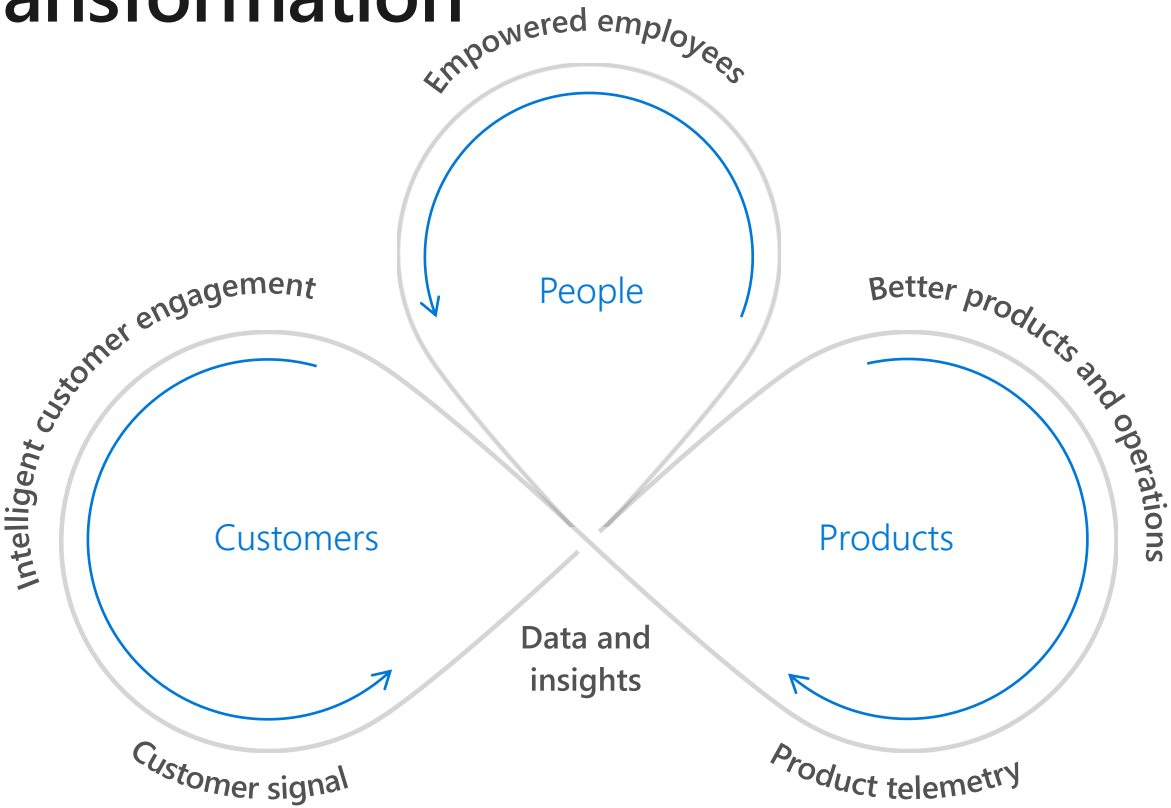
Transform and extend your Line of Business Applications with PowerApps

POWER OF THE CLOUD
MICROSOFT CLOUD
POWER USER CONFERENCE
JUNE 14TH, 2019

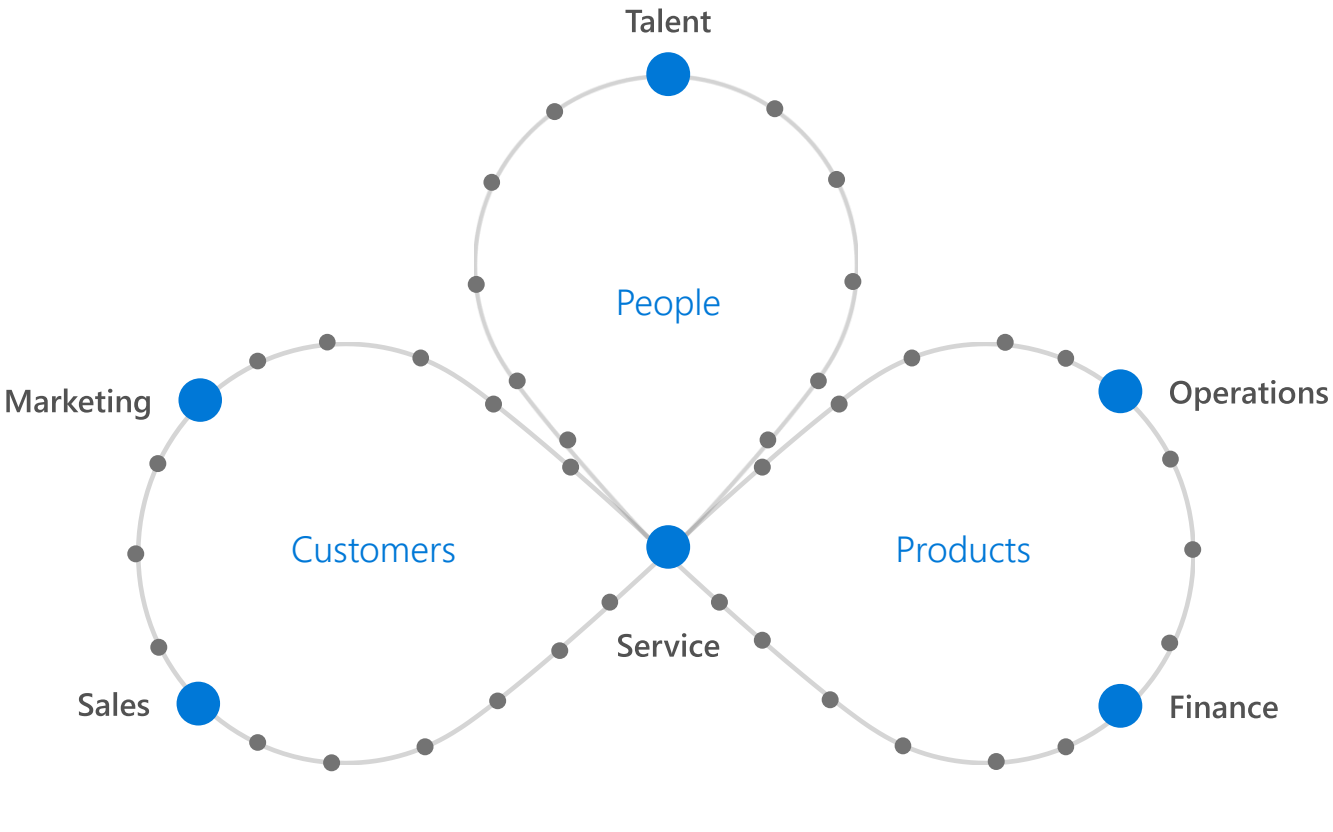
Filip Karadzic

BUSINESS APPLICATION PLATFORM OVERVIEW

Digital Feedback Loop: enabling digital transformation



Last mile of digital transformation



Challenges in building business applications

Lack of
budget

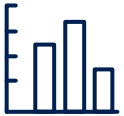
Lack of
time and resources

Lack of
enterprise capabilities

Business Application Platform

One connected platform that empowers everyone to innovate

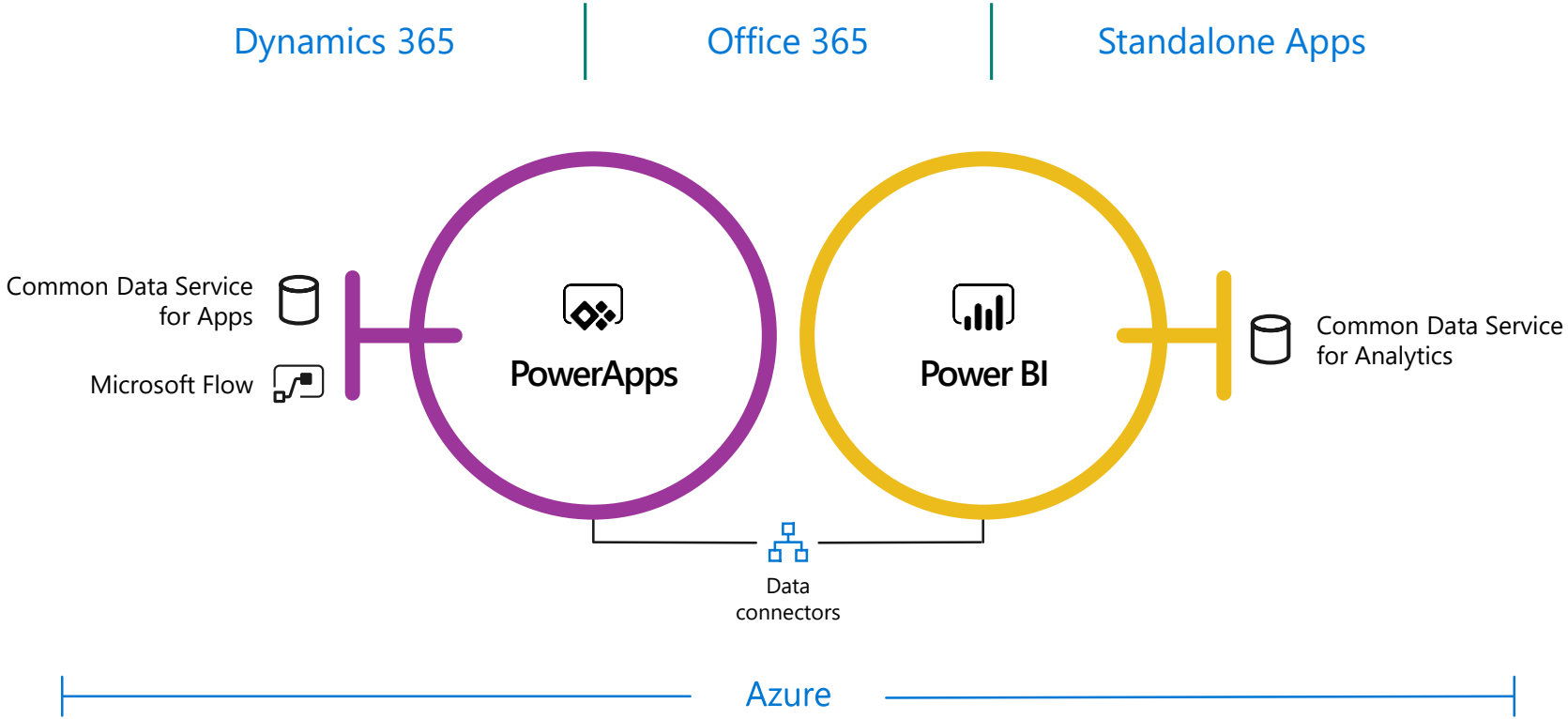
Build web and mobile apps fast and without limits



Gain insights from your data regardless of where it lives

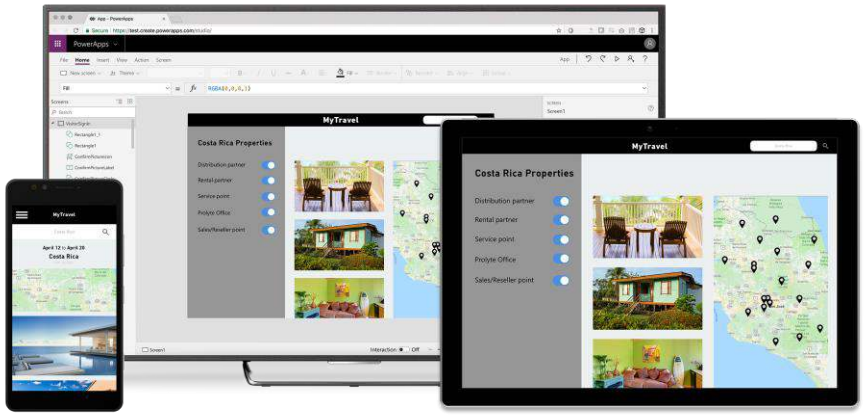
Enterprise-ready security and governance

Business Application Platform



Build and consume solutions for web and mobile with PowerApps

- 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



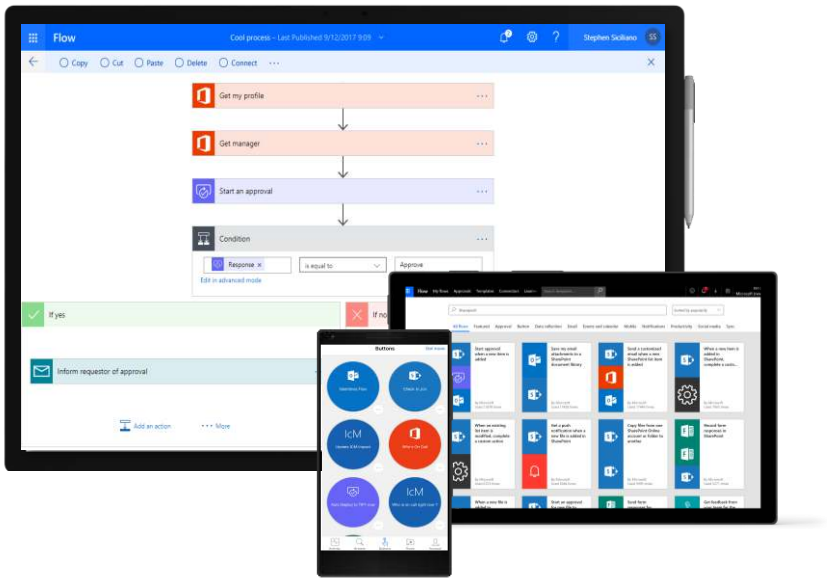
Enterprise-grade

Cloud and on-premises connectivity

Pro-developer extensibility

Automate and integrate business processes with Microsoft Flow

- 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



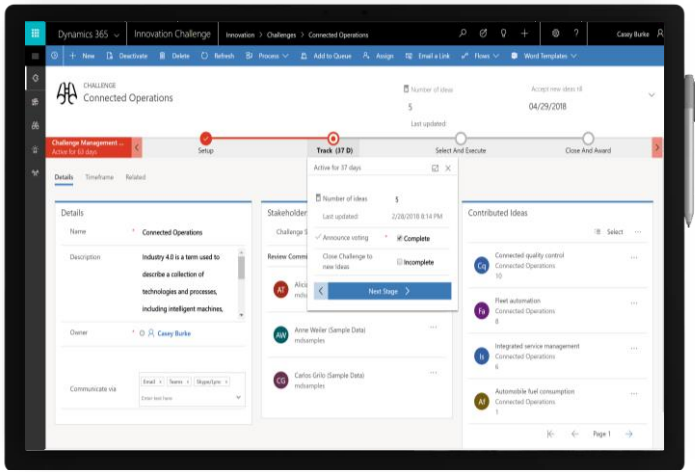
Enterprise-grade

Cloud and on-premises connectivity

Pro-developer extensibility

Put all your data to work with Common Data Service for Apps

- 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



Enterprise-grade

Cloud and on-premises connectivity

Pro-developer extensibility

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 Business Application Platform**

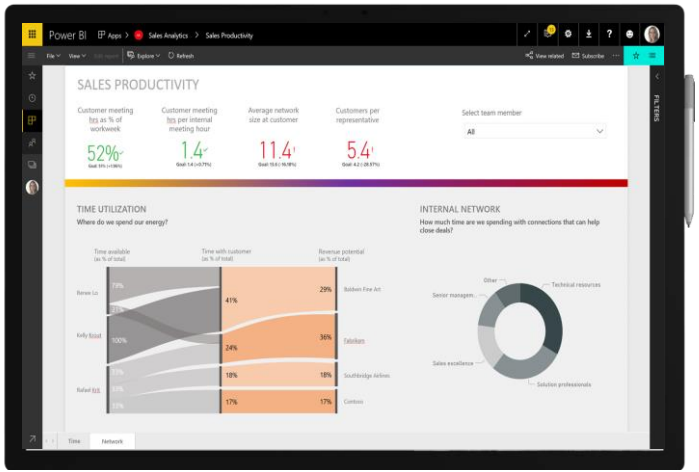
Enterprise-grade

Cloud and on-premises connectivity

Pro-developer extensibility

Accelerate insights with the Common Data Service for Analytics and Power BI

- Unify data and drive analytics with a standardized schema built on the common data model
- Benefit from out-of-the-box insights that are extensible to meet your unique business needs
- Integrate data warehousing processes with business analytics in Power BI and easily extend to Azure

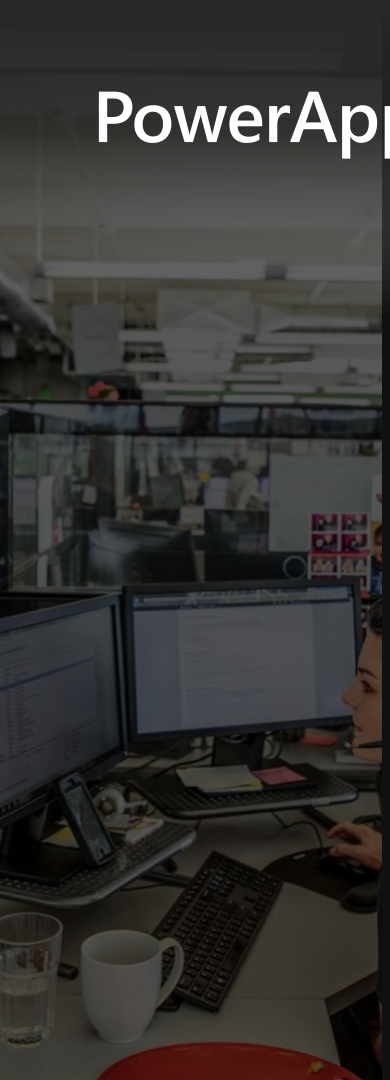


Enterprise-grade

Cloud and on-premises connectivity

Pro-developer extensibility

PowerApps Momentum



>485B

API calls for Common Data Service last month

>700%

growth in PowerApps production apps in the last year

>300%

growth in PowerApps Monthly Active Users

1.5+ PB

relational data for Common Data Service

>2.5M

Monthly Active Developers on the Power Platform

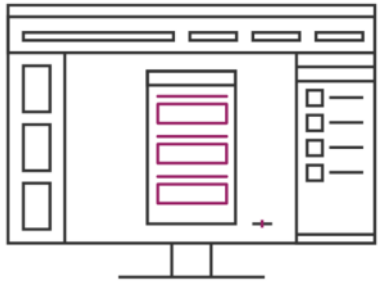
>400

new features and improvements

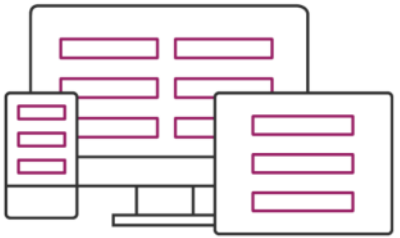
INTRODUCTION TO CANVAS APPS

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*

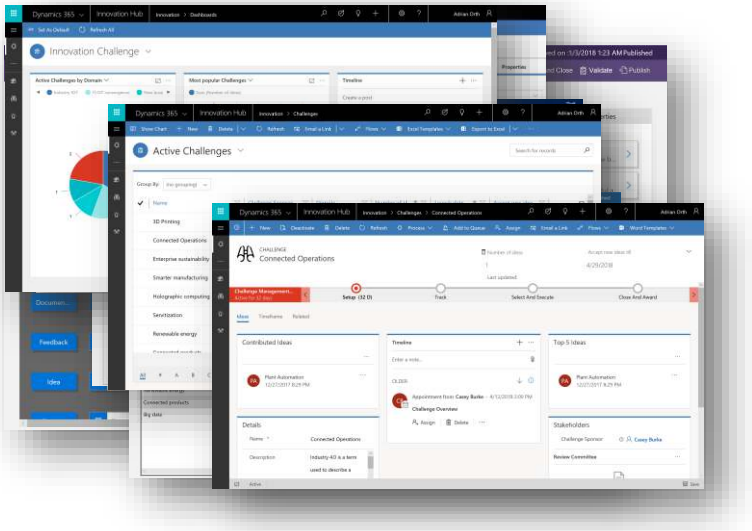


Use apps *on any device* – both web and mobile

Focus on Canvas Apps

Canvas apps

Start with user experience
WYSIWYG designer
Task- and role-based apps
Mash up data from 200+ sources

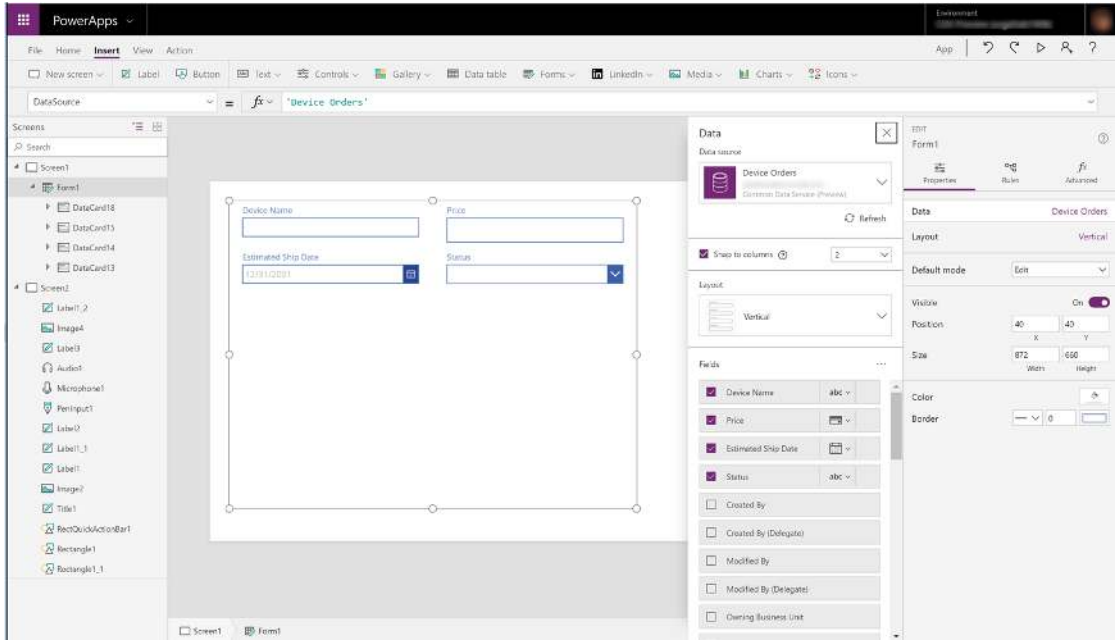


Model-driven apps

Built on the Common Data Service for Apps
Start with a data model, relationships, and business processes
Build End-to-End business applications

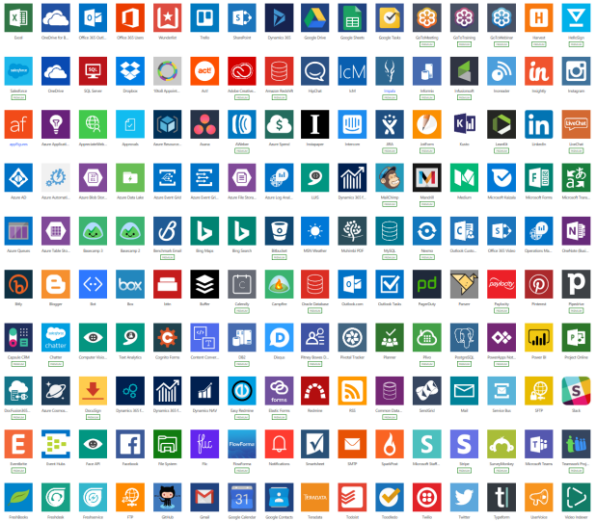
Easy Authoring

- 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 200+ 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

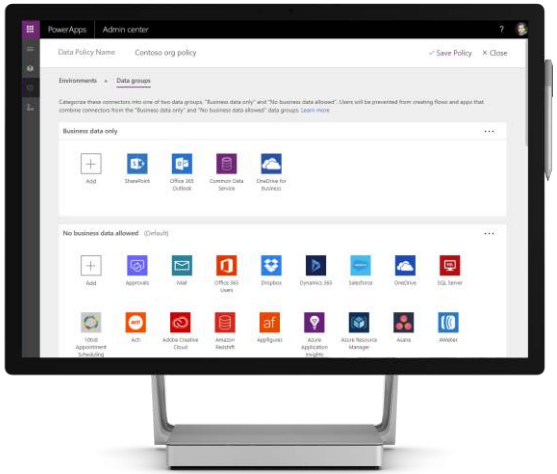


Cross-platform

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

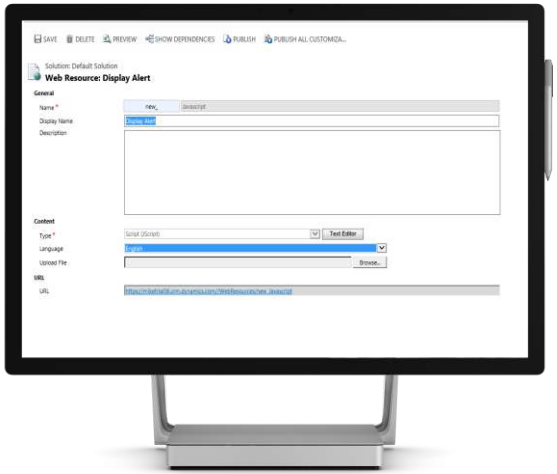
Enterprise-grade management and control

- 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



Amplify professional developer productivity

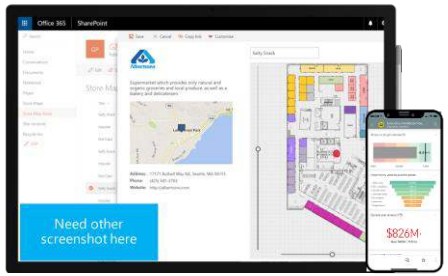
- Extend applications using custom code
- Build custom connectors that everyone can use
- Write advanced client or server-side logic leveraging Azure Machine Learning, Cognitive Services, Bing APIs, custom code, or any service of your choice



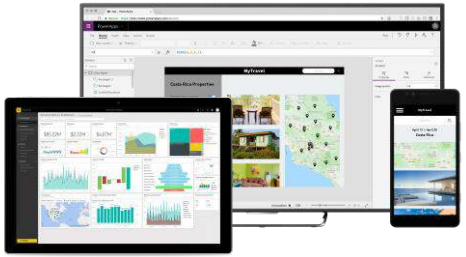
Customize, extend, and build all the apps you need

Seamless Dynamics 365, Office 365, and Azure integration along with connectors to more than 200 data sources

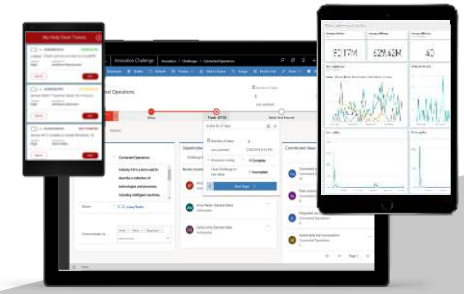
Tailor out-of-the-box solutions, embedded forms and dashboards



Highly customized task- and role-based apps



Immersive, end-to-end solutions



SOPHISTICATION

Customer stories

NATIONAL TRUST

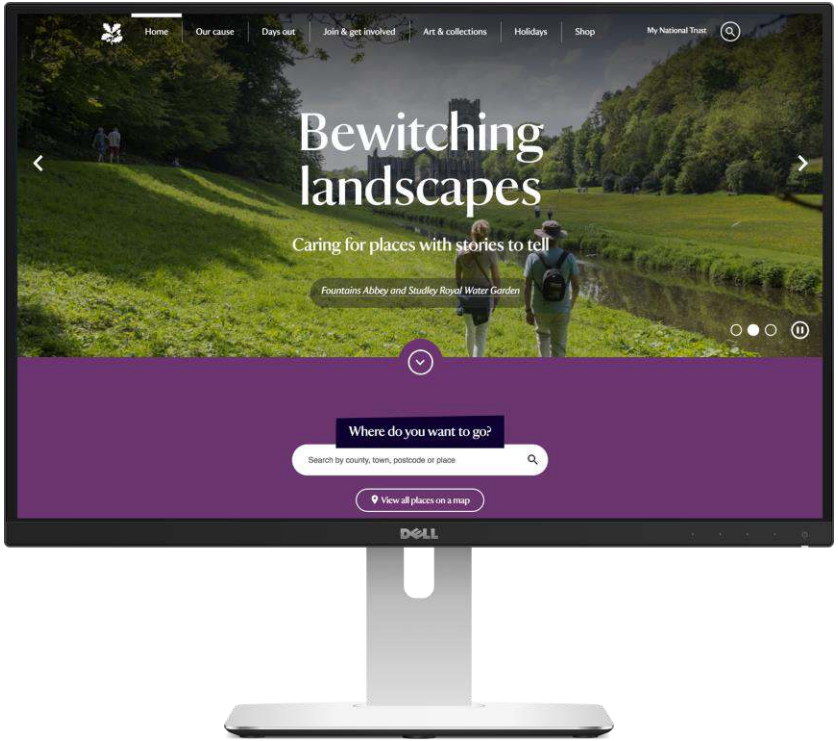
COMPANY BACKGROUND

National Trust

Mission: preserve UK's heritage and open spaces

4.5 million+ members and 62,000 volunteers

Maintain 350 properties with 120 million yearly visits



BEFORE POWERAPPS

National Trust

Used a web page to inspect heritage properties

Limited usage due to usability issues

Most volunteers chose to take notes on paper and mail in the results

Difficult to collate inspection data and run business analytics over it

WITH POWERAPPS

National Trust

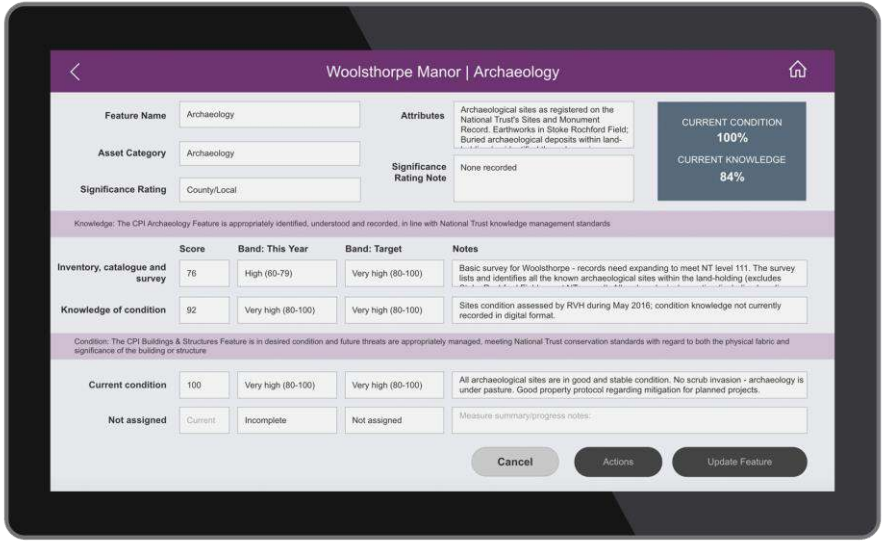
Partnered with eBECS to improve their onsite inspection processes

Features of a property are scored and follow up actions can be added and tracked

Admin Portal used to define templates for each property

Ensures consistency in inspections

Allows volunteer inspectors to submit inspection reports on-site on a device of their choice



DETAILS OF MEETING

Status: Submitted

CPI Name Woolsthorpe Manor

Properties Woolsthorpe Manor

CPI Complexity Medium complexity

Staff Present Search | Ajay Anandan | Add

Josh; Jon Townsend; Angel Salazar;

Date of Meeting 5/10/2017

CPI review summary notes No huge changes this year on previous year's scores.

Score Features

1. Archaeology
   Condition Score : 100 Knowledge Score : 84
2. Manor House
   Condition Score : 50 Knowledge Score : 53
3. Other buildings
   Condition Score : 43 Knowledge Score : 60

Property images

Camera

OVERALL CONDITION SCORE	OVERALL KNOWLEDGE SCORE
63.9%	66.4%

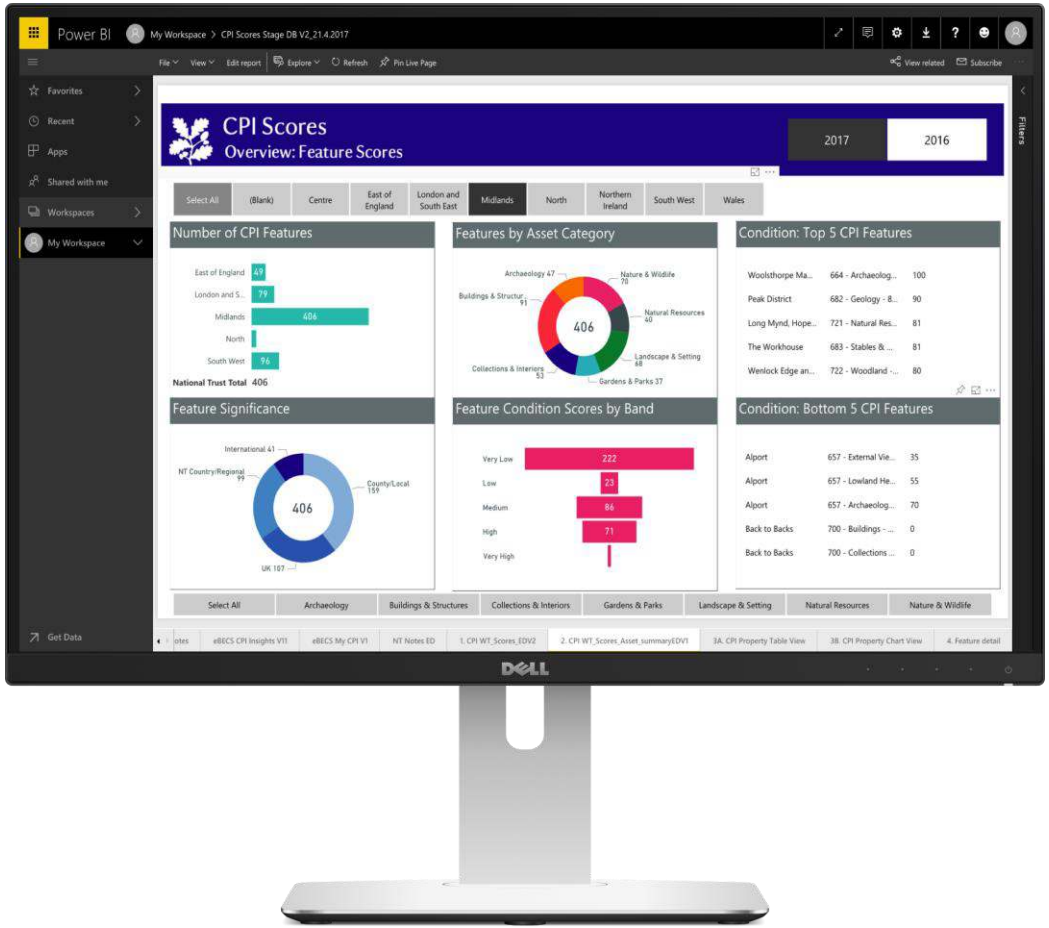
Cancel | Save | CPI Review complete

POWERAPPS + POWER BI

National Trust

Dashboards aggregate inspection results and can drill into individual properties

Helps highlight which investments in properties would provide the best ROI



METRO BANK

COMPANY BACKGROUND

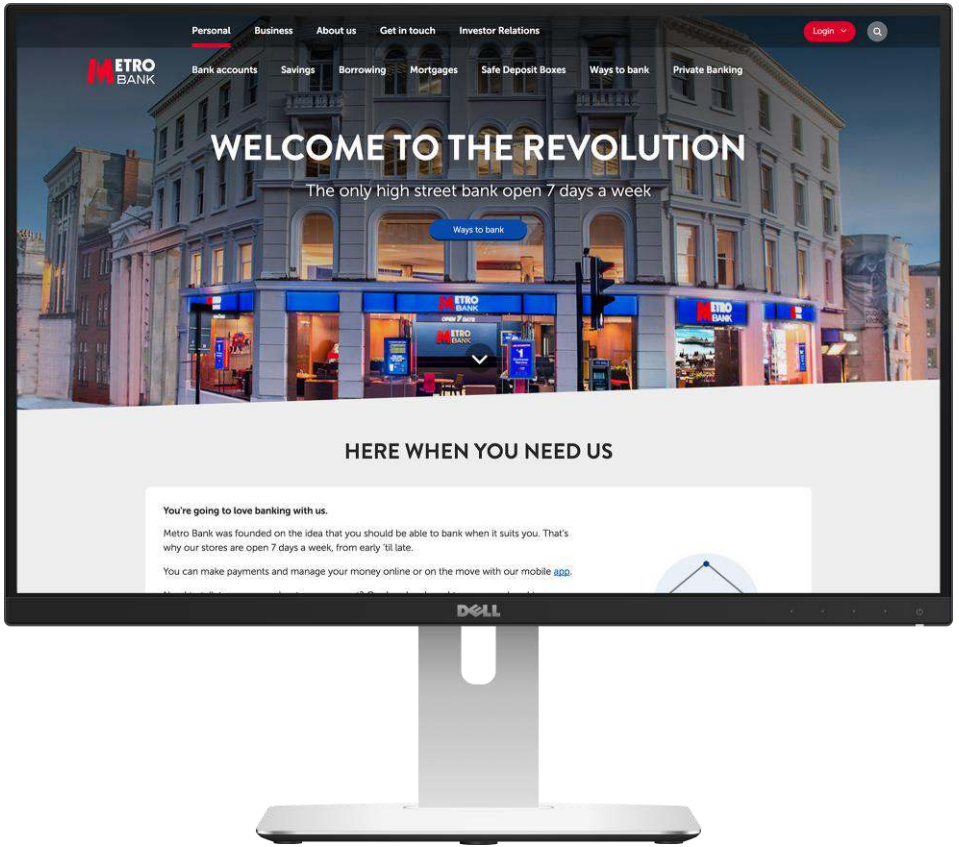
Metro Bank

UK bank launched in 2010

First new high street bank in over 100 years.

Focuses on customer experience through high end retail branches

Open 7 days a week – 362 days a year



BEFORE POWERAPPS

Metro Bank

Employees would greet customers with a clipboard

They would walk back to their desk and pull up the customer's information in CRM

No streamlined process at first branch touch point

AFTER POWERAPPS

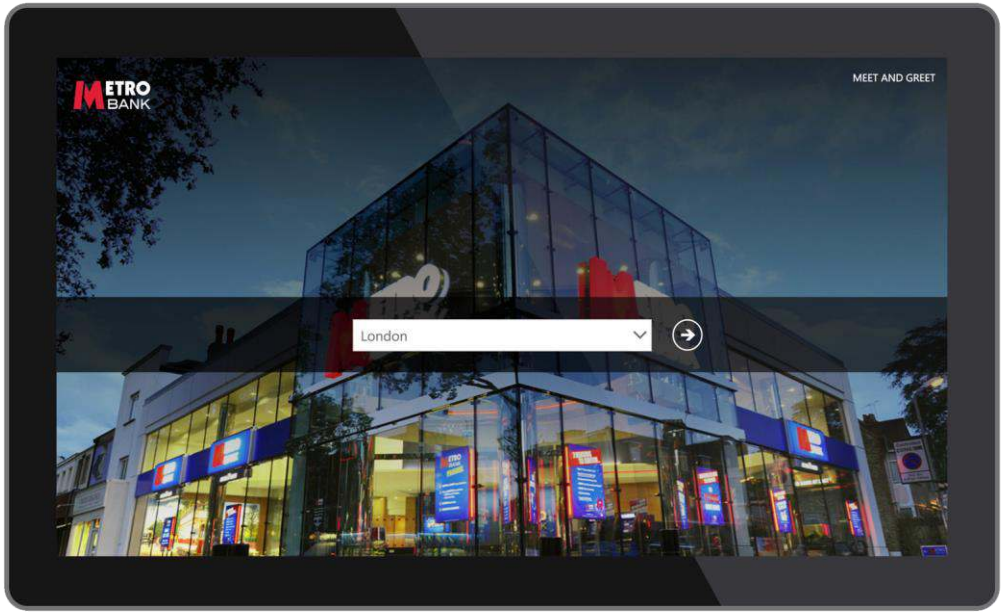
Metro Bank

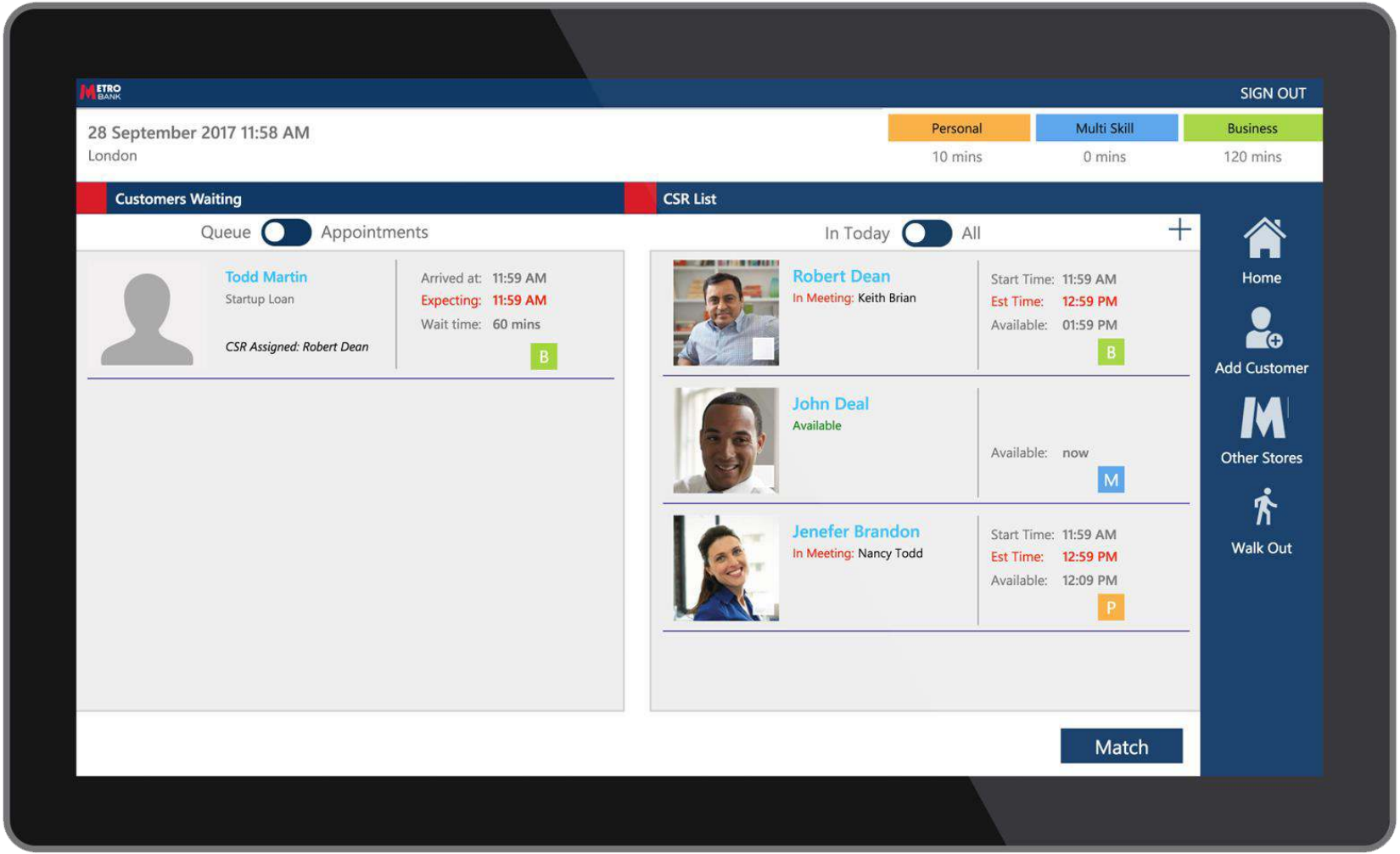
Employees now greet customers as they enter with a Surface tablet

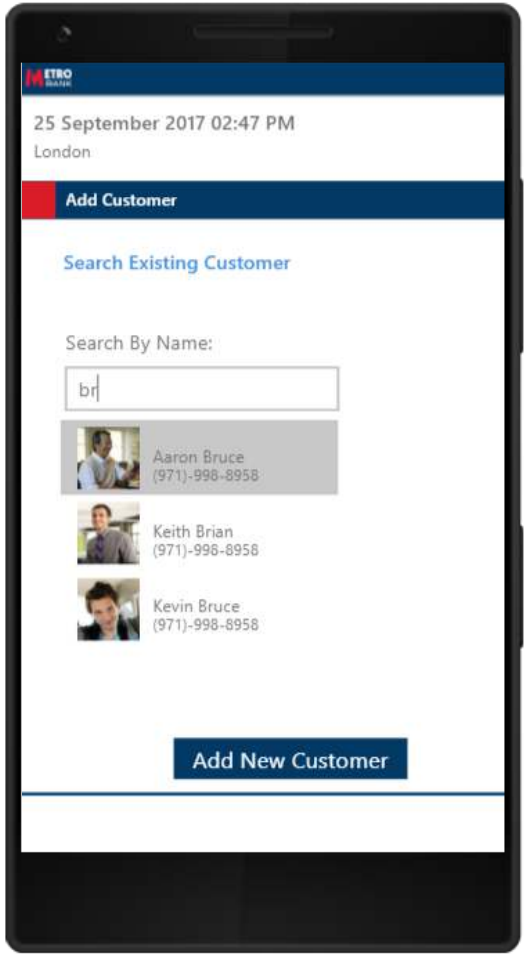
Customer information quickly accessed and subject expert matched to customer need

Provides estimated wait times and allows customer to choose to be notified by text or call

App has led to an increase in Metro Bank's NPS score for in-store customer experience.

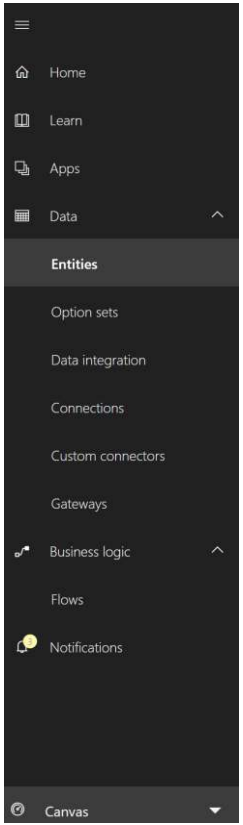



METRO BANK
SIGN OUT
28 September 2017 11:58 AM
London
Personal
10 mins
Multi Skill
0 mins
Business
120 mins
Customers Waiting
Queue
Appointments
Todd Martin
Startup Loan
CSR Assigned: Robert Dean
Arrived at: 11:59 AM
Expecting: 11:59 AM
Wait time: 60 mins
B
CSR List
In Today
All
Robert Dean
In Meeting: Keith Brian
Start Time: 11:59 AM
Est Time: 12:59 PM
Available: 01:59 PM
B
John Deal
Available
Available: now
M
Jenefer Brandon
In Meeting: Nancy Todd
Start Time: 11:59 AM
Est Time: 12:59 PM
Available: 12:09 PM
P
Match
Home
Add Customer
Other Stores
Walk Out


25 September 2017 02:47 PM
London
Add Customer
Search Existing Customer
Search By Name:
br
Aaron Bruce
(971)-998-8958
Keith Brian
(971)-998-8958
Kevin Bruce
(971)-998-8958
Add New Customer

Key concepts

PowerApps Maker Portal [https://web.powerapps.com/]

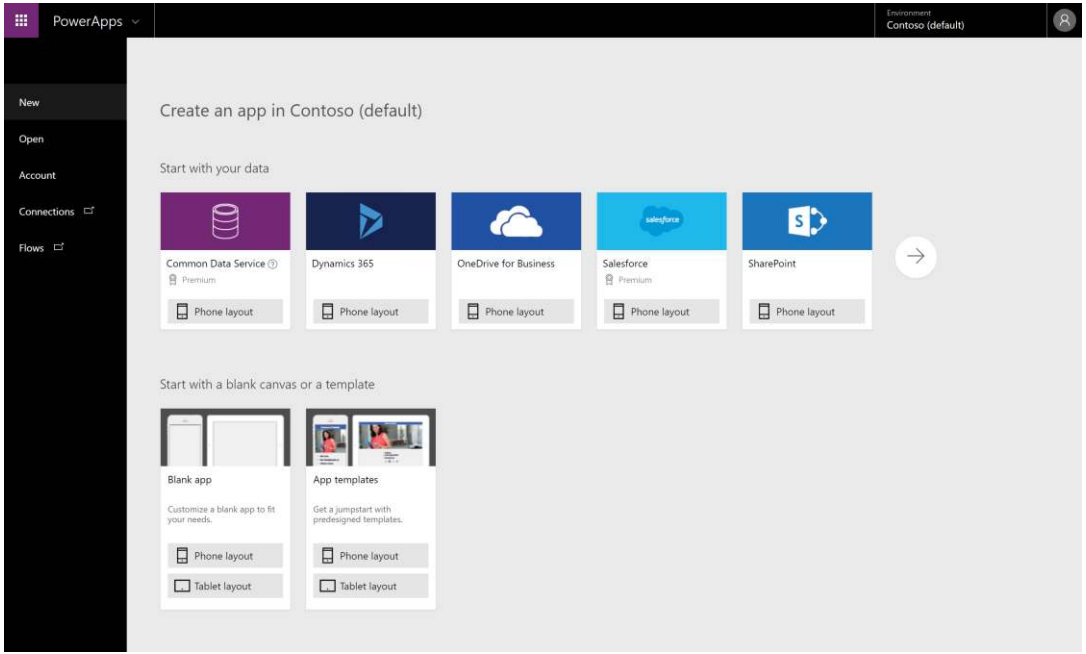


Home page for Makers

- Learn
  - Guided learning, documentation, community, what's new
- 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
- Business Logic: Add Flows to your apps
- Switch mode between Canvas and Model-driven

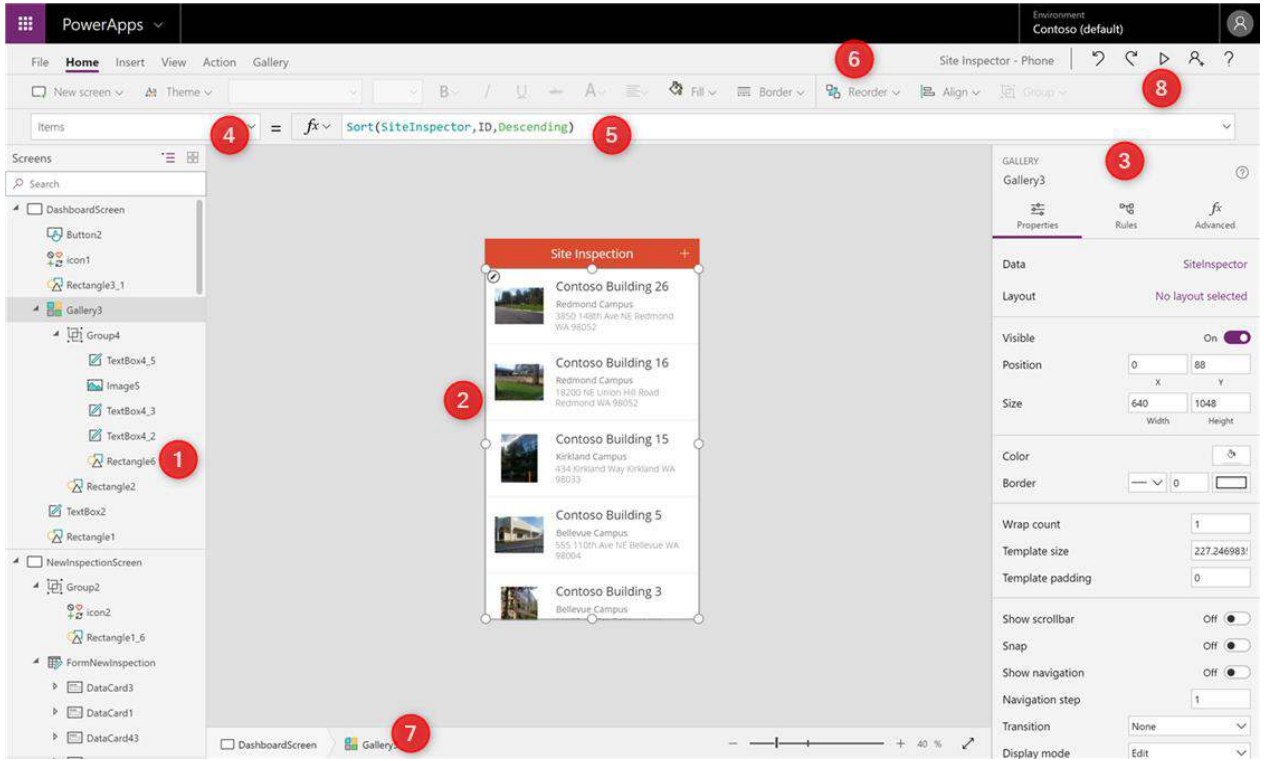
PowerApps Studio for the Web [https://create.powerapps.com/]

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



PowerApps Studio parts

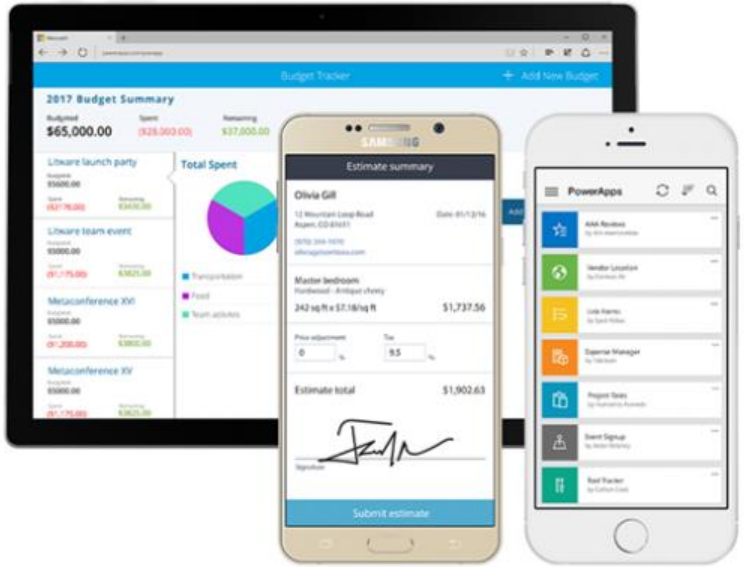
1. Left Navigation bar
2. Middle pane (current screen)
3. Right-hand pane
4. Property drop-down list
5. Formula bar
6. Ribbon
7. Bread-crumb navigation
8. Preview button (F5)



PowerApps Mobile (Player)

PowerApps 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



GET IT ON Google Play

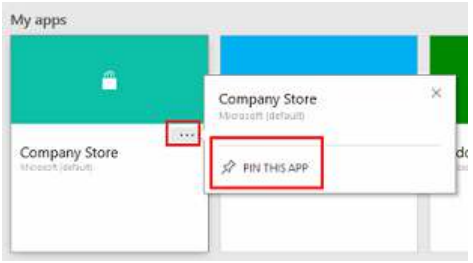
Download on the App Store

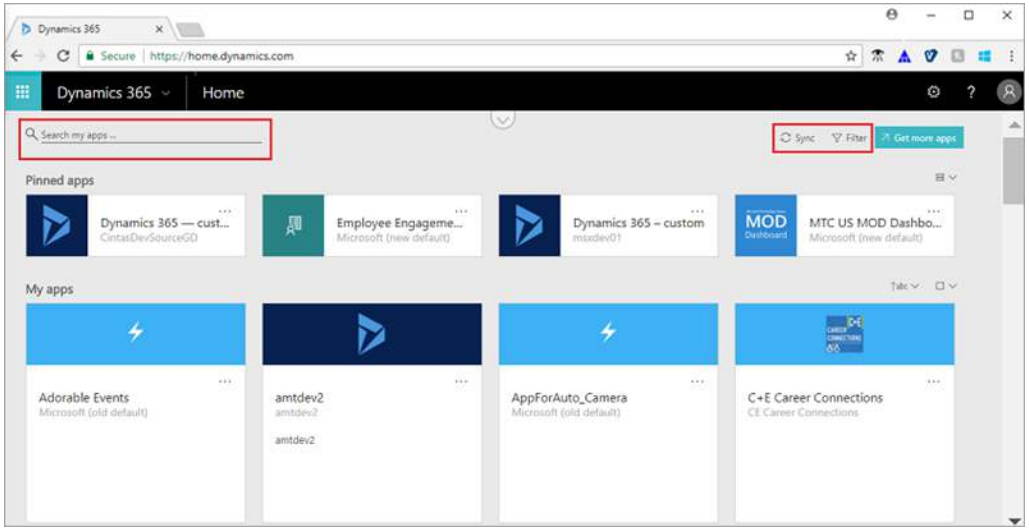
Get it from Microsoft

Google Play: https://aka.ms/powerappsandroid
Apple App Store: https://aka.ms/powerappsios
Microsoft Store: https://aka.ms/powerappswin

Dynamics 365 Home page [https://home.dynamics.com]

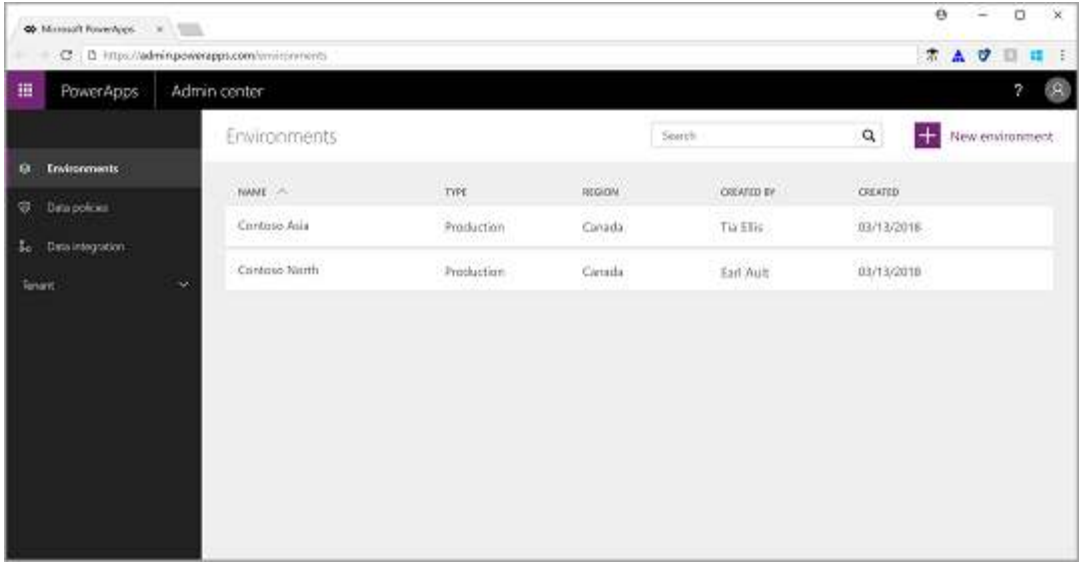
- Find your apps or apps shared with you
- Run all PowerApps apps (canvas or model-driven)
- Run all Dynamics 365 apps (Sales, service etc…)
- You don't need a Dynamics subscription to access





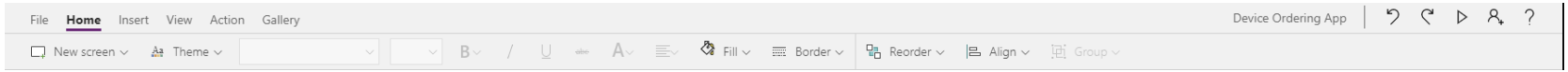
PowerApps Admin Center [https://admin.powerapps.com]

- Administration of PowerApps, Microsoft Flow and Common Data Service for Apps
- Create Environments & databases
- Assign Data Loss Prevention policies
- View active users in tenant
- View apps and flows in environment or tenant

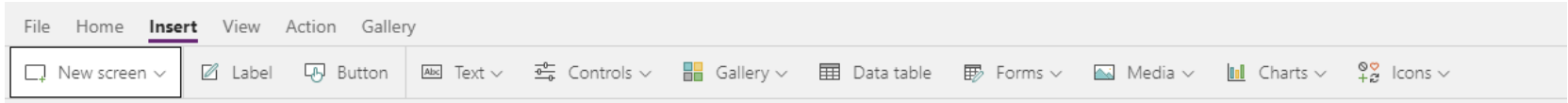


PowerApps Studio

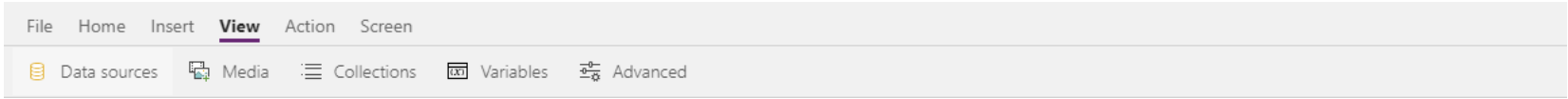
Common Properties



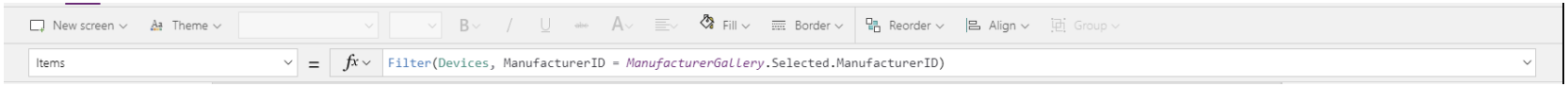
UI: Controls



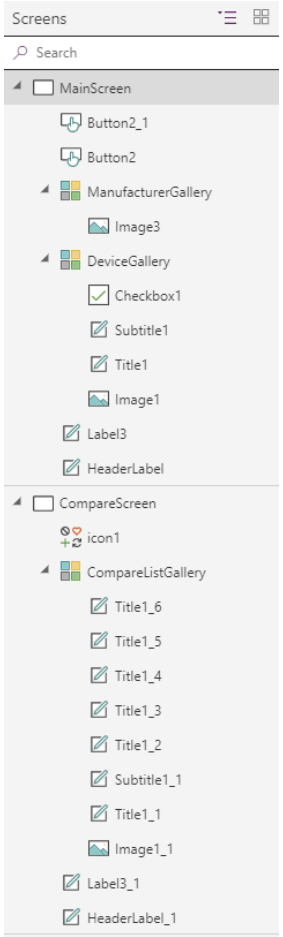
View: Data



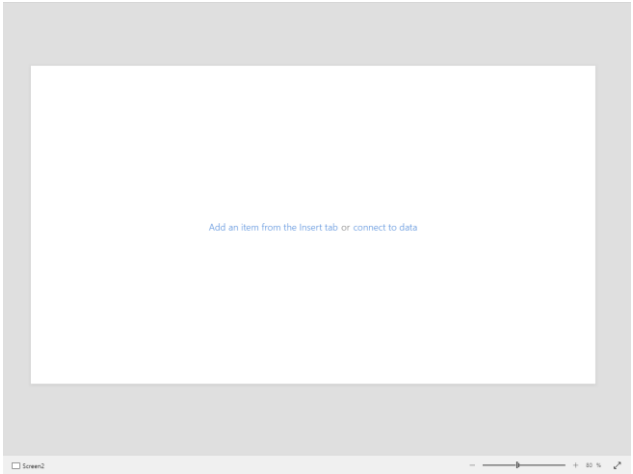
UI-Data Binding: Properties & Formula bar



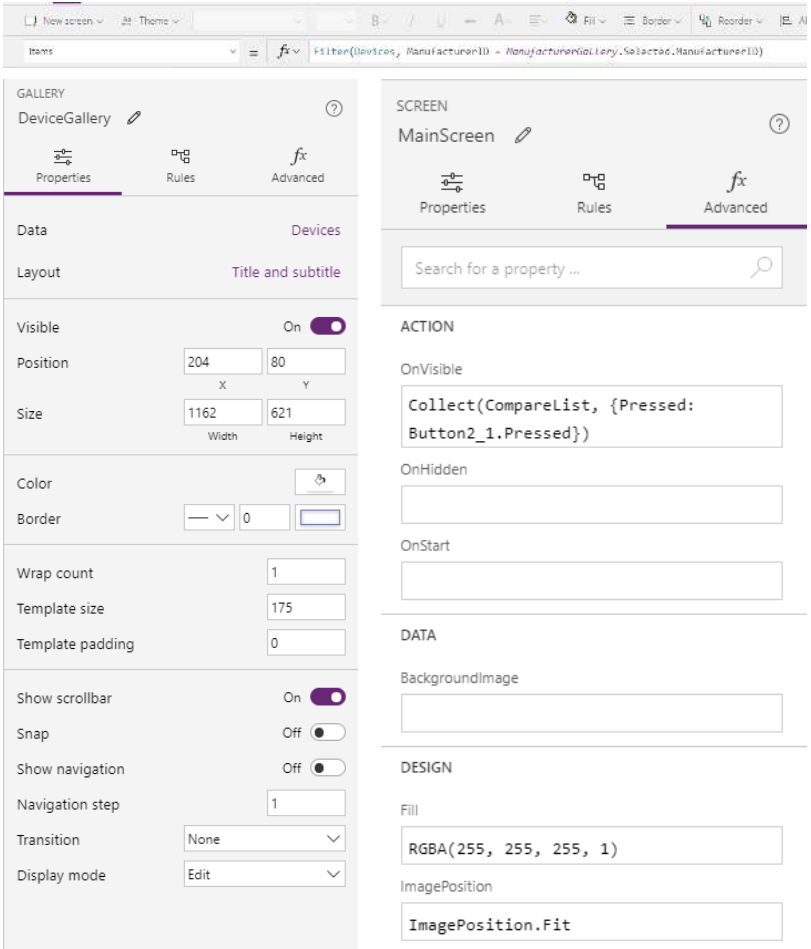
Screens & Controls View



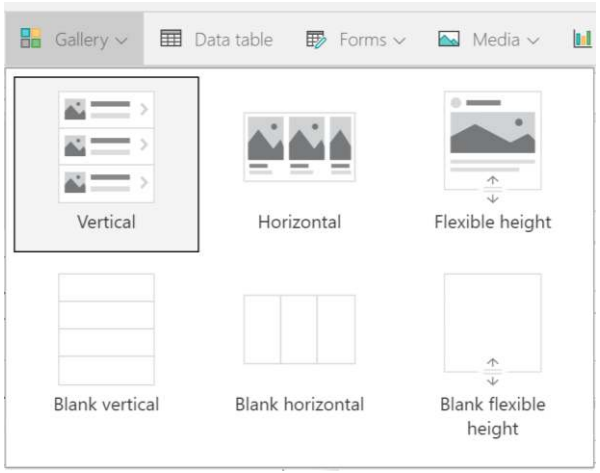
Canvas

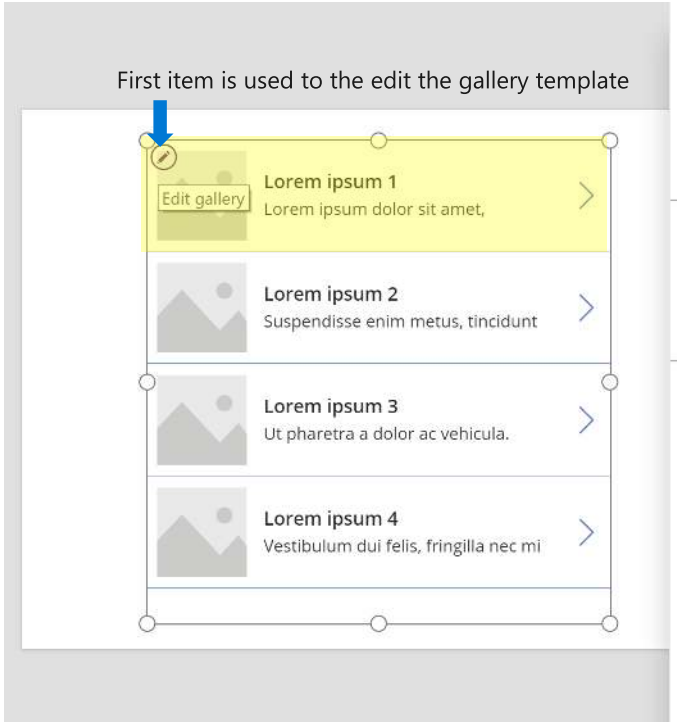


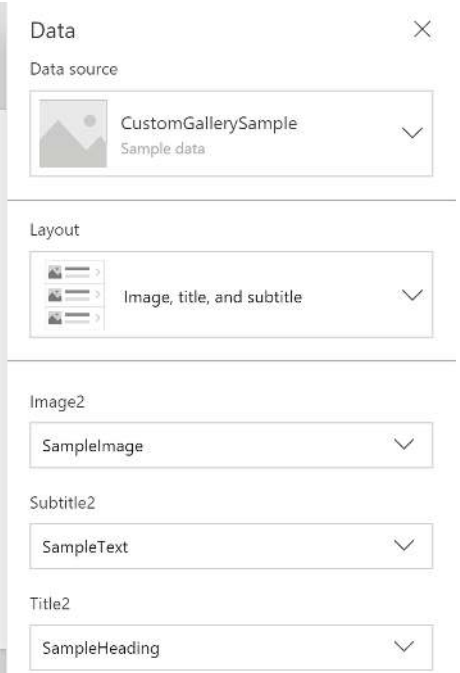
Properties Panel



Gallery


Gallery
Data table
Forms
Media
Vertical
Horizontal
Flexible height
Blank vertical
Blank horizontal
Blank flexible height

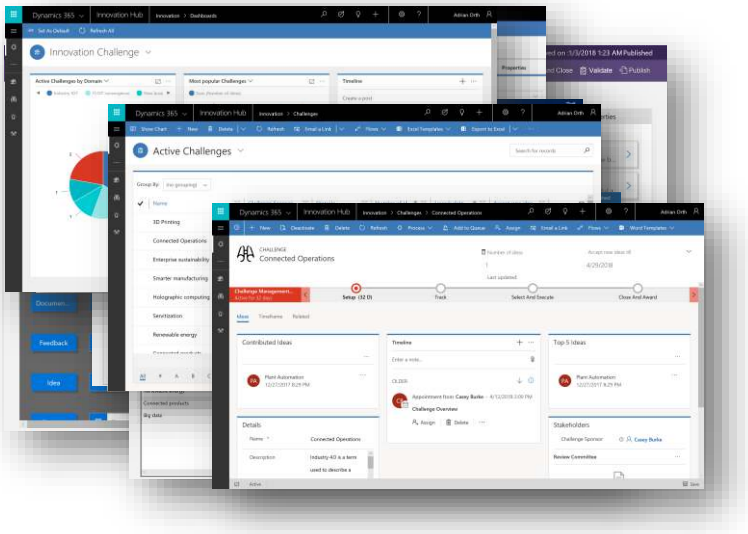

First item is used to the edit the gallery template
Edit gallery
Lorem ipsum 1
Lorem ipsum dolor sit amet,
Lorem ipsum 2
Suspendisse enim metus, tincidunt
Lorem ipsum 3
Ut pharetra a dolor ac vehicula.
Lorem ipsum 4
Vestibulum dui felis, fringilla nec mi


Data
Data source
CustomGallerySample
Sample data
Layout
Image, title, and subtitle
Image2
SampleImage
Subtitle2
SampleText
Title2
SampleHeading

DEMO

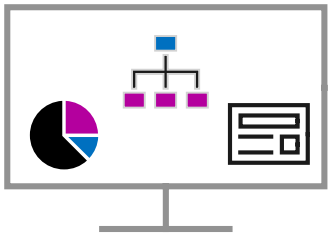
MODEL-DRIVEN APPS IN POWERAPPS

Canvas apps start with user experience, with pixel-perfect control to build highly customized task- and role-based apps that mash up data from 190+ sources

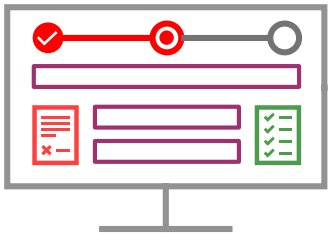


Model-driven apps leverage your data model, relationships, and business processes to automatically generate immersive, responsive applications

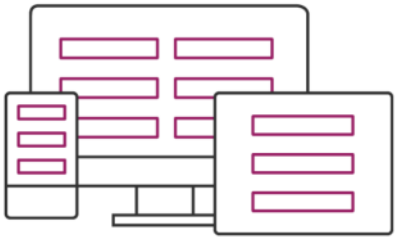
PowerApps Model-driven apps provides a metadata-driven architecture for creating and customizing apps without writing code



Rich ***component-focused*** no-code design environments



Easily add ***Business rules*** and ***Business process flows*** to model your business processes



Complex ***responsive apps*** on web and mobile

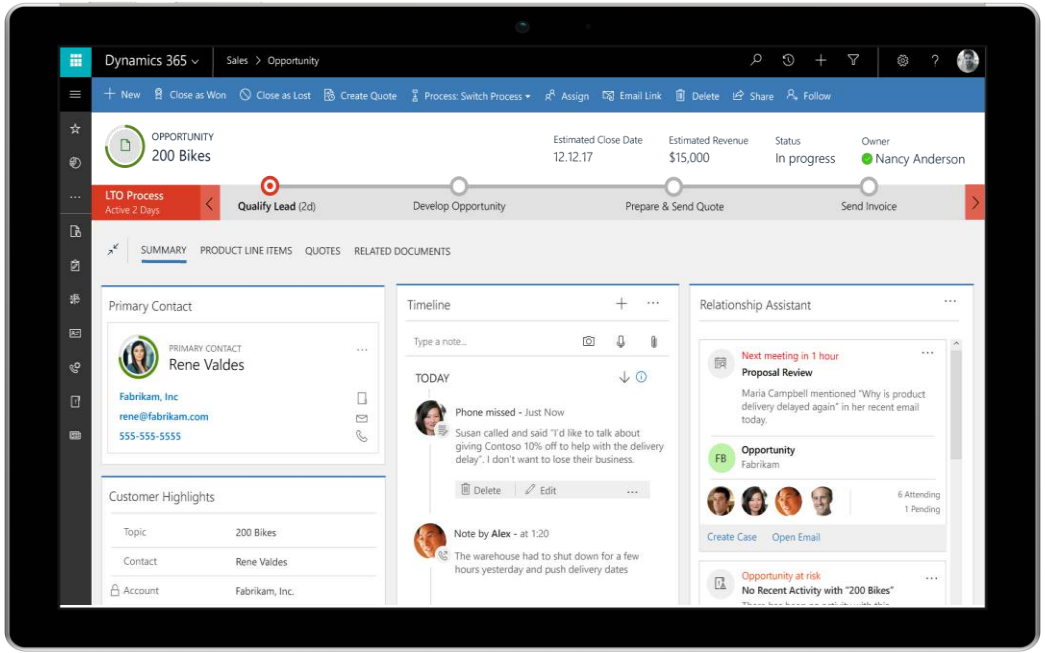
Component-focused approach to app development

Create apps around forms and processes
A new way of app development using entities, forms and business processes

Design sophisticated entity forms quickly
Drag and drop fields and controls in a visual designer. Forms can span multiple columns, multiple steps, and collapsible sections.

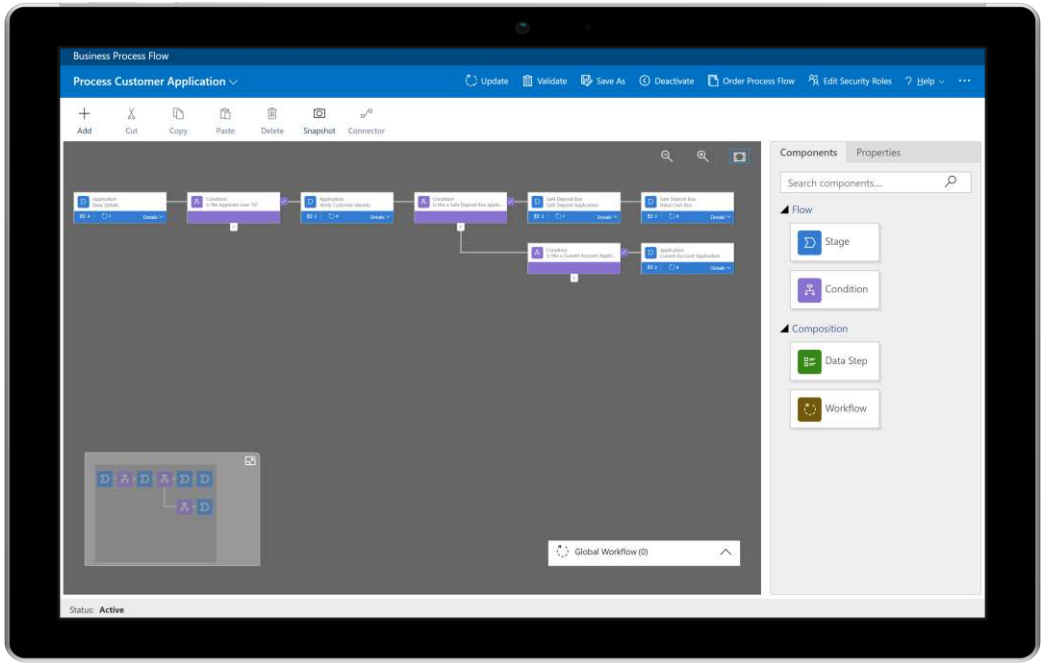
Rich, responsive client experiences
Responsive UI automatically reflows across devices based on the space available.

Enables easy reuse across multiple apps
Easily share forms, dashboards, flows, and more across multiple apps



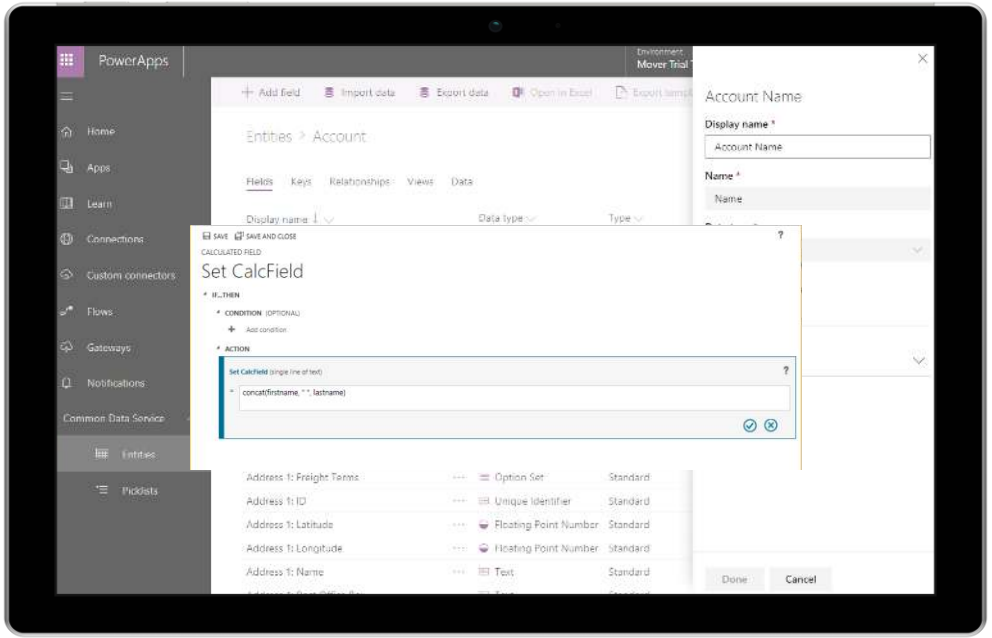
Business Process Flow

- Visual indicators that tell users where they are in the business process
- Reduce the need for training
- Configurable to support common line of business methodologies



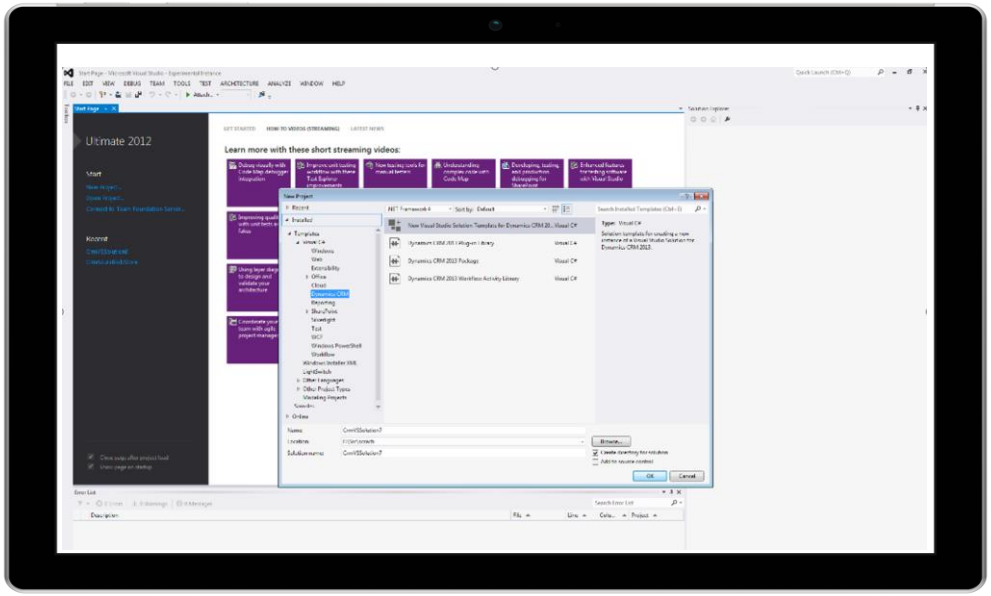
Server Side Logic

- Server-side logic bound to entities, works across all apps
- Create calculated and roll up fields
- Easily create validation and set field defaults
- Update related entities with synchronous workflows



Developer Capabilities

- Robust solution framework for application install and updates
- Visual Studio integrated developer toolkit
- Odata web API
- .Net SDK
- Sandbox instances for ALM operations

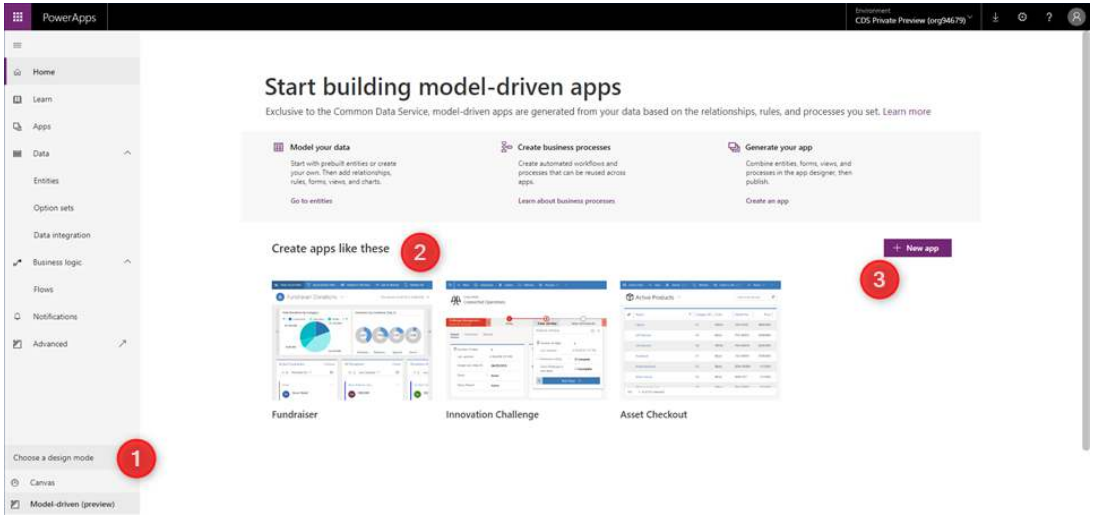


Canvas apps and Model-driven apps are complementary to each other

Canvas Apps	Model Driven Apps
Start with the User Experience or Data	Start with the Data Model (schema)
Build visually appealing, pixel-perfect apps	Component-driven approach to app building
Use concepts like screens, controls, formulae, connections	Use components like site maps, entities, forms, views, charts, dashboards, business process flows
Separate mobile and tablet app creation experiences	Responsive web & mobile apps out of the box
Create mash-up apps using data from multiple data sources using the 200+ connectors or custom connectors	Create apps using entities and virtual-entities in CDS for Apps
Use any PowerApps license (Office 365/P1-P2 or Dynamics 365)	Only PowerApps Plan 2 or Dynamics 365 Enterprise license
Great for building task-focused apps for a specific personas	Great for back-office scenarios involving complex business processes
Security and access for the data is managed on the data-source chosen	Add role-based security and row-level security to your data
Use entities stored in CDS for Apps through CDS connector (P1/P2 required)	Use Business Process Flows, code add-ins & real-time workflows

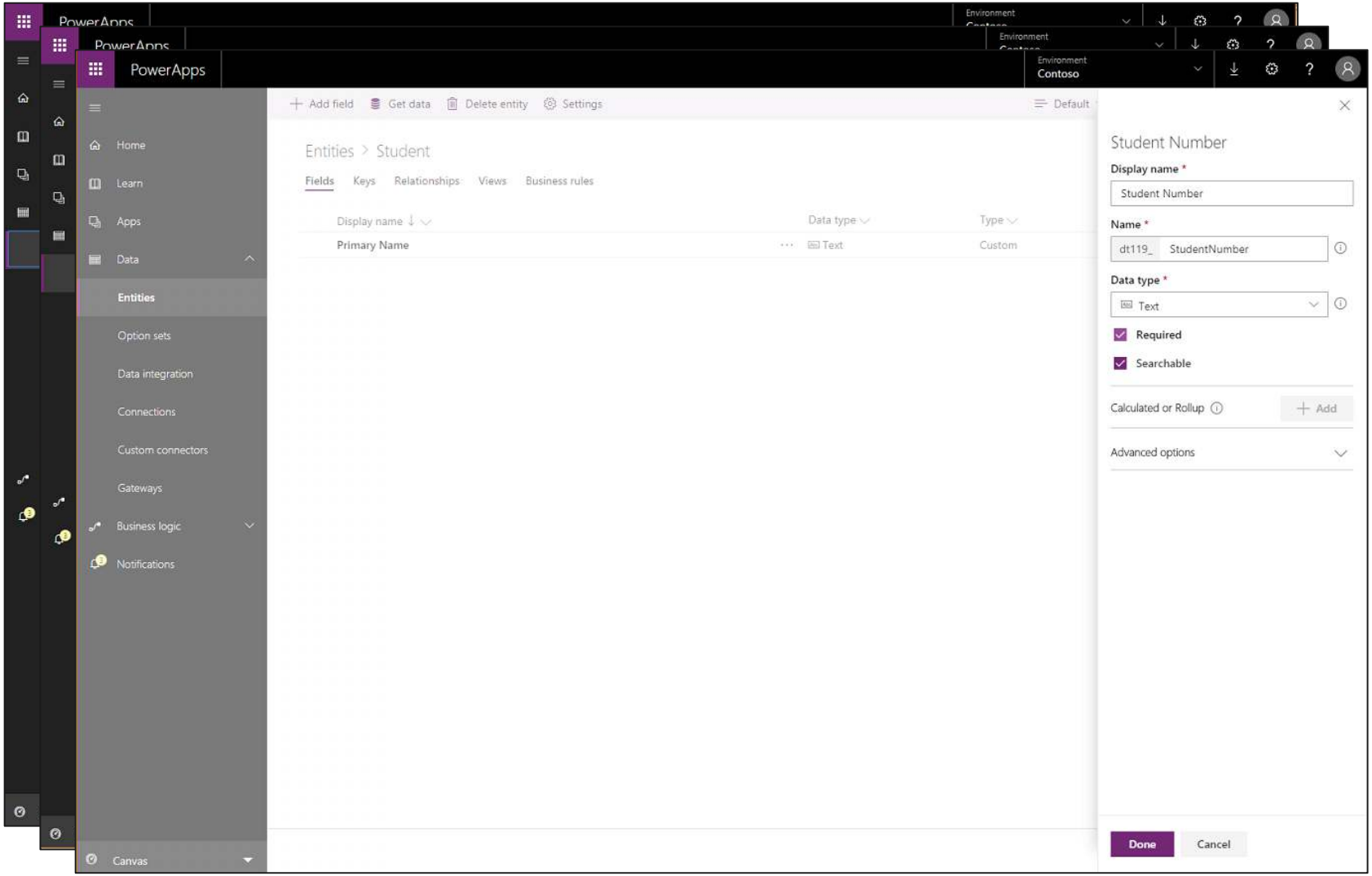
PowerApps Maker Portal [https://web.powerapps.com/]

1. Switch design mode to Model-driven
2. Explore sample apps
3. Create new Model-driven apps



Model-driven app components - Data

Component	Description	Designer
Entity	An item with properties that you track, such as a contact or account. Many standard entities are available. You can customize a non-system standard entity (production entity) or create a custom entity from scratch.	PowerApps entity designer
Field	A property that is associated with an entity. A field is defined by a data type, which determines the type of data that can be entered or selected. Examples include text, number, date and time, currency, or lookup (creates a relationship with another entity). Fields typically are used with forms, views, and searches.	PowerApps entity designer
Relationship	Entity relationships define how entities can be related to each other. There are 1:N (one-to-many), N:1 (many-to-one), and N:N (many-to-many) types of relationships . For example, adding a lookup field to an entity creates a new 1:N relationship between the two entities and lets you put that lookup field on a form.	PowerApps entity designer
Option set field	This is a special type of field, which provides the user a set of predetermined options. Each option has a number value and label. When added to a form, this field displays a control for the user to select an option. There are two kinds of option sets; option sets, where the user can only select one option, and multi-select options sets, which allow more than one selection.	PowerApps option set designer


PowerApps
Environment
Contoso
Add field
Get data
Delete entity
Settings
Default
Home
Learn
Apps
Data
Entities
Option sets
Data integration
Connections
Custom connectors
Gateways
Business logic
Notifications
Canvas
Entities > Student
Fields
Keys
Relationships
Views
Business rules
Display name
Data type
Type
Primary Name
Text
Custom
Student Number
Display name *
Student Number
Name *
dt119_
StudentNumber
Data type *
Text
Required
Searchable
Calculated or Rollup
Add
Advanced options
Done
Cancel

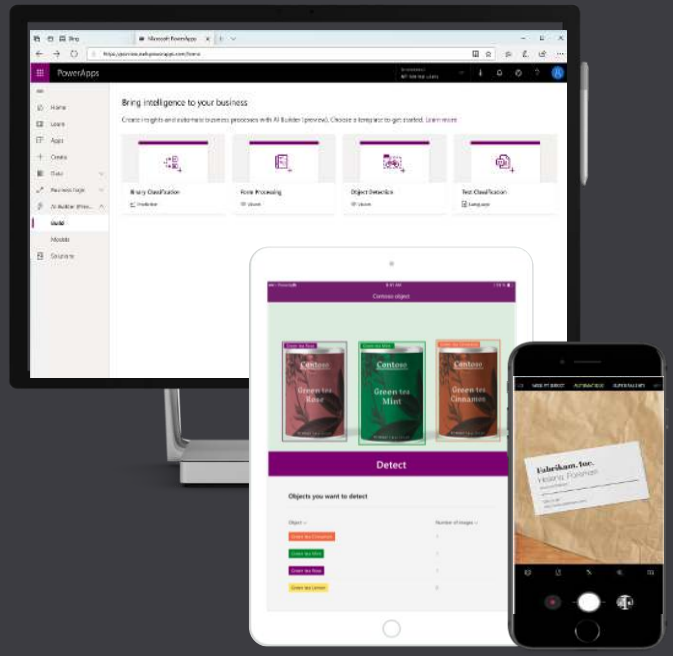
Model-driven app components - UI

Component	Description	Designer
App	Determines the application fundamentals such as components, properties, client type, and URL for your app.	App designer
Site map	Specifies the navigation for your app.	Site map designer
Form	A set of data-entry fields for a given entity that matches the items that your organization tracks for the entity. For example, a set of data-entry fields that where user's input relevant information to track a customer's previous orders along with specific requested reorder dates.	Form designer
View	Views define how a list of records for a specific entity is displayed in your application. A view defines the columns to display, width of each column, sort behavior, and the default filters.	View designer

ROADMAP

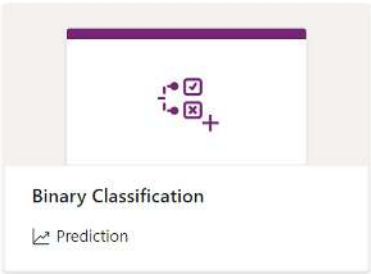
AI Builder: intelligent apps and processes

- Low code AI solutions for Power Platform leveraging the power of Microsoft AI
- Bring your data from CDS, ADLSv2 or 230+ pre-built connectors and custom connectors
- Customize Dynamics 365 AI offerings to specific schema and processes with AI Builder
- Predictions available in Common Data Service for Power Platform and Dynamics
- Pro-Dev extensibility and governance

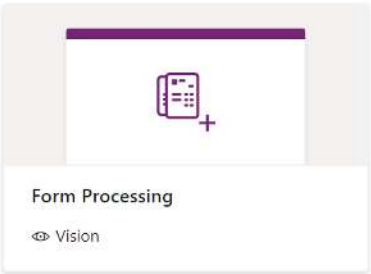


Microsoft

Four Major AI Types

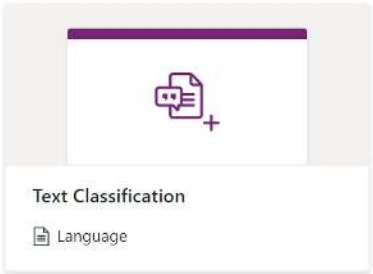


Binary Classification
Predict and classify fields in CDS



Forms Processing
Extract structured data from digital paper, PDFs, and forms

Object Detection
Detect any object (via custom training) through camera or image control



Text Classification
Classify, group and categorize any text in CDS

PowerApps Portals: Engage with your customers

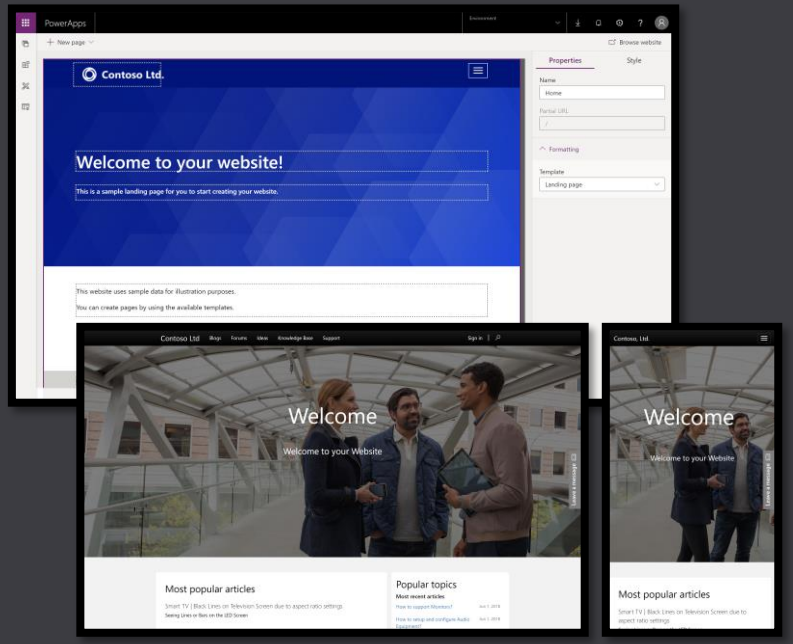
Low code solution for creating multilingual, responsive websites for users external to your organizations as well as internal employees.

Use any of the commercial or enterprise login providers like Microsoft Account, LinkedIn, Azure AD B2C etc or even allow anonymous access.

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.

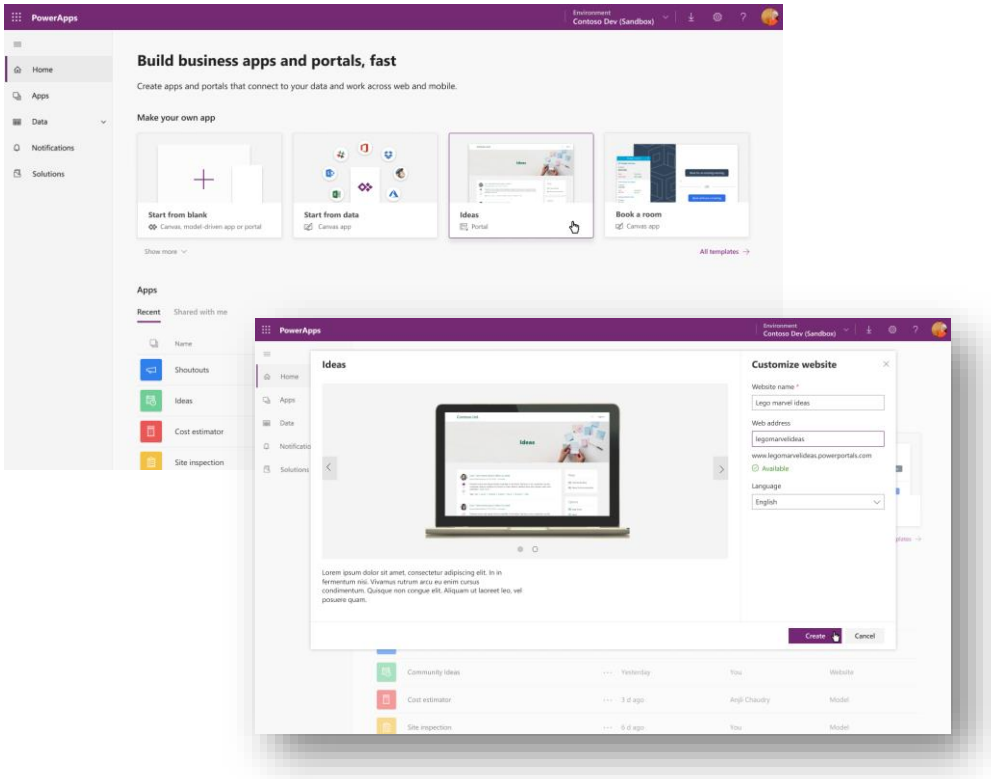
Use prebuilt templates like Customer Self Service, Partner Management, Event Management, Community Self Service or create your own portal.



PREVIEW IN JULY

PowerApps Portals: powerful websites for external users

- Configure a new App type called “portal”.
- Use a predefined template or create your own portal
- Content can be made available anonymously, or through a variety of authentication providers (custom, Facebook, Google, AAD, etc)



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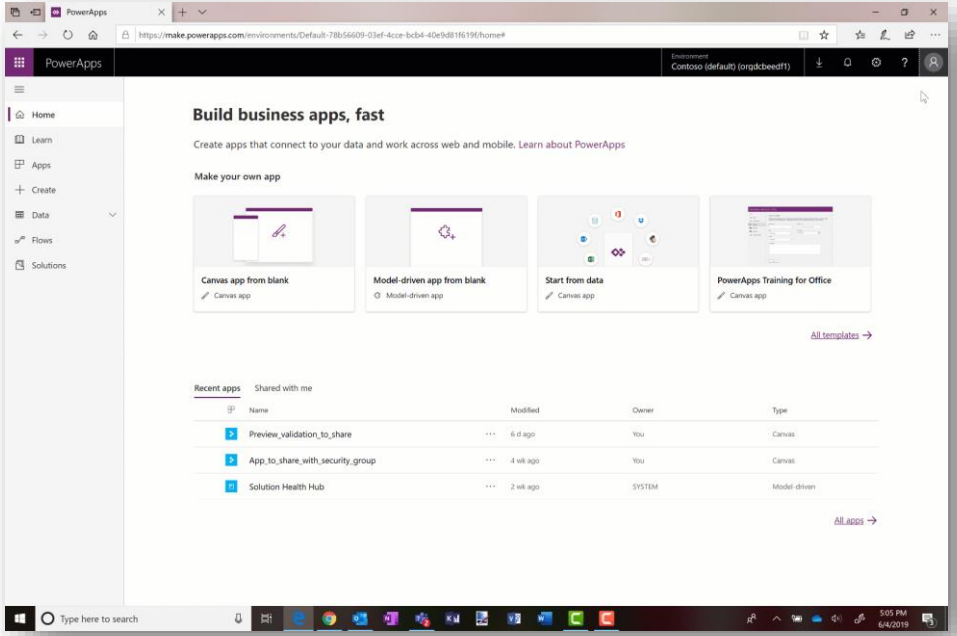
PREVIEW IN AUGUST

Guest Access: share apps with external users

- Share canvas apps with users outside your tenant using AAD B2B or B2C
- Invite external business partners, contractors, and third parties to run your company's canvas apps.
- Share a canvas app with a guest as easily as you do with a co-worker.
- Guests can run canvas apps that are embedded in SharePoint lists.
- Guests can access canvas apps in both the browser and mobile clients.



A canvas app is being shared with a user outside of the tenant the app is created.

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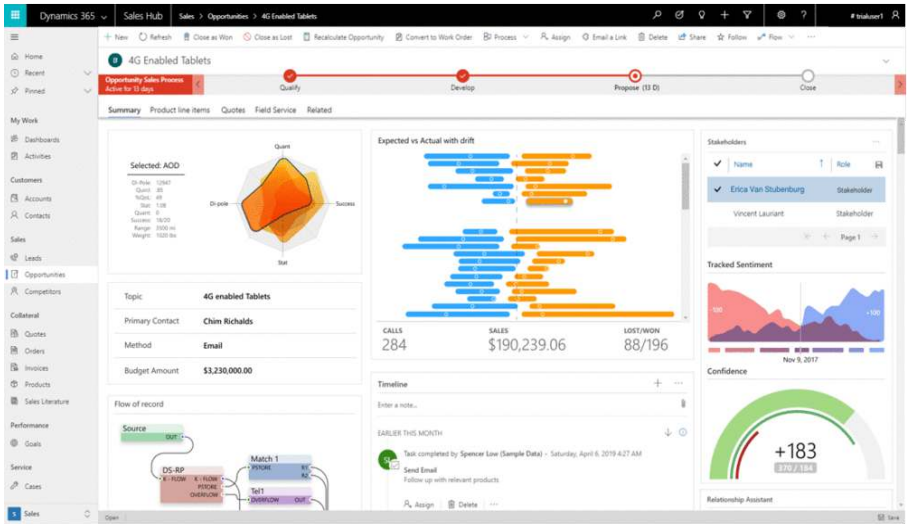
IN PREVIEW NOW (model-driven)

PowerApps component framework is in preview!

- Developers can now build compelling visual components for model-driven PowerApps and Dynamics 365
- Custom components are responsive, reusable and solution aware and support multiple form factors
- Reuse your current IP and Skills – Framework is based on standard web technologies TypeScript/JS, CSS and HTML5
- React and fabric support coming soon
- More info - https://aka.ms/PCFBlog



3rd party developers can now create user experiences which seamlessly add to the ones available out of the box.

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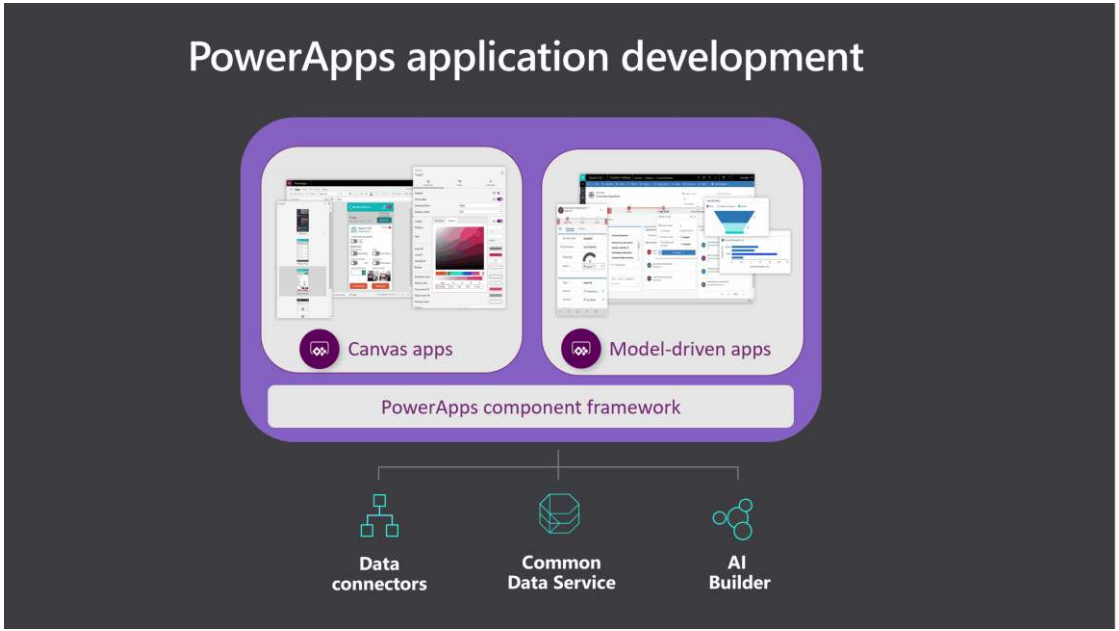
PREVIEW IN SEPTEMBER

PCF coming to canvas

- One common framework for both model-driven and canvas apps
- First big step towards model and canvas app convergence
- Same components can be reused across both app types due to same framework interface
- All new 1st party components including AI controls are already being build using PCF
- Preview available in Sep 2019



Same set of custom components across model and canvas apps

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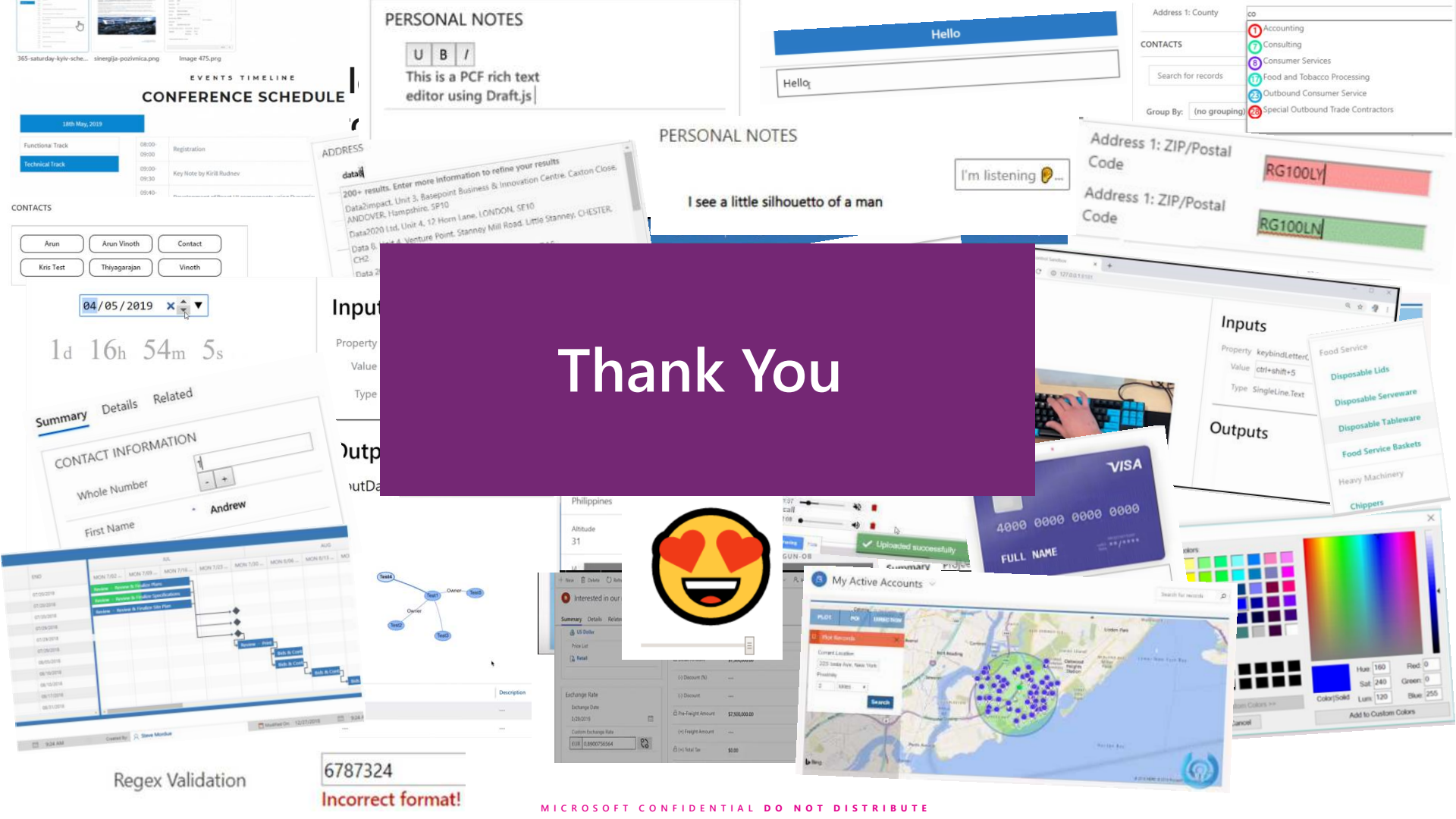

Thank You

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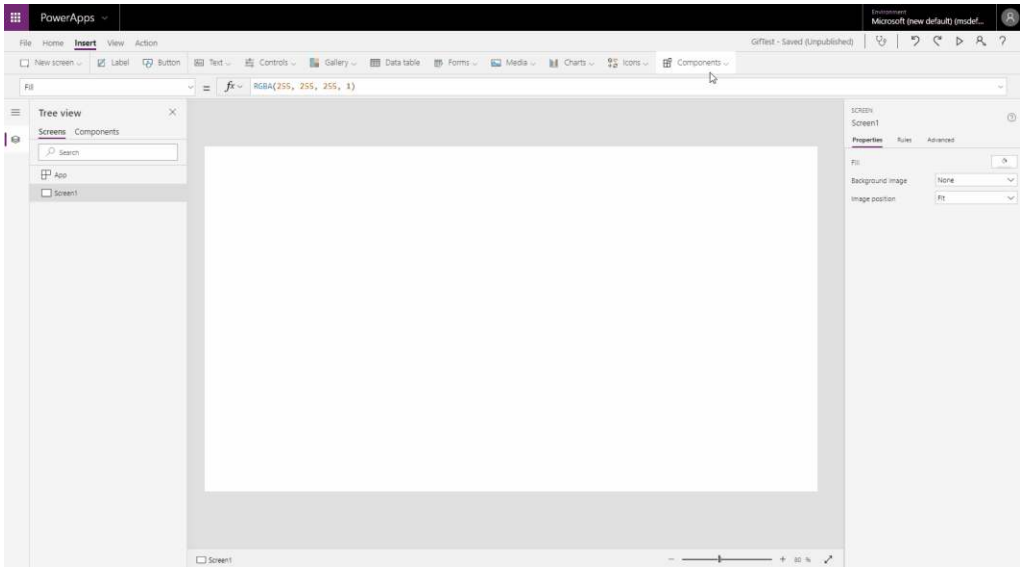
IN PREVIEW NOW

Reusable canvas components

- Display components variables in the Variable page.
- Import components from cloud apps.
- Re-importing updates the definitions used in the app.
    - Each component has an internal, global unique ID.
- OnReset behavior raised on Reset() and custom property value change. (coming soon)
- Connector data sources and forms working with components. (coming soon)



Import components from cloud apps

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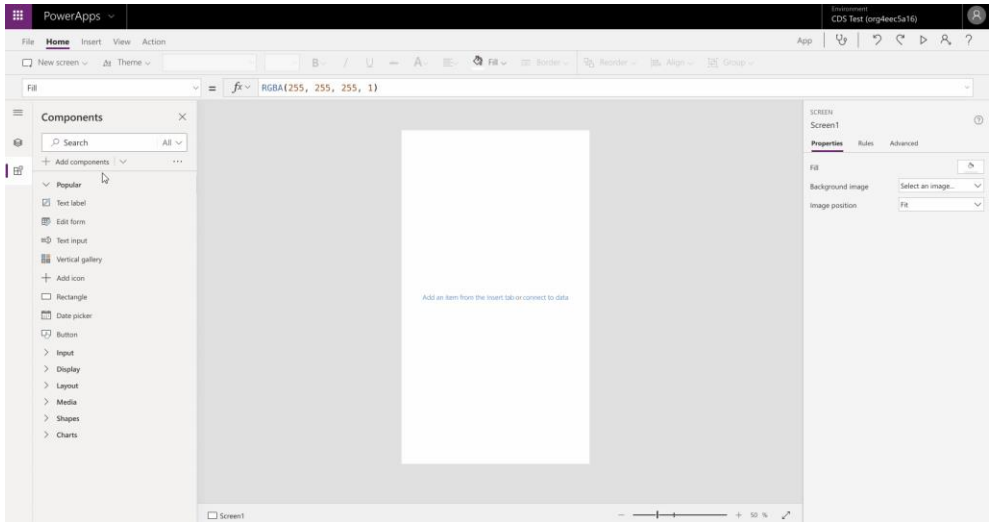
ROADMAP

Reusable canvas components

- Browse and import individual components.
- Out-of-box components and templates. (coming soon)
- Group and re-order custom properties.
- Dialog component type.
- Adding components to forms and galleries.
- Converting control selection into a component.
- Improved ALM for CDS by tracking component dependencies.



Browse components shared in the environment and import

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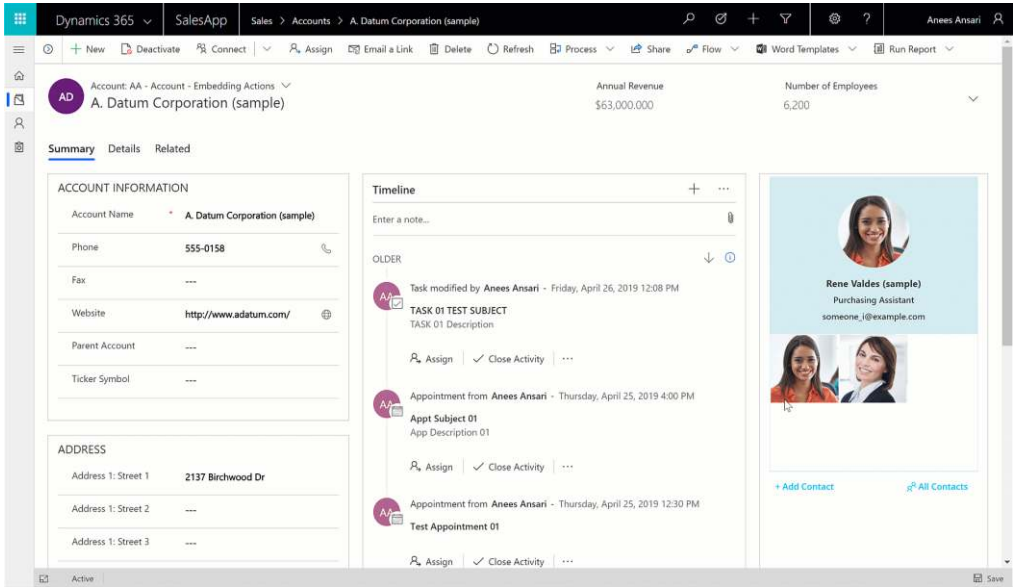
IN PREVIEW NOW | GA THIS MONTH

Embedding canvas in model

- Create custom, pixel-perfect layouts using the low-code, WYSIWYG canvas app designer.
- Display data from over 230+ cloud services or your own.
- Pass rich data context to the embedded canvas app.
- Navigate, Refresh and Save the host form from within the canvas app.
- Support for tablet and custom screen sizes. (Coming soon with GA)
- Automatic integration with Common Data Service connector. Write data, get relational data, access metadata and more. (Coming soon with GA)



Embedded canvas app on a model-driven form

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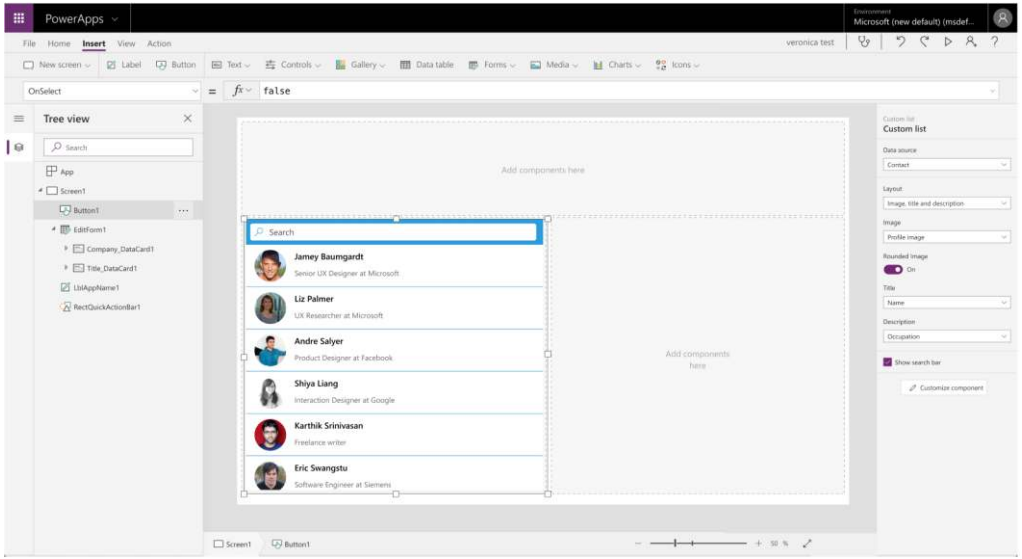
Responsive Custom Pages

- A big step in the unification journey between canvas and model apps
- Pages contain **layouts** with **regions** that automatically reflow as the available real estate on the screen changes.
- In addition to being fully responsive, pages can be **included in model app nav** and support all **canvas concepts**, such as reusable custom components.



A vision for the Responsive Canvas Page

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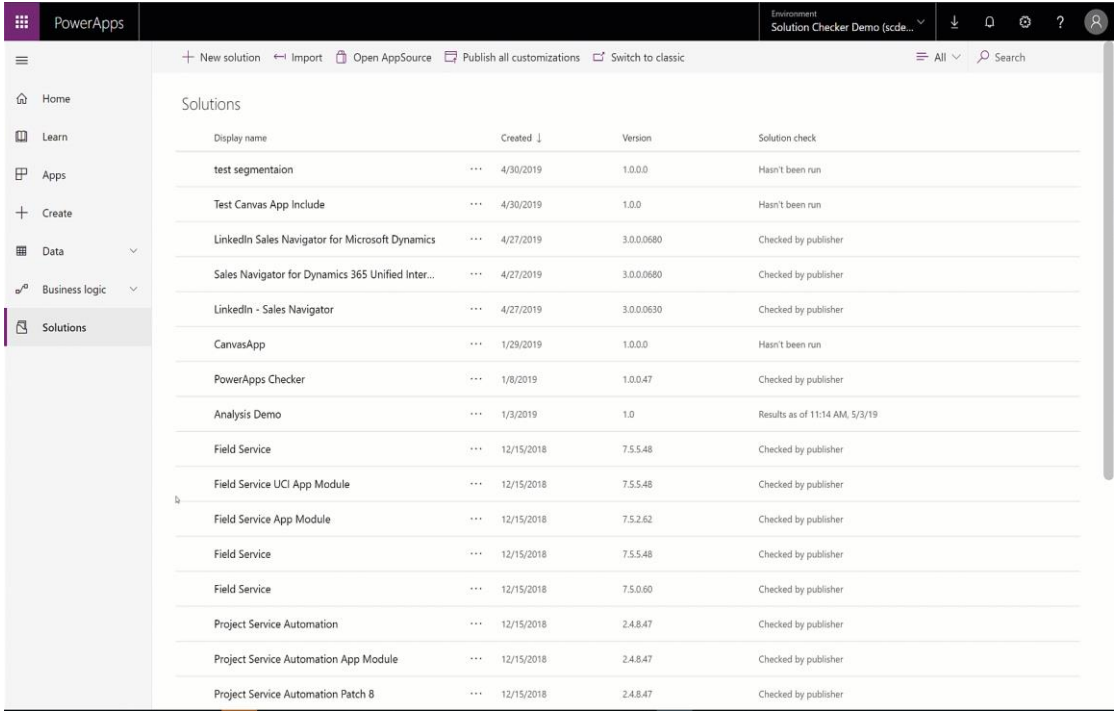
GENERAL AVAILABILITY

Solution checker is now generally available!

- On everywhere by default
- Online results to quickly review issues and recommended fixes.
- Check your solution during Export
- New reliability rules added
- Full localization support



App Makers have intelligent analysis tools that helps improve the quality of their work

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JUNE 14TH, 2019

Q&A