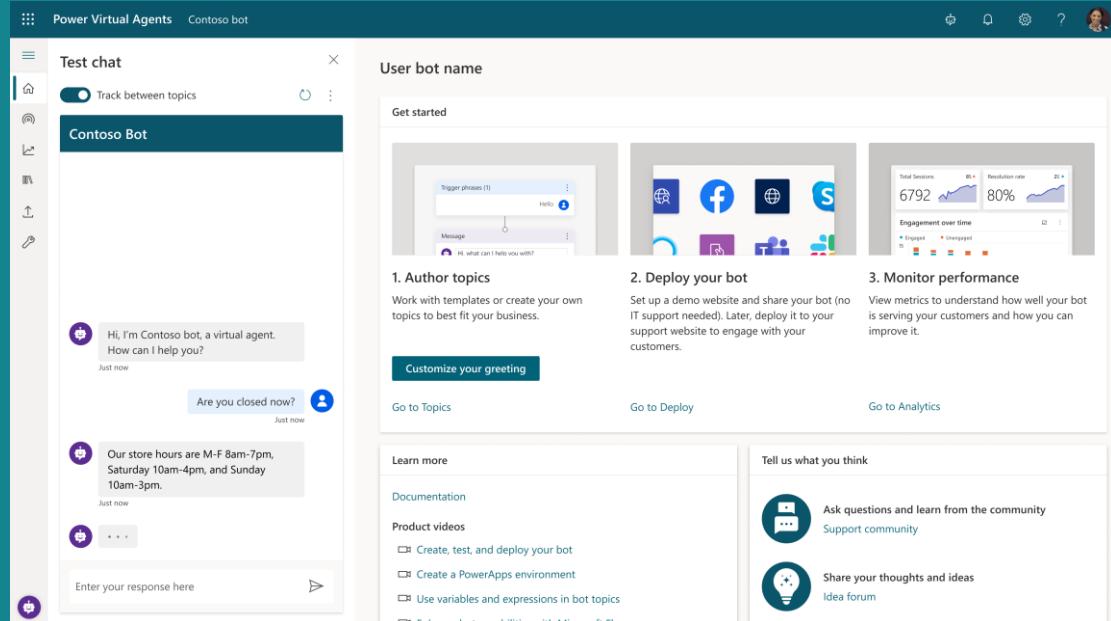
# Anatomy of a dashboard



Create chatbots using simple, graphical interface

Extract starter topics from FAQs  
websites, etc.

Author rich topics with slot filling,  
variables, entity extraction,  
dynamic dialog and more



Monitor and continuously improve chatbot's performance using AI and data driven insights available in an easy to read dashboard

Deploy chatbot to a website, an Azure Bot Framework channel or integrate it within a Power App

Extend your chatbot with Microsoft Azure Bot Framework Skills for complex scenarios

# Anatomy of a virtual agent



## Available Any Time

Improved customer satisfaction with 24/7 self-help and rich bot conversations.

## Reduced Costs

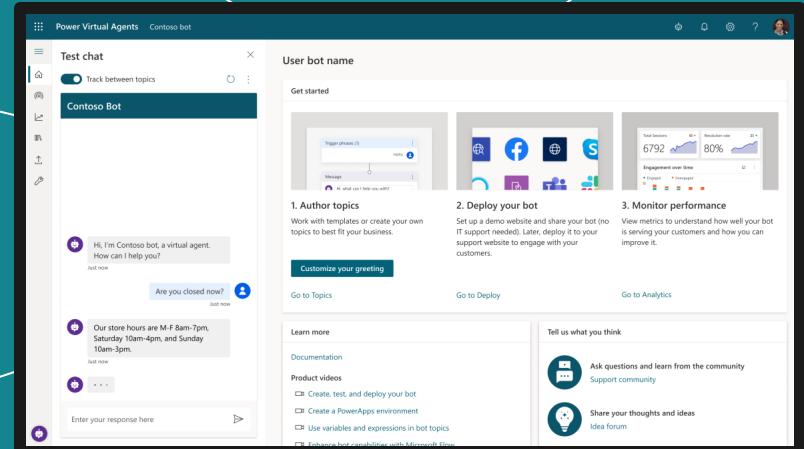
Build a bot in four easy steps to address common inquiries. Free up valuable resources to focus on the more complex issues.

## Interface Anywhere

Meet your audience where they are by publishing your bot to Teams, Slack, Facebook, and many other channels.

## Intuitive Design Interface

No need for AI expertise. Code-free graphical interface puts the power in the hands of your Subject Matter Experts.



## Natural Language Conversations

Powerful AI capabilities allow for multi-turn conversations using every-day language.

## Data Connectivity

Connect to over 300 services and apps through Power Automate to empower your bot to do more than just chat.

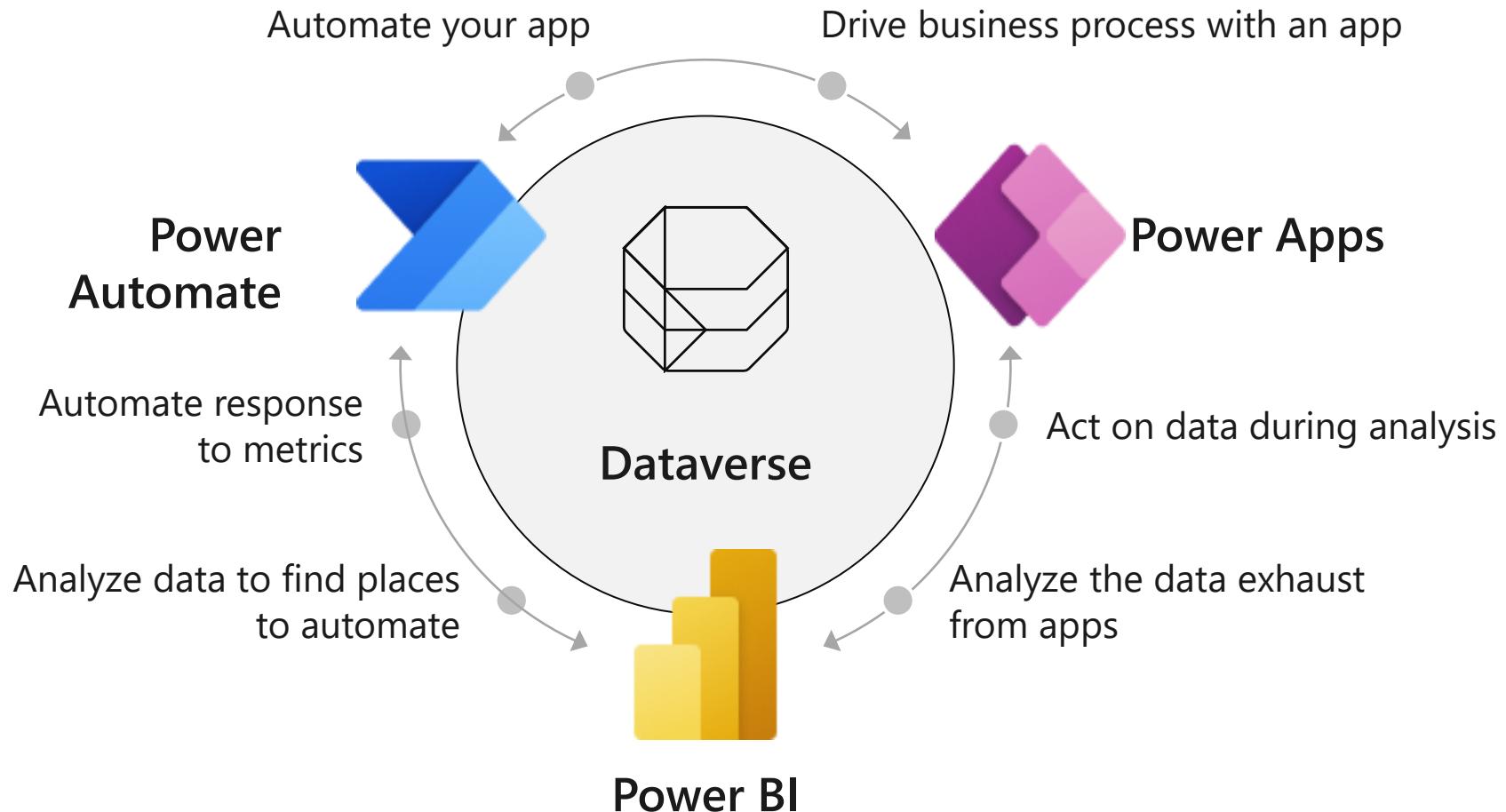
## Powerful Analytics

Monitor bot performance with powerful metrics AI-driven dashboards.

## Valuable Insights

Pair with Dynamics 365 Customer Service Insights to determine trending topics to automate.

# The total is greater than the sum of the parts...



# Microsoft Dataverse



The Common Data Service is now  
Microsoft Dataverse

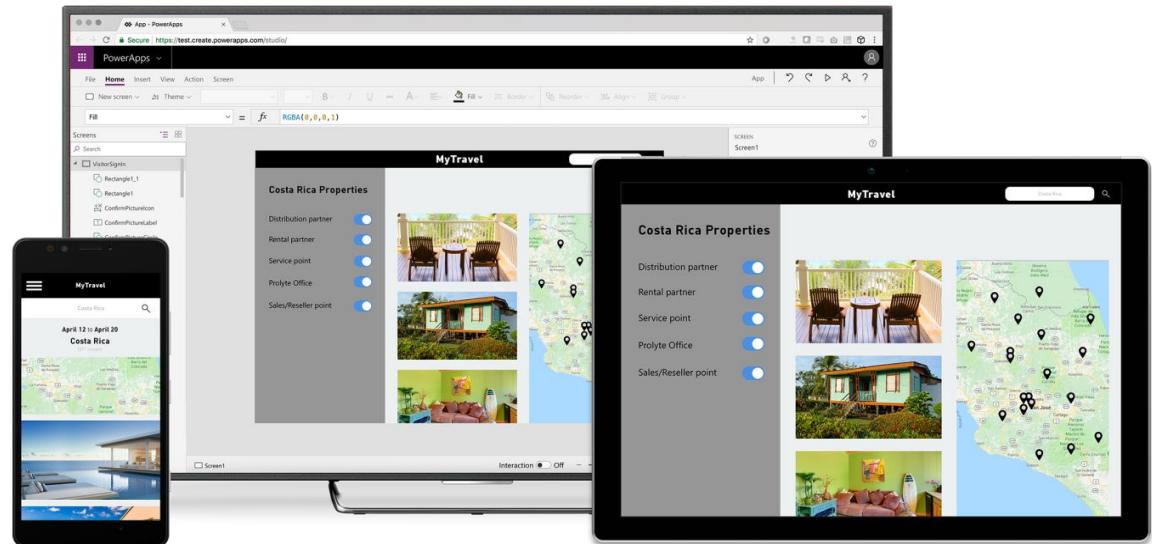
# Innovate faster with a low-code platform

**Reduce time & cost** building business applications

**Extend your system of record** to simplify processes and remove silos

**Reduce errors** by automating manual processes

**Consolidate** siloed LoB application and improve business processes



# A unique approach to building business apps



Easily build apps with a full featured low-code / no-code platform



Connect to all your data with pre-built and custom connectors



Enrich and extend your data with Dataverse, AI Builder, and Portals



Dynamics 365, Azure, Power BI, Power Automate, and Office 365 integration



Strong enterprise governance and security

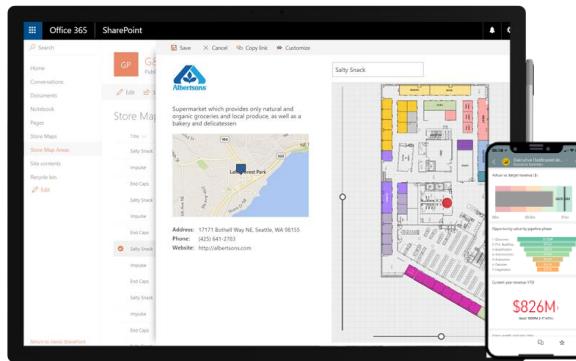


Pro developer extensibility and ALM

# Customize, extend, and build all the apps you need

Seamless Dynamics 365, Office 365, and Azure integration along with connectors to more than 300 data sources

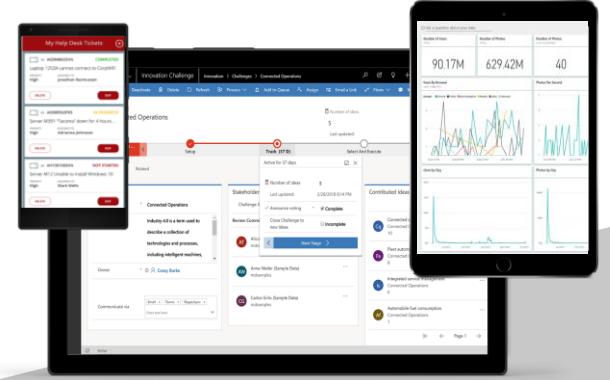
Tailor out-of-the-box solutions, embedded forms and dashboards



Highly customized task- and role-based apps



Immersive, end-to-end solutions



SOPHISTICATION

# Customer momentum: Power BI



Retail and consumer goods



Discrete manufacturing



Government and education



Healthcare



Elizabeth Glaser  
Pediatric AIDS  
Foundation

Until no child has AIDS.



Banking and financial services



Professional services



Technology systems and services

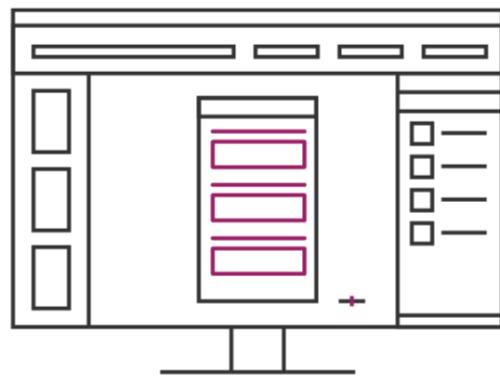


# Module 1: Power Apps Canvas App

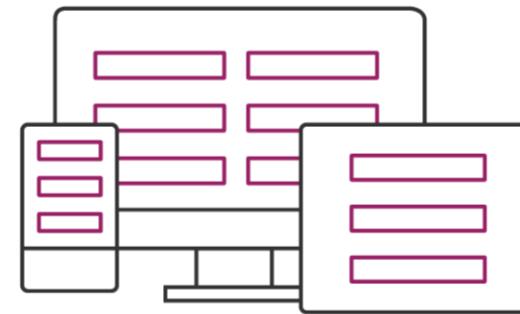
# Canvas Apps help business-power-users to create and use custom business apps across platforms using Excel and PowerPoint skills



Connect to data & systems you're already using *easily*

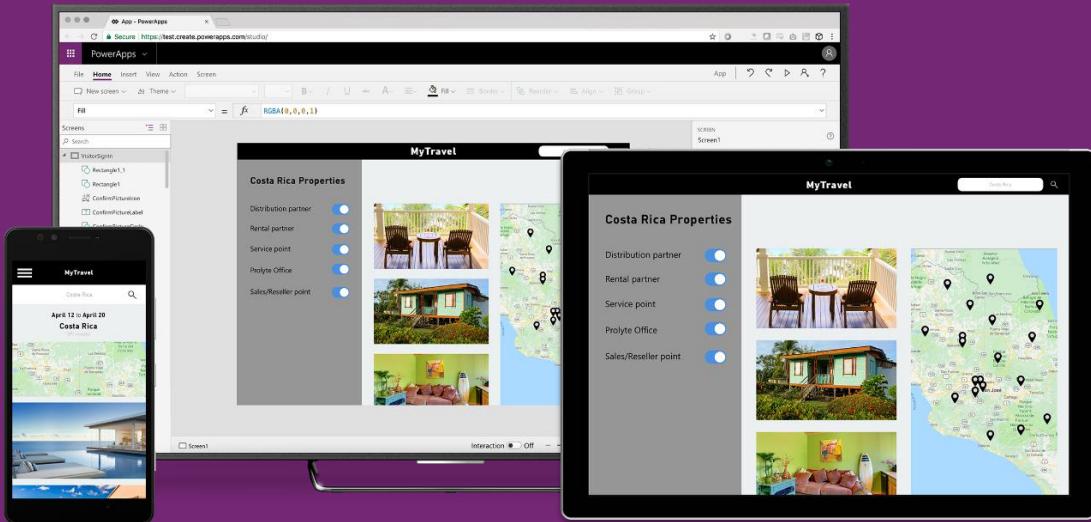


Create apps, forms, and workflows *without writing code*



Use apps *on any device* – both web and mobile

# Apps for web and mobile



Build **standalone** web and mobile apps, or **customize** existing apps in Office 365 and Dynamics 365 to deliver a seamless experience **across channels**

Craft **pixel-perfect experiences** from a blank canvas for highly customized, task and role-based apps

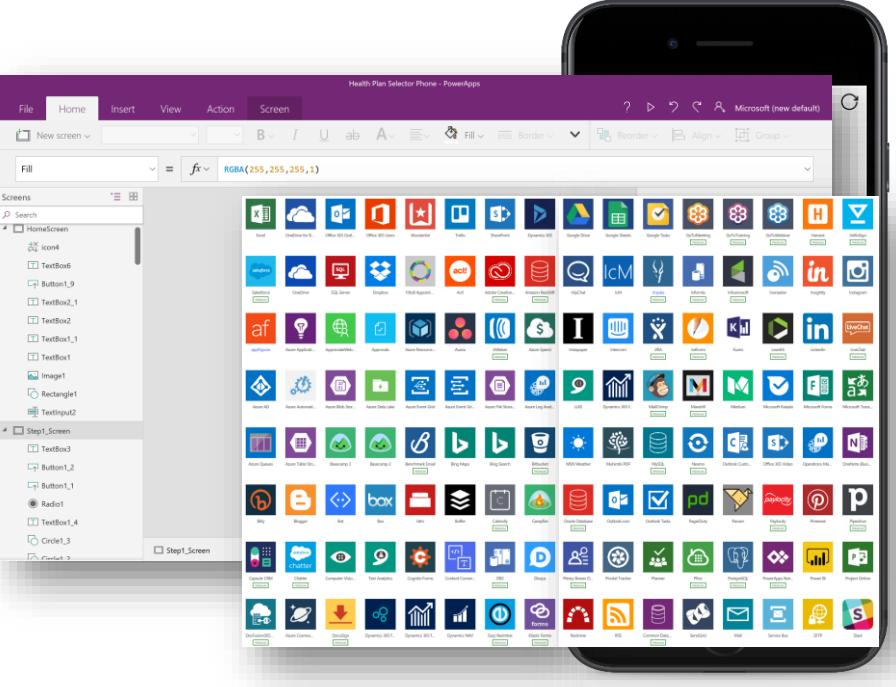
Generate immersive, **declarative, responsive apps** from a rich data model and workflow engine

Connect to **450+ data sources** for events and actions, from Microsoft and other vendors

Leverage native mobile capabilities like **camera, GPS, push notifications, add custom** components and more to build consumer grade applications

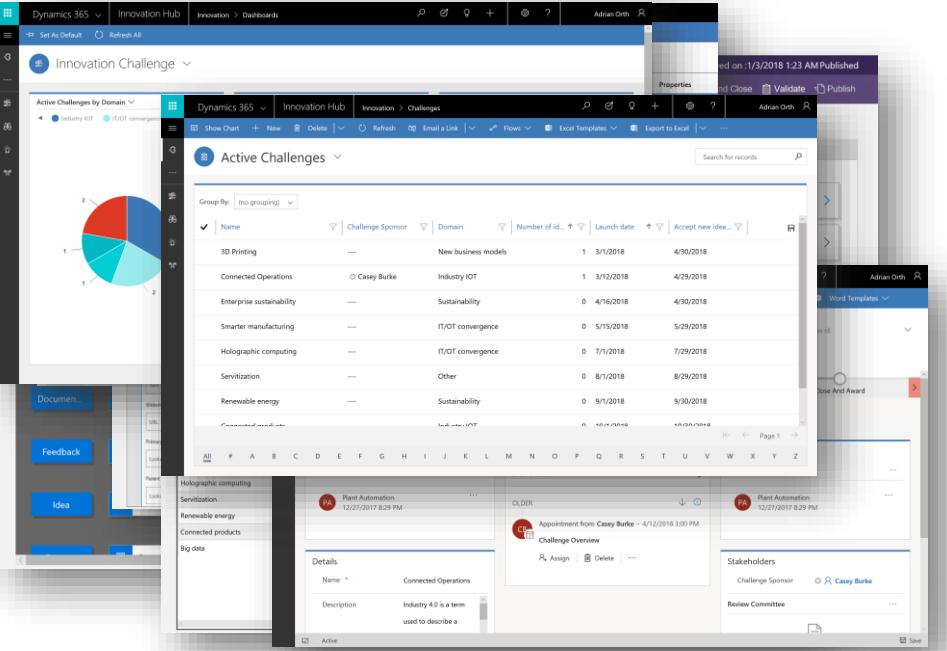
Build with intelligence including **Natural Language Processing**, image detection, and other built-in cognitive services powered by Azure

# Starting with Power Apps



The screenshot shows the Microsoft Power Apps canvas editor interface. A smartphone is displayed in the center, showing a user interface with various icons and sections like "Feedback" and "Idea". The editor's left pane contains a "Screens" list with items such as "HomeScreen", "Step1\_Screen", and "Step1\_Screen". The main workspace shows a grid of numerous small icons representing different data sources and app components.

**Canvas apps**  
Start with user experience  
WYSIWYG designer  
Task-based & role-based apps  
Mash-up data from 300+ sources



The screenshot shows the Microsoft Dynamics 365 Innovation Hub interface. It features a dashboard with a pie chart titled "Active Challenges by Domain" and a list of challenges. The challenges include:

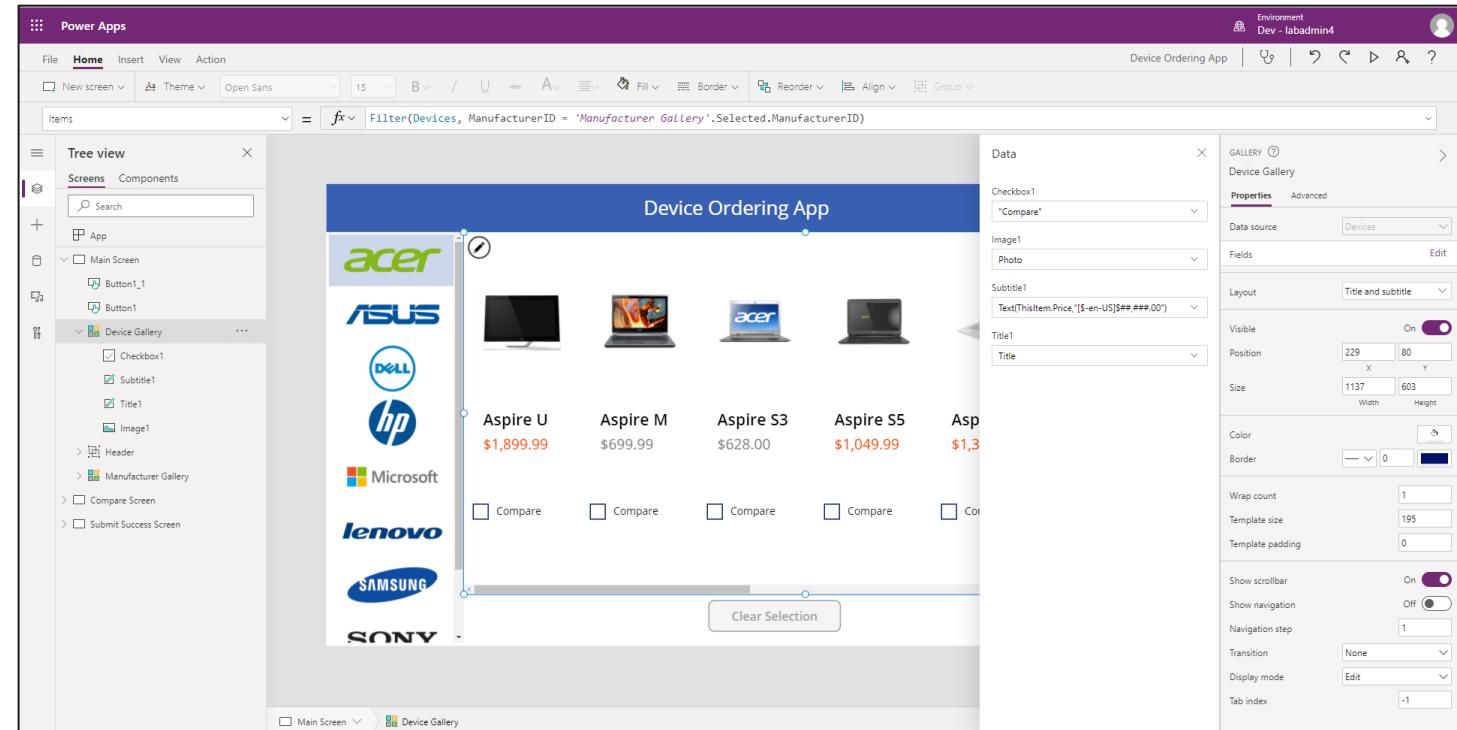
Name	Challenge Sponsor	Domain	Number of id...	Launch date	Accept new idea...
3D Printing	—	New business models	1	3/1/2018	4/30/2018
Connected Operations	Casey Burke	Industry IOT	1	3/12/2018	4/29/2018
Enterprise sustainability	—	Sustainability	0	4/11/2018	4/30/2018
Smarter manufacturing	—	IT/IOT convergence	0	5/15/2018	5/29/2018
Holographic computing	—	IT/IOT convergence	0	7/7/2018	7/29/2018
Servitization	—	Other	0	8/1/2018	8/29/2018
Renewable energy	—	Sustainability	0	9/7/2018	9/30/2018

**Canvas apps**  
Start with user experience  
WYSIWYG designer  
Task-based & role-based apps  
Mash-up data from 300+ sources

**Model-driven apps**  
Built on Dataverse  
Start with a data model, relationships, and business processes  
Build End-to-End business applications

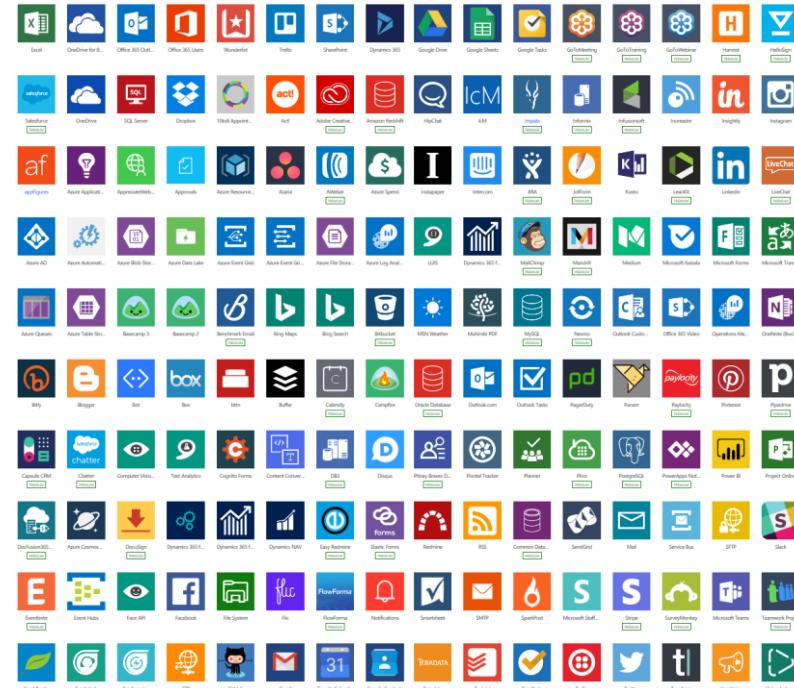
# Easy Authoring

- Truly WYSIWYG – full control over user experience, use it as you build it
- Create app logic with familiar Excel-like expressions
- Mash up data from multiple sources right at the app level



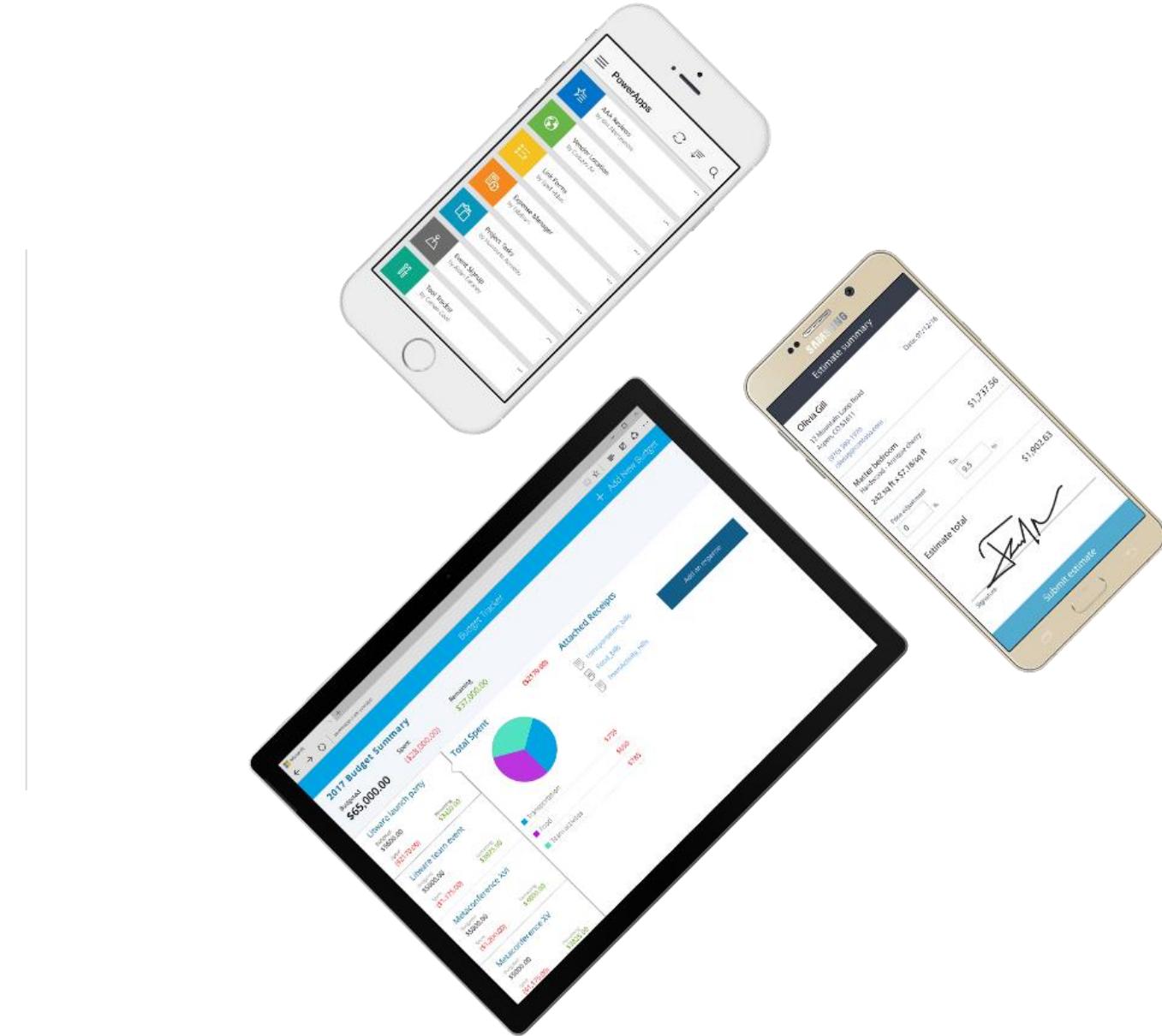
# Cloud and on-premises connectivity

- Built-in connectivity to 450+ cloud services, files, databases, web APIs, etc.
- Seamless hybrid connectivity to on-premises systems via the On-Premises Data Gateway
- Build custom connectors for everyone to leverage



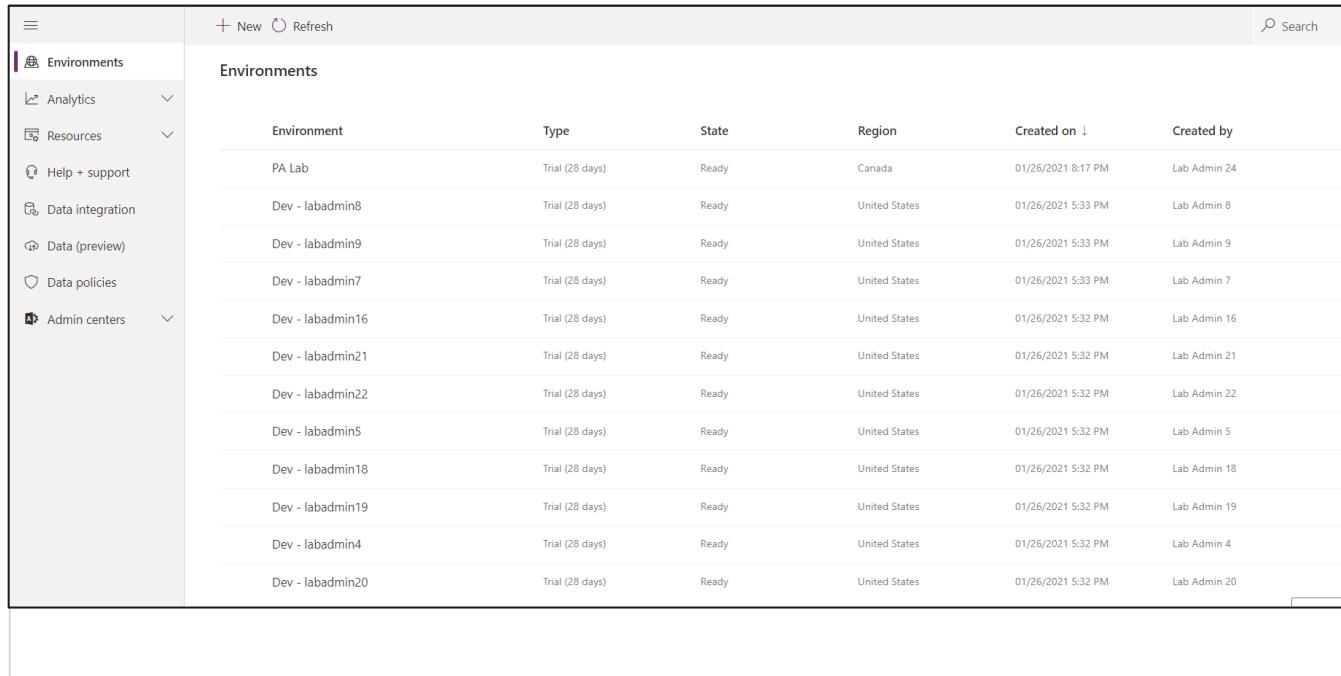
# Cross-platform

- Publish instantly to iOS, Android, Windows, and the web
- Sharing apps is like sharing documents
- Manage across environments



# Enterprise-grade management and control

- All identity is managed through Azure Active Directory, enabling rich policies and multi-factor authentication
- Admin Center providing full audit logs, usage analytics, data loss prevention, security and data management
- Centrally manage all your apps, first and third party, deployed across your organization

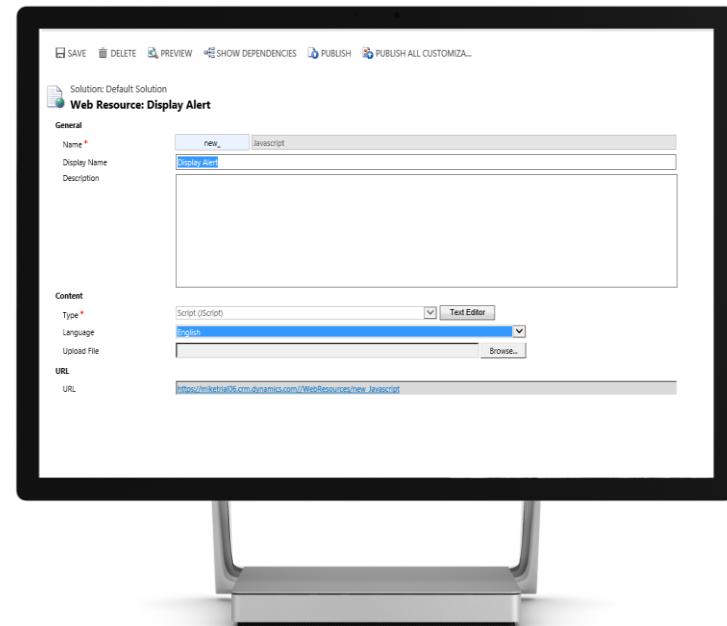


The screenshot shows the Microsoft Admin Center interface. On the left, there is a sidebar with navigation links: Environments, Analytics, Resources, Help + support, Data integration, Data (preview), Data policies, and Admin centers. The main area is titled "Environments" and displays a table with the following data:

Environment	Type	State	Region	Created on ↓	Created by
PA Lab	Trial (28 days)	Ready	Canada	01/26/2021 8:17 PM	Lab Admin 24
Dev - labadmin8	Trial (28 days)	Ready	United States	01/26/2021 5:33 PM	Lab Admin 8
Dev - labadmin9	Trial (28 days)	Ready	United States	01/26/2021 5:33 PM	Lab Admin 9
Dev - labadmin7	Trial (28 days)	Ready	United States	01/26/2021 5:33 PM	Lab Admin 7
Dev - labadmin16	Trial (28 days)	Ready	United States	01/26/2021 5:32 PM	Lab Admin 16
Dev - labadmin21	Trial (28 days)	Ready	United States	01/26/2021 5:32 PM	Lab Admin 21
Dev - labadmin22	Trial (28 days)	Ready	United States	01/26/2021 5:32 PM	Lab Admin 22
Dev - labadmin5	Trial (28 days)	Ready	United States	01/26/2021 5:32 PM	Lab Admin 5
Dev - labadmin18	Trial (28 days)	Ready	United States	01/26/2021 5:32 PM	Lab Admin 18
Dev - labadmin19	Trial (28 days)	Ready	United States	01/26/2021 5:32 PM	Lab Admin 19
Dev - labadmin4	Trial (28 days)	Ready	United States	01/26/2021 5:32 PM	Lab Admin 4
Dev - labadmin20	Trial (28 days)	Ready	United States	01/26/2021 5:32 PM	Lab Admin 20

# Amplify traditional developer productivity

- Extend applications using custom code
- Build custom connectors that everyone can use
- Write advanced client or server-side logic leveraging Azure Machine Learning, Cognitive Services, Bing APIs, custom code, or any service of your choice



# Better together!

Embed canvas apps

- In websites
- In SharePoint
- In Power BI
- In model-driven

Home EDIT LINKS

## Settings > Form Settings

**Form Options**

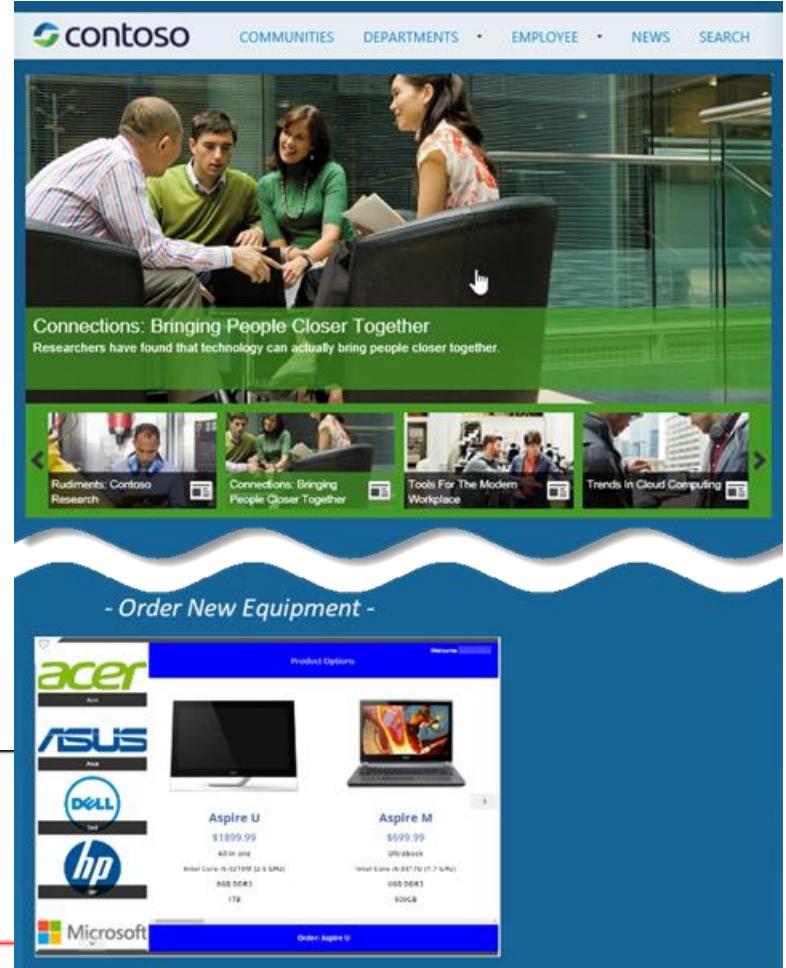
Use Microsoft PowerApps to customize the forms for this list. You can modify the form layout, add pictures and formatted text, add custom data validation, create additional views, and add rules.

Microsoft InfoPath is also provided as an option for backwards compatibility. Using PowerApps is recommended over using InfoPath.

Use the default SharePoint form

Use a custom form created in PowerApps  
[Modify form in PowerApps](#)

Use a custom form created in InfoPath  
[Customize in InfoPath](#)



# Key Concepts

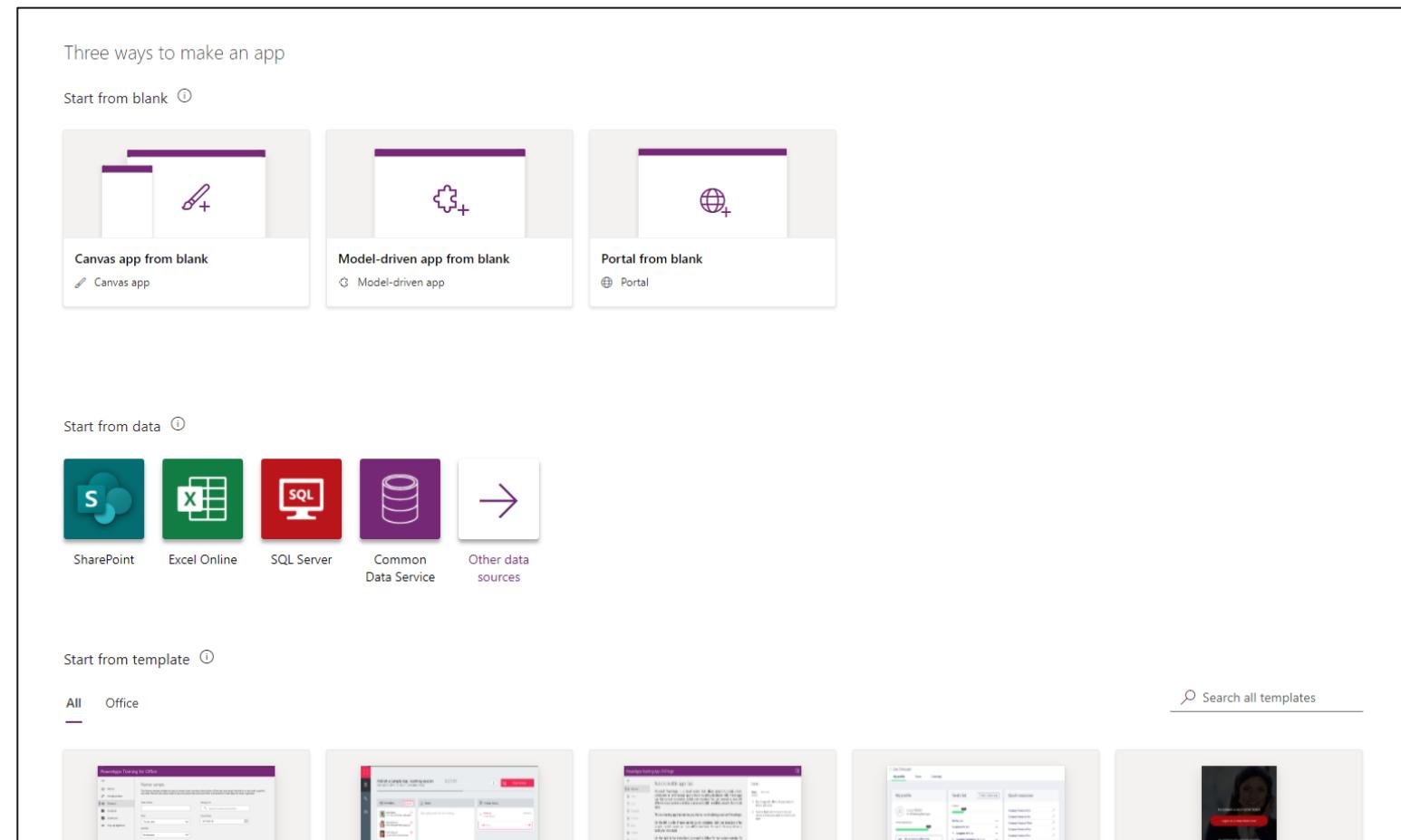
# Power Apps Maker Portal [<https://make.powerapps.com/>]



- Learn
- Manage Apps
  - View apps, open apps, create new apps, run sample apps, create apps from sample apps
- Data
  - Manage entities, option sets, data integration, connections, custom connections & gateways
- Chatbots: create and view your bots here
- Business Logic: Add flows to your apps
- AI Builder: Democratized artificial intelligence for all
- Solutions: They hold and transport customizations and apps

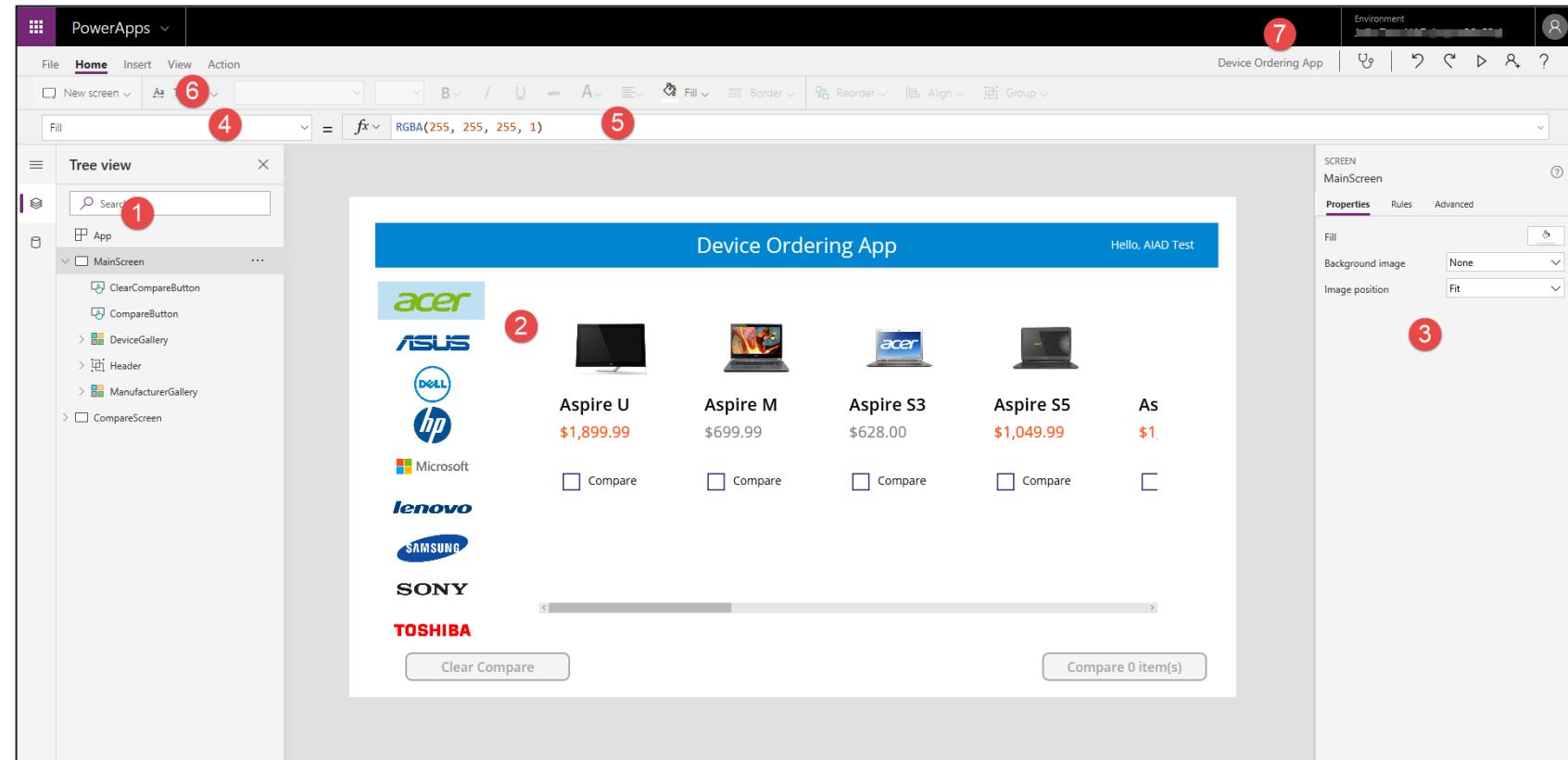
# Power Apps Studio experience

- Canvas apps authoring experience
- Start with your data
- Start with a blank canvas
- Start with a template



# Explore the app designer experience

1. Left navigation bar
2. Middle pane
3. Right-hand pane
4. Property
5. Formula bar
6. Ribbon
7. Additional items



# Power Apps Mobile (Player)

## Power Apps Mobile for Windows, iOS, and Android

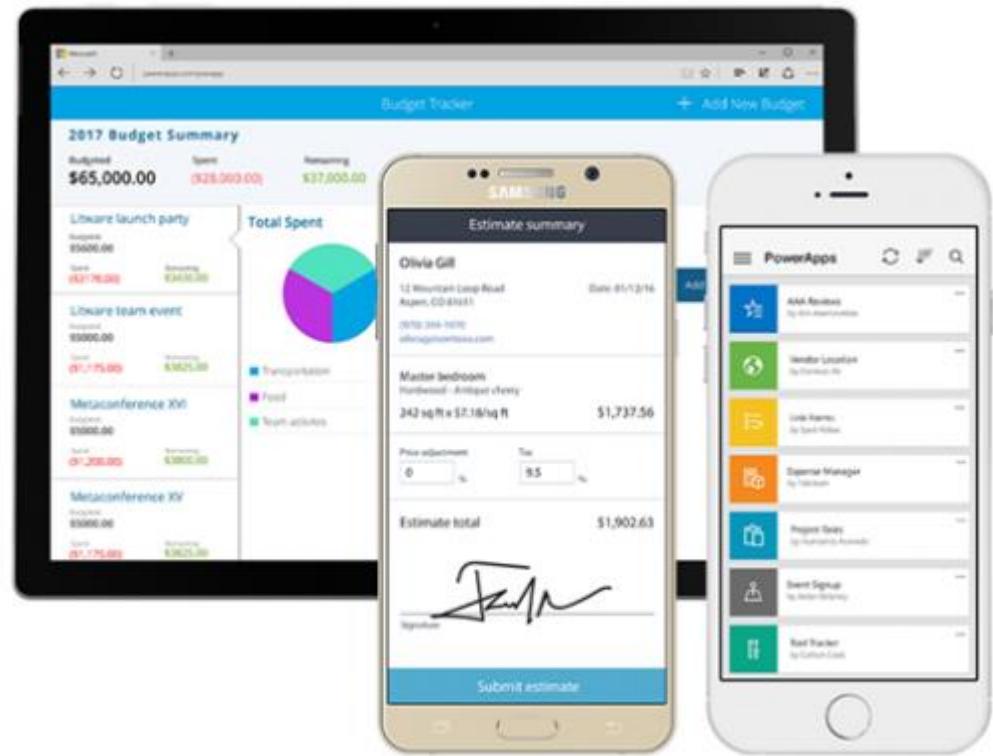
- Available from respective app-stores as a free app
- Sign-in using your work account (Office 365 / Dynamics 365 Azure AD credentials)
- Access all your apps or apps shared with you across environments



**Google Play:** <https://aka.ms/powerappsandroid>

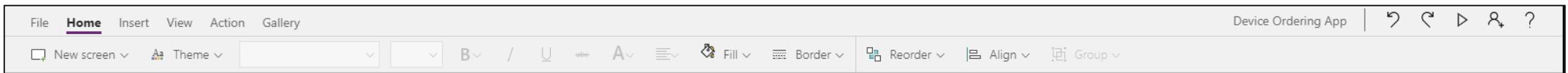
**Apple App Store:** <https://aka.ms/powerappsiOS>

**Microsoft Store:** <https://aka.ms/powerappswin>

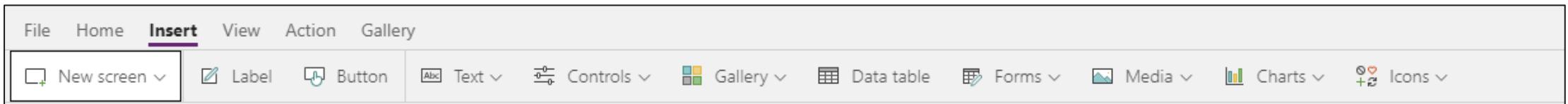


# Power Apps Studio

## Common Properties



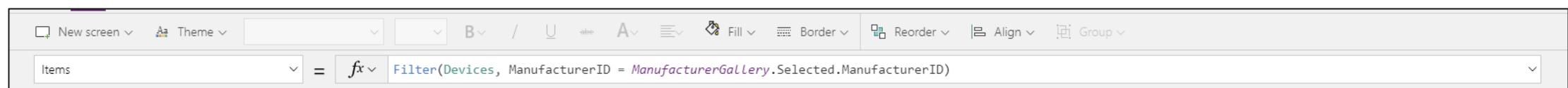
## UI: Controls



## View: Data



## UI-Data Binding: Properties & Formula bar



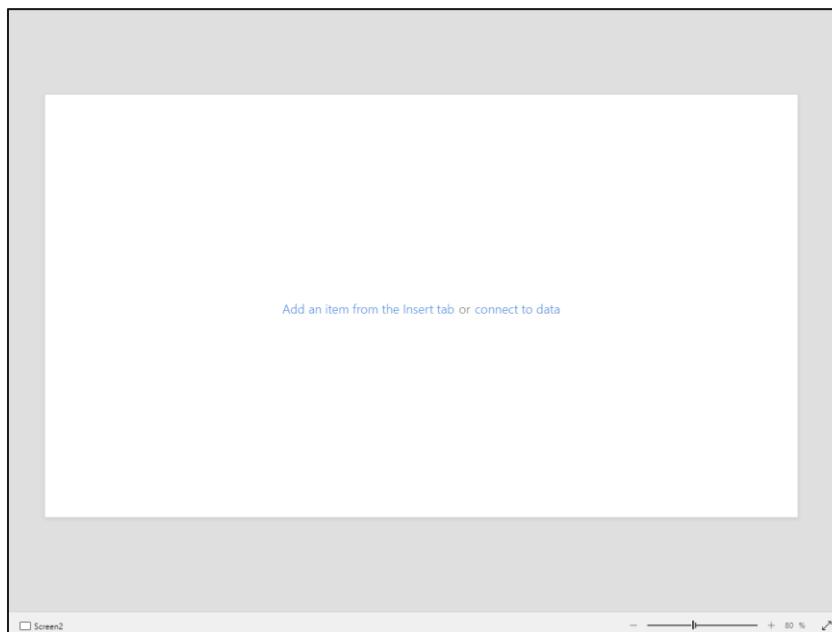
## Screens & Controls View

Screens

Search

- MainScreen
  - Button2\_1
  - Button2
  - ManufacturerGallery
    - Image3
  - DeviceGallery
    - Checkbox1
    - Subtitle1
    - Title1
    - Image1
    - Label3
    - HeaderLabel
- CompareScreen
  - icon1
  - CompareListGallery
    - Title1\_6
    - Title1\_5
    - Title1\_4
    - Title1\_3
    - Title1\_2
    - Subtitle1\_1
    - Title1\_1
    - Image1\_1
    - Label3\_1
    - HeaderLabel\_1

## Canvas



## Properties Panel

New screen

Items =  Filter(Devices, ManufacturerID = ManufacturerGallery.Selected.ManufacturerID)

GALLERY DeviceGallery

MainScreen

Search for a property ...

ACTION

OnVisible

```
Collect(CompareList, {Pressed: Button2_1.Pressed})
```

OnHidden

OnStart

DATA

BackgroundImage

DESIGN

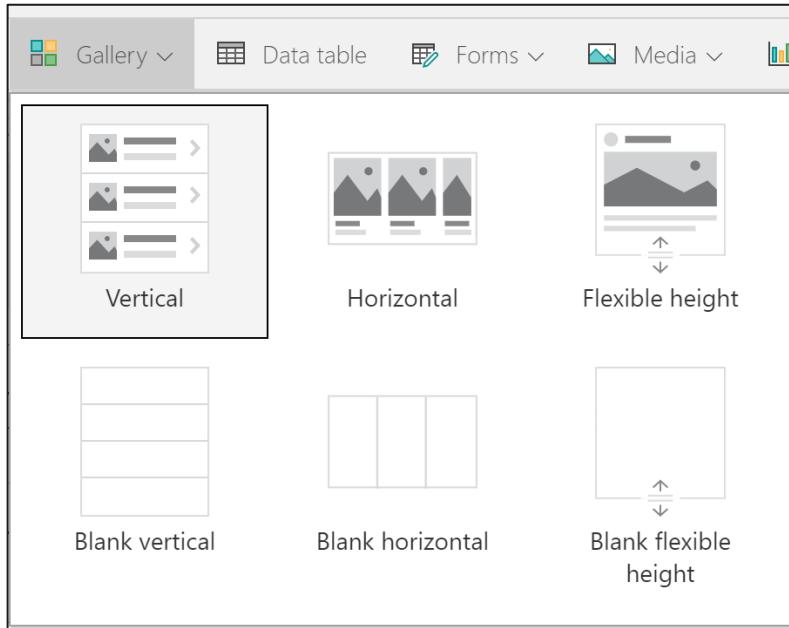
Fill

```
RGBA(255, 255, 255, 1)
```

ImagePosition

```
ImagePosition.Fit
```

# Galleries



The screenshot shows the Power BI gallery editor interface. A blue arrow points to the 'Edit gallery' button on the first item's card. The card for the first item is highlighted in yellow. The card contains the following information:

- Image**: Placeholder for an image.
- Title**: **Lorem ipsum 1**
- Description**: **Lorum ipsum dolor sit amet,**
- More**: A right-pointing arrow icon.

The Data pane on the right shows the following settings:

- Data source**: CustomGallerySample (Sample data)
- Layout**: Image, title, and subtitle
- Image2**: SampleImage
- Subtitle2**: SampleText
- Title2**: SampleHeading

# Hands-on-lab introduction

# Business scenario



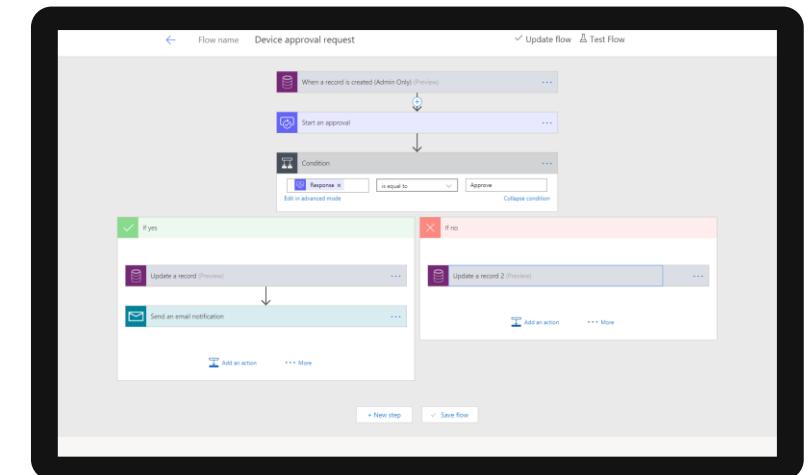
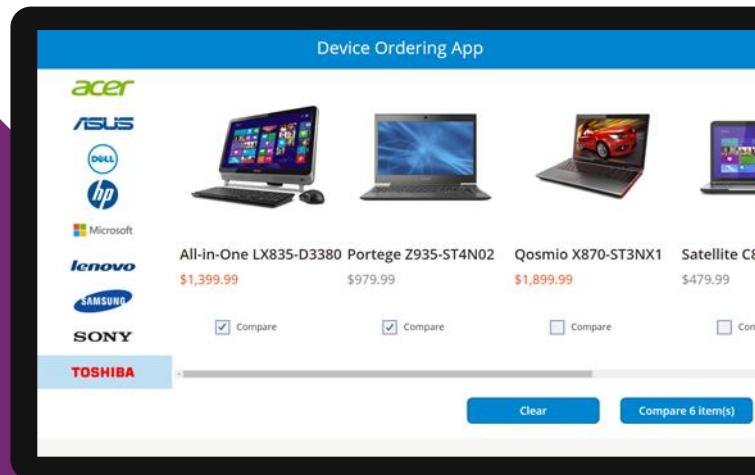
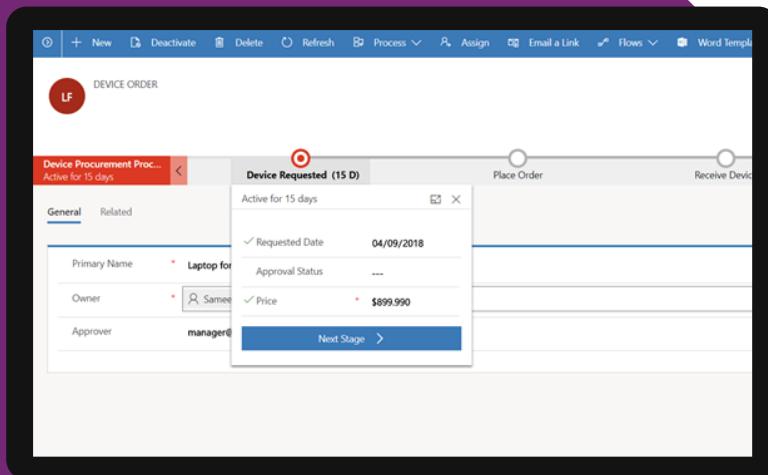
Imagine an organization where every three years employees go through a hardware refresh cycle



We will streamline the device order, procurement and approval process and view aggregate reports



The employee-facing device ordering app needs to run in a web browser and on mobile devices



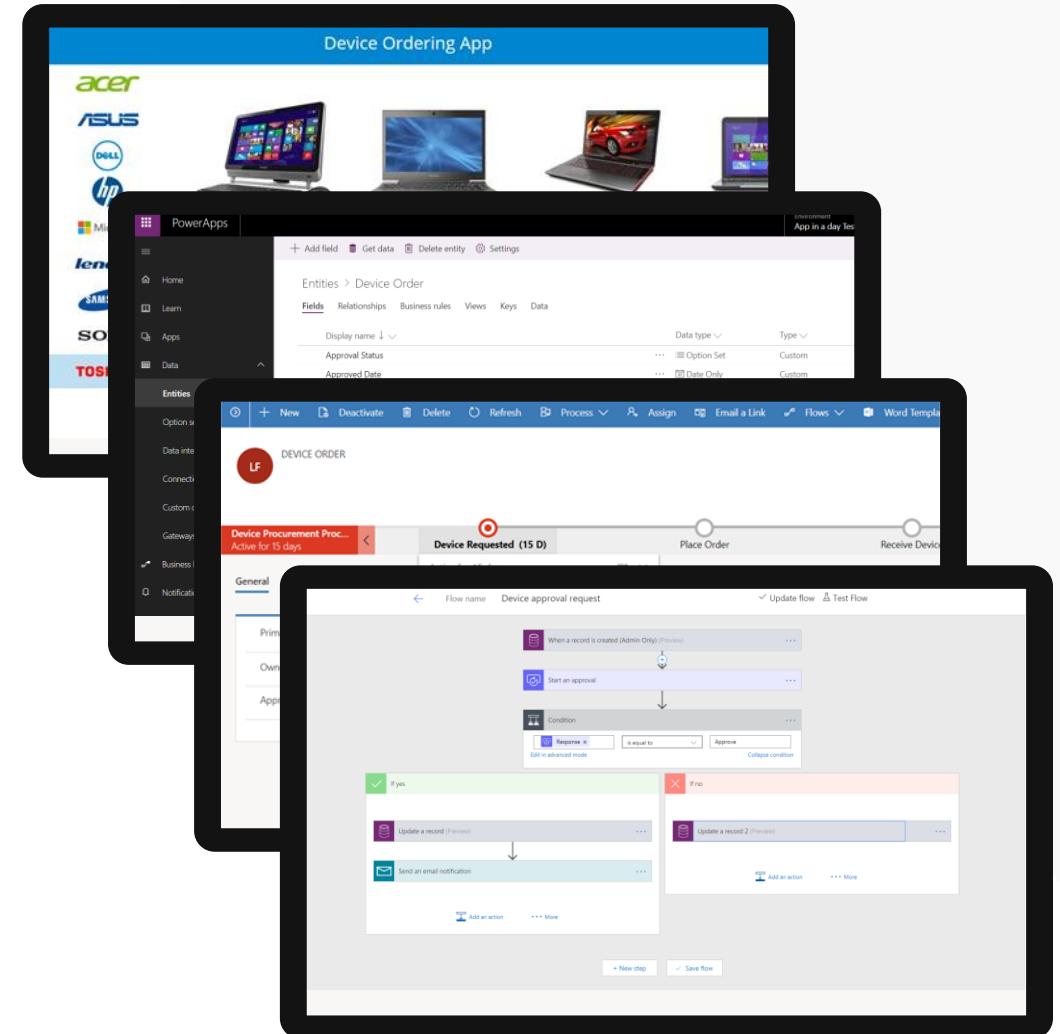
# Lab objectives

Build a **Power Apps Canvas App** for employee facing device ordering experience

Use **Dataverse** to store the device orders in the cloud

Build a **Power Apps Model-driven app** to complete the procurement process

Use **Power Automate** to build an approval workflow for device approval



# Lab content

Package: <http://aka.ms/appinaday>

Unzip the package on your local machine

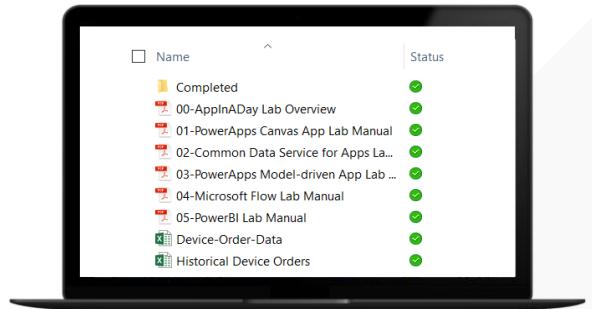
| Follow instructions: "00-AppinaDay Lab Overview.pdf"



**Contains 4 modules with a lab doc for each:**

- 01-Power Apps Canvas App
- 02-Dataverse
- 03-Power Apps Model-driven App
- 04- Power Automate

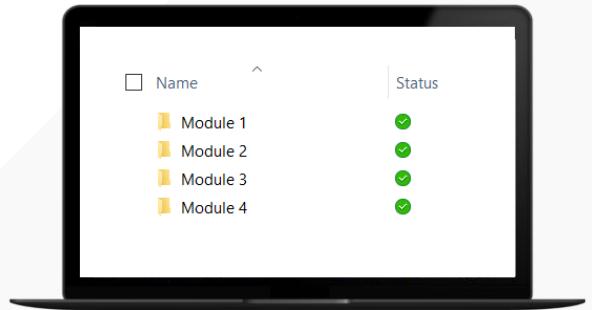
**Lab docs:**



**Completed Modules:**

- The \Completed folder contains solution packages that you can import
- e.g. To work on Module 4 without completing previous modules -> see \Completed\Module3

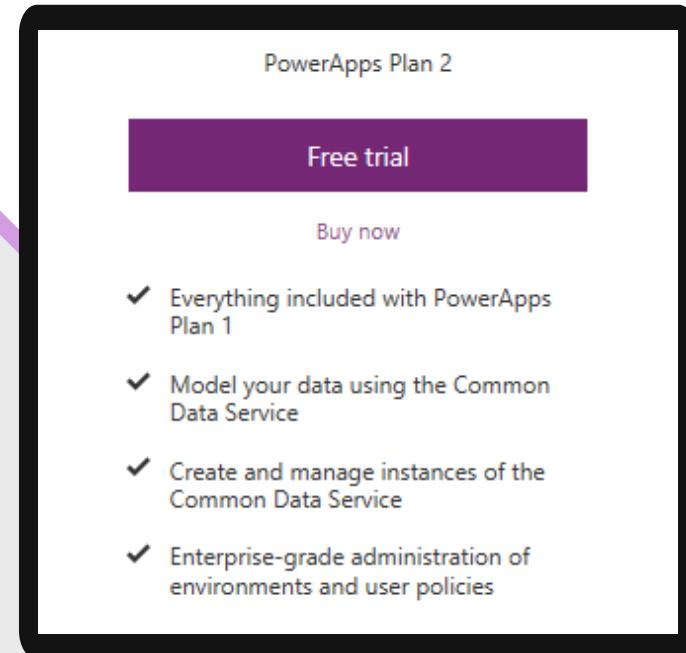
**Completed modules:**



# Pre-requisites

## Valid Power Apps license:

- Dataverse usage requires a Power Apps license
- Visit <https://powerapps.microsoft.com/pricing/> and click Free Trial
- If you are unable to acquire a trial license:  
Ask the instructor for a trial user account that you may use for this session OR  
Create your own Office 365 trial tenant – <http://aka.ms/Office365ETrial>



## Power Apps authoring environment:

- Launch <https://make.powerapps.com> using any modern browser

## Power Apps mobile apps (Optional):

- PowerApps – iOS : <https://aka.ms/PowerAppsiOS>
- PowerApps – Android : <https://aka.ms/PowerAppsAndroid>

# Provision environment and Dataverse

This lab requires a new Power Apps environment and database that was provisioned for this class

- ◆ Go to the Power Apps Admin center – <http://aka.ms/ppac>
  - ◆ Select **+New environment**, fill out the form using a Trial Environment, and select **Create Environment**
    - ◆ Select the **Create database** option
      - ◆ Fill out the form, check the box to include sample apps and data and select **Create my database**
      - ◆ Your new environment will be added to the list of environments
      - ◆ **IMPORTANT:** The database has not yet been provisioned
      - ◆ Select the environment you just created
        - ◆ Wait for the “**Provisioning database...**” message to go away
        - ◆ You may need to refresh the screen every couple of minutes
        - ◆ Once the provisioning is complete, then proceed to create apps in the environment



# Lab overview



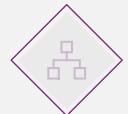
# Hands-on-lab 1

## Module 1: Power Apps Canvas App

# Module 1: Learning objectives



Sign-in and create a new Canvas App



Connect to data sources



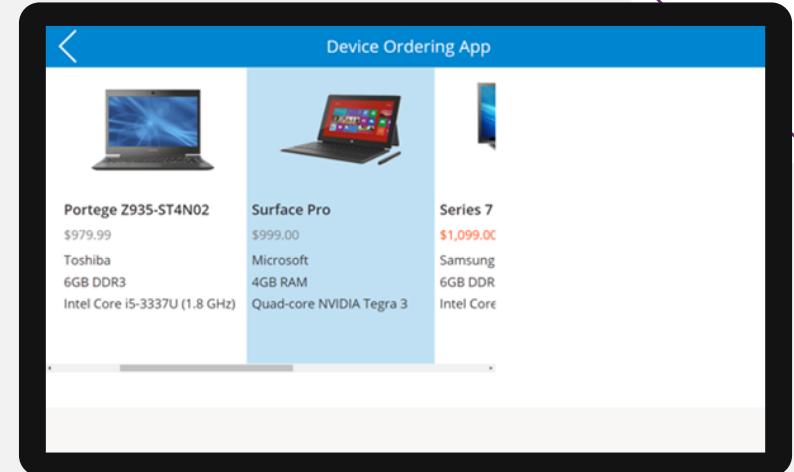
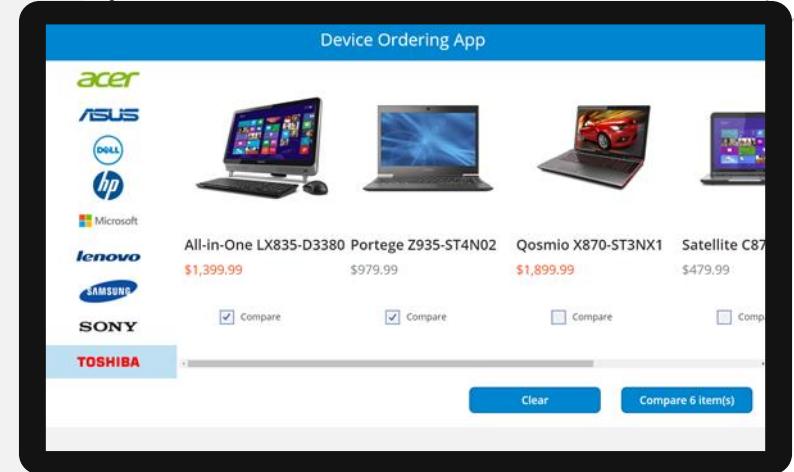
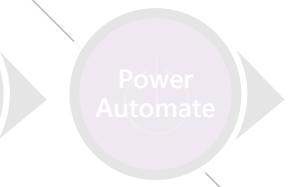
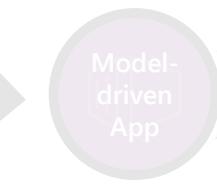
Filter data



Work with multiple screens and navigation



Customize the user experience – galleries and controls



# Hands-on-lab demo

## Power Apps Canvas App



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