Microsoft Dynamics 365

Introduction to Power Apps
Model-driven and Canvas Apps

Kelsey Bloomquist & James Bamford

June 16, 2020

Meet the team

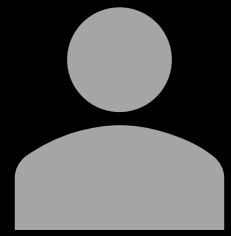
Kelsey Bloomquist
Product Solution Architect

James Bamford
Product Solution Architect

Series Expectations

Goal

Learn to build business solutions fast, at any technical skill level, by harnessing the power of connected data and using the capabilities provided by Dynamics 365 + the Power Platform



Audience

The citizen developer

The professional developer

And everyone in between!

Today's Agenda

June 16, 2020

Introduction to Application Development

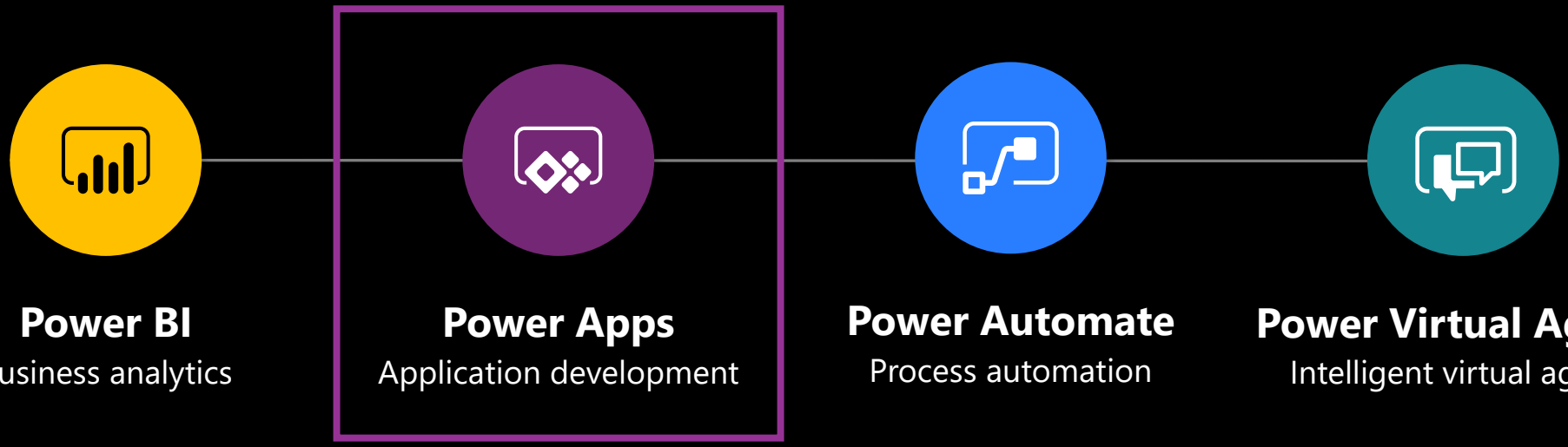
- Overview of Power Apps
  - Model-driven apps
  - Canvas apps
- Building a Canvas app
  - Review Lamna Patient Tracker App
  - Set up proper app navigation
  - Create pop up notification
- Embedding Controls with Power Apps Component Framework

Microsoft

Microsoft Power Platform

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

Analyze. Act. Automate. Assist.



Power BI
Business analytics

Power Apps
Application development

Power Automate
Process automation

Power Virtual Agents
Intelligent virtual agents

Data connectors

Portals

AI Builder

Common Data Service

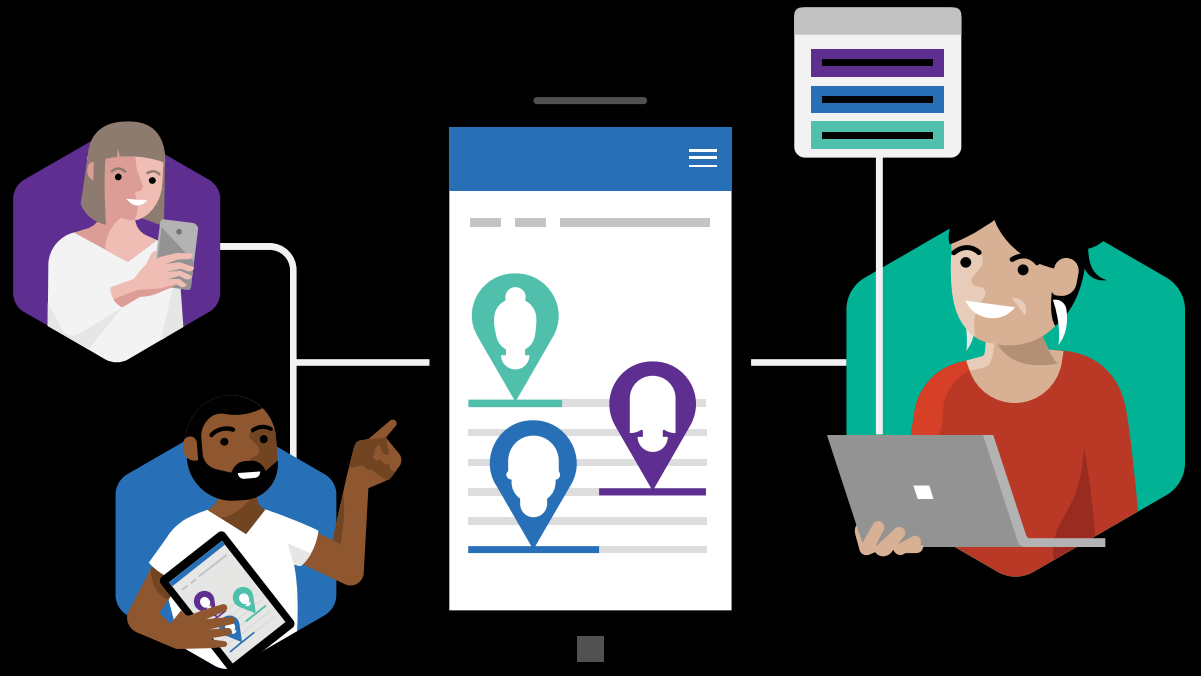
Power Apps Mission:

Empower every developer to do more

Citizen Developers

IT Developers

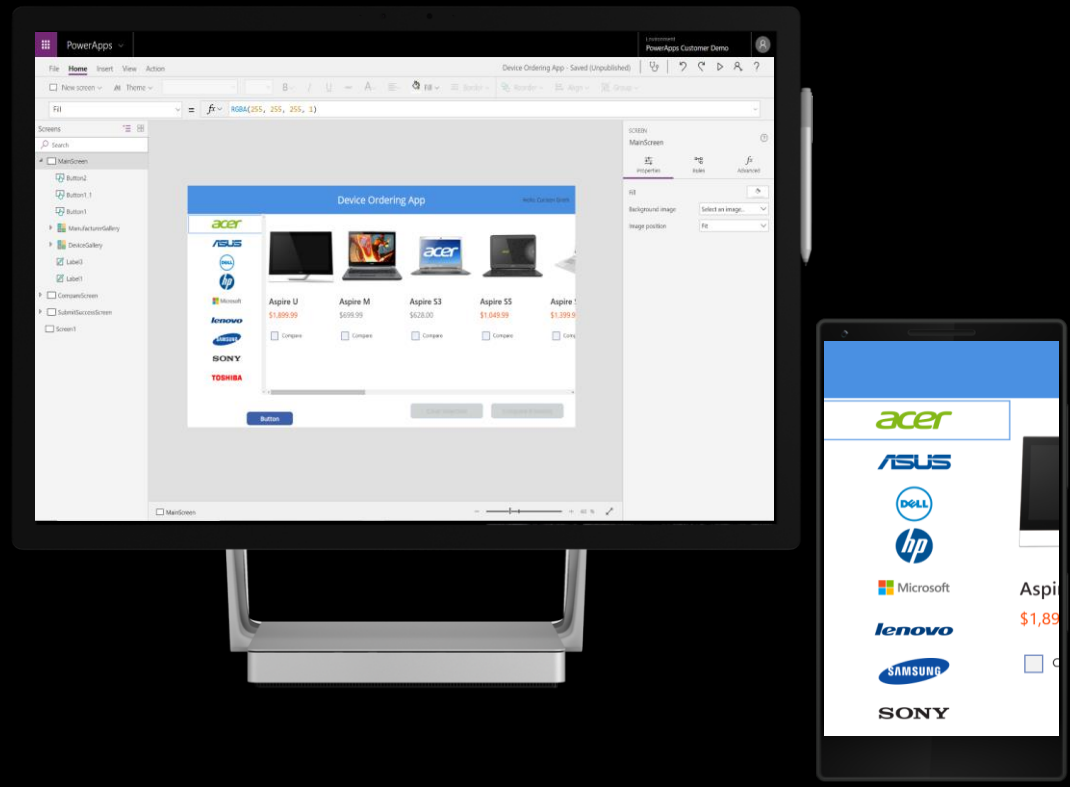
Pro Developers



Power Apps

A low-code approach to building apps

- Easily build apps with a full featured low-code / no-code platform
- Connect to all your data with 325+ pre-built connectors and custom connectors
- Enrich and extend your data with the Common Data Service, AI Builder, and Portals
- Office 365, Azure, Dynamics 365, Power BI, Power Automate, Power Virtual Agent Integration
- Strong Enterprise governance & security
- Pro-dev extensibility enable “no limits” development

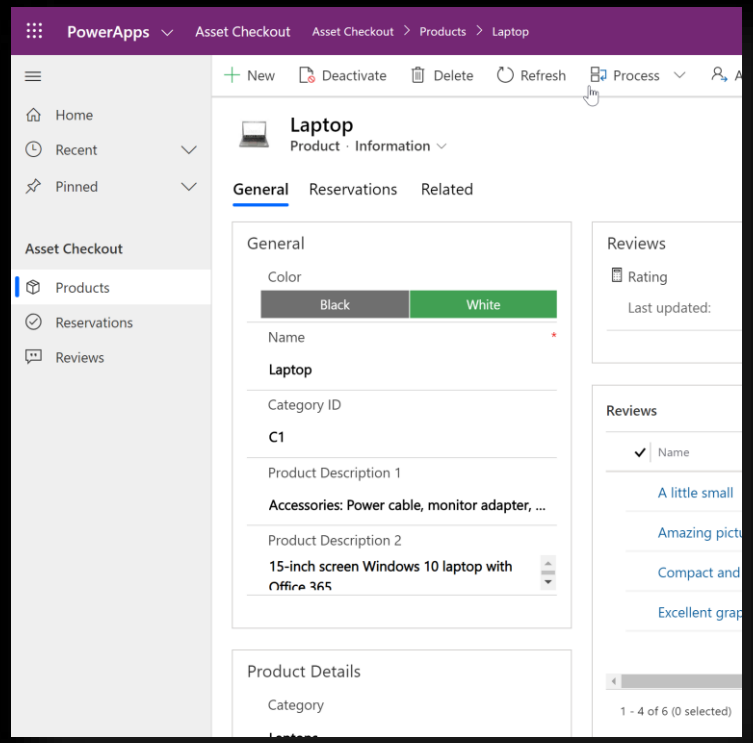


Enterprise-grade

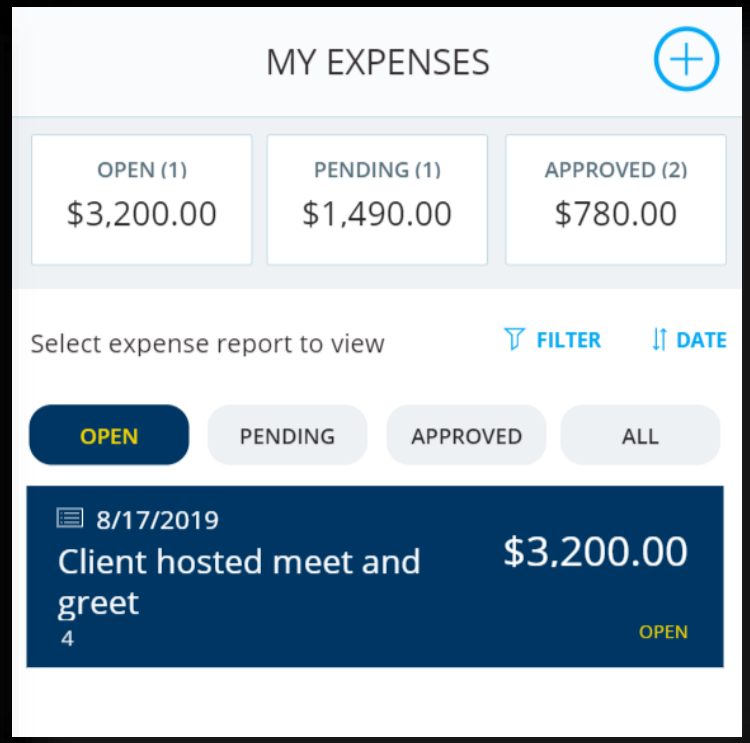
Cloud and on-premises connectivity

Pro-developer extensibility

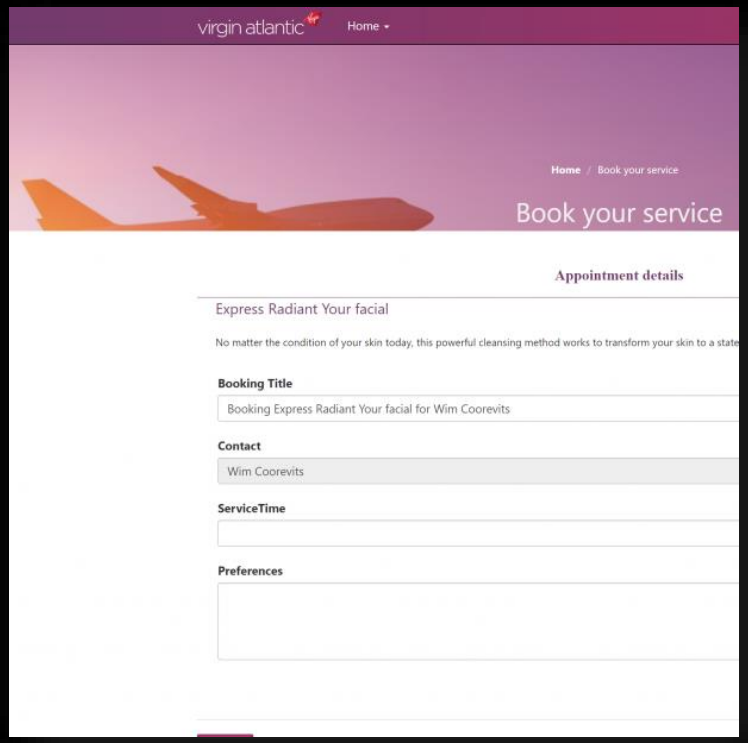
Power Apps
App Types



Model-driven Apps



Canvas Apps



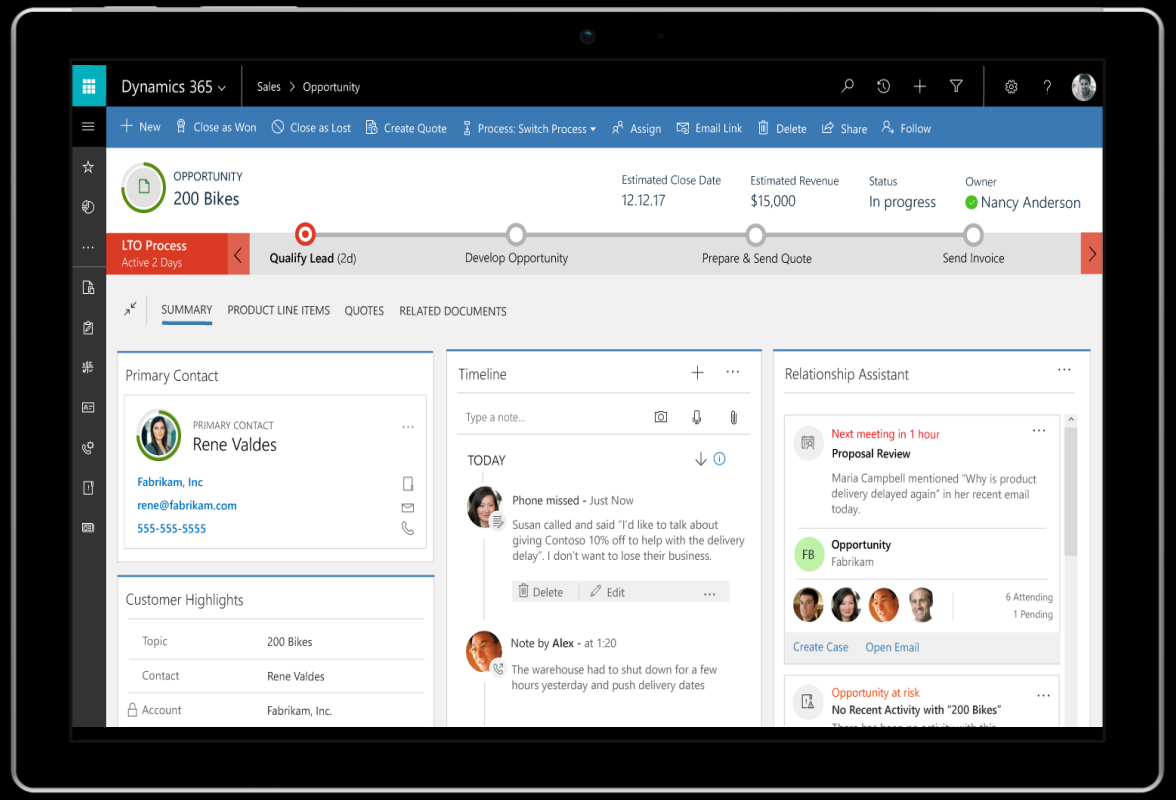
Portals

Microsoft

Model-driven Apps

Model-driven applications

Sophisticated apps built from data



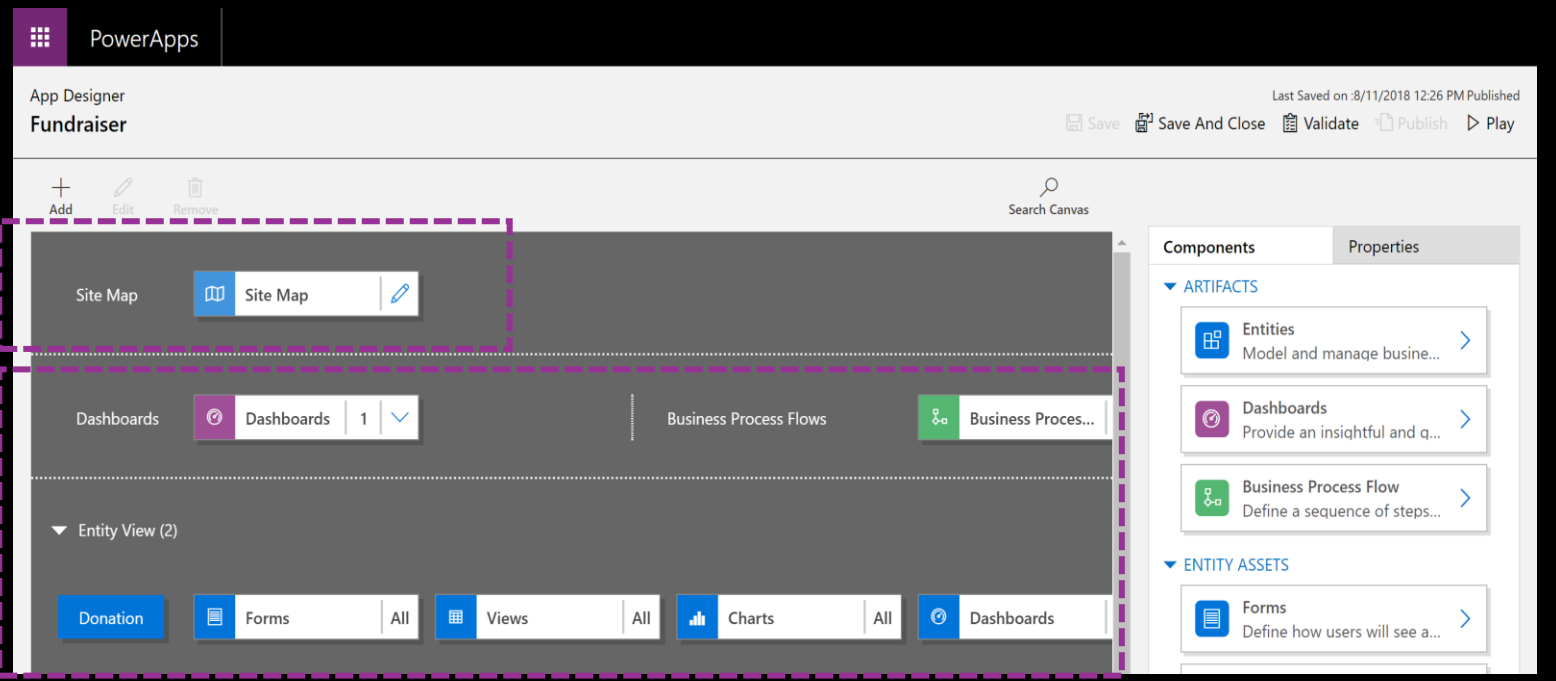
Create apps around forms and processes
Allows fully metadata driven applications revolving around forms and business processes

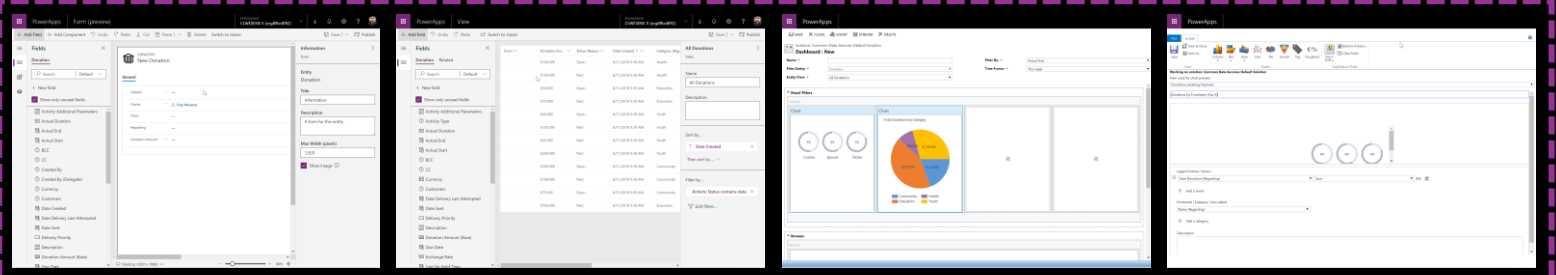
Design sophisticated entity forms quickly
Drag and drop fields and controls in a visual designer. Choose your column and section layout.

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

Immersive integrations
Integrate Office 365, Power BI, Power Automate, Power Virtual Agents, LinkedIn, embedded apps.

Model-driven applications
Building blocks





1. **Model components are designed** in their own designers **as reusable objects** which can be leveraged across multiple apps. This can include the UI, like forms as well as logic using Business Rules, Workflows and Business Process Flows.

2. Those model components – **Forms, Views, Charts and Dashboards, Business Rules, and Process Flows** – are **added** to an app, determining what a user will see when in the context of that specific app.

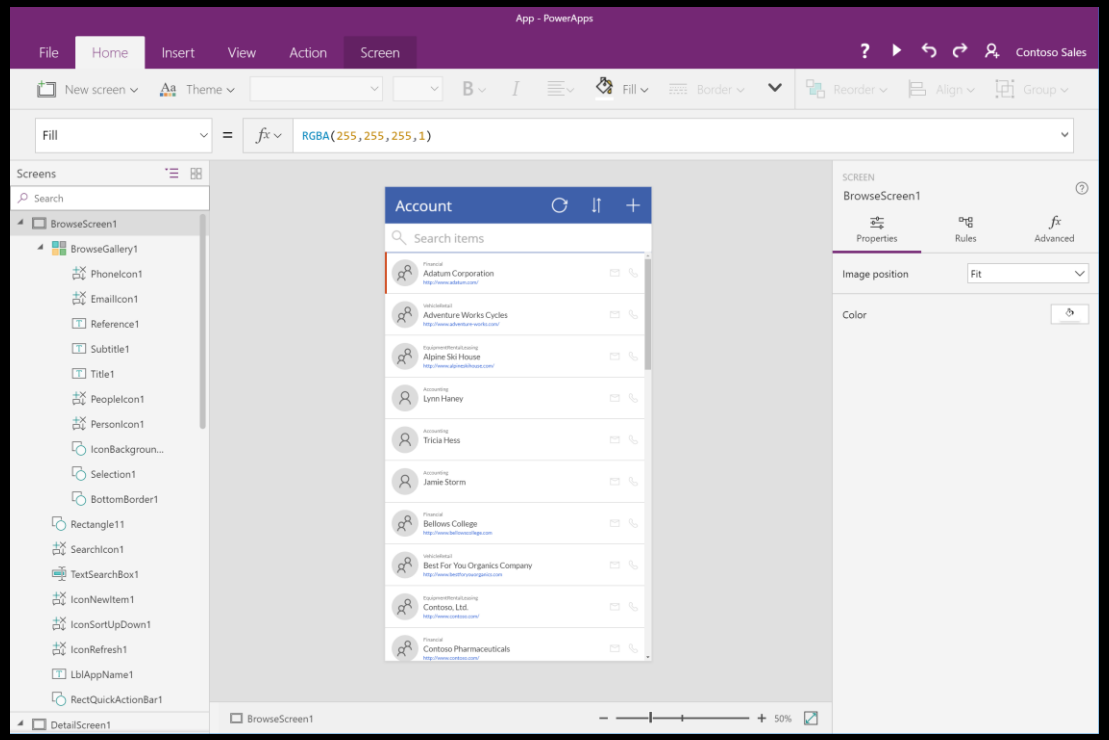
3. **Navigation** is configured using the Site map, this determines what's in the left-hand navigation of the app.

Microsoft

Canvas Apps

Canvas applications

Rich, WYSIWYG canvas-based authoring



Rich canvas-based authoring
Full creative freedom to place controls and craft user experiences with a PowerPoint-like canvas

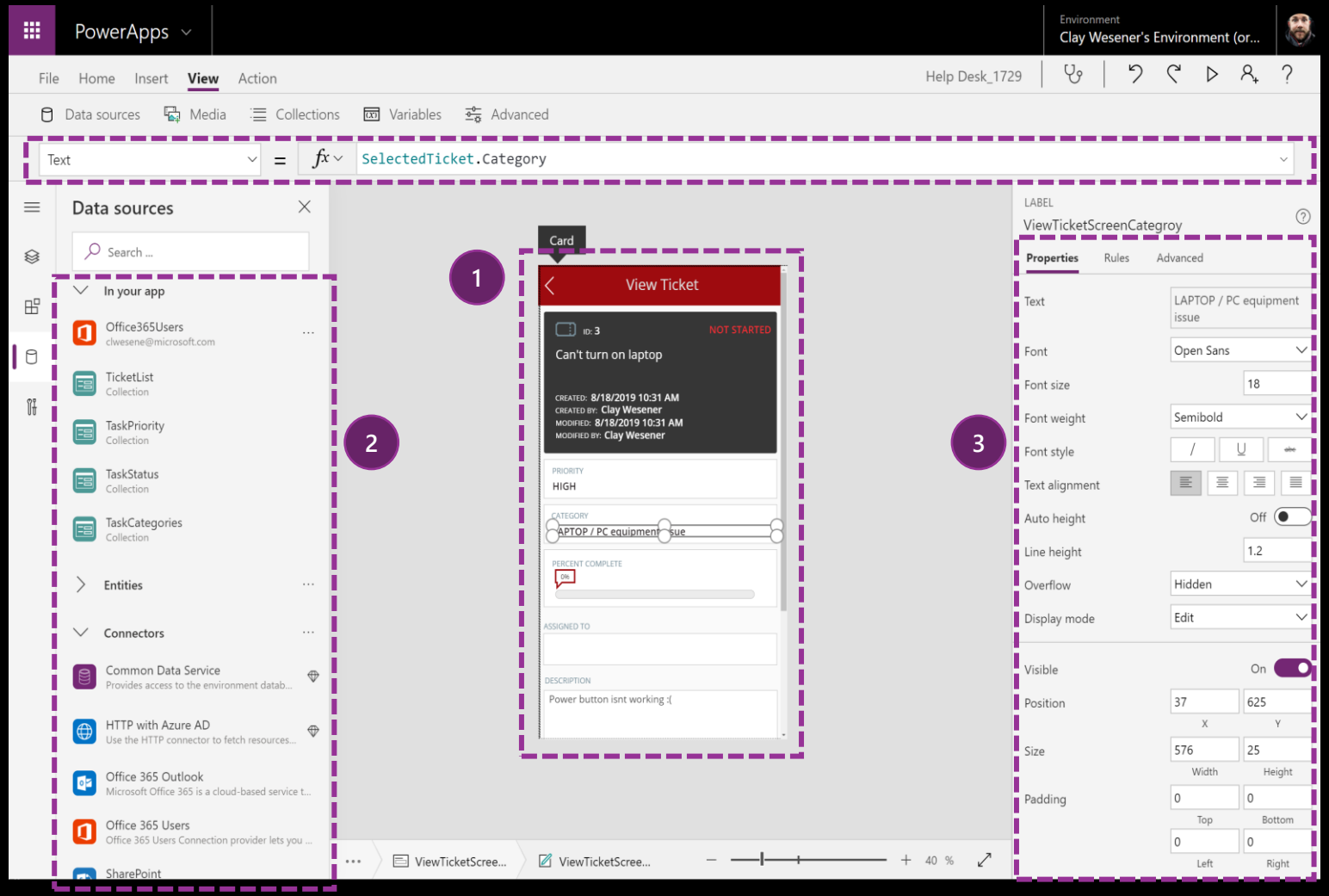
- **Simple or advanced logical expressions**

Ability to create app logic with familiar Excel-like expressions and to mash up data from multiple sources right at the app level

"True WYSIWYG": use the app while building it
Creators work with live data and can directly use the app as they work, getting instant feedback

Template apps for phone, tablet, and web
Pre-built apps covering common business development scenarios across devices and form factors

Canvas applications
Building blocks



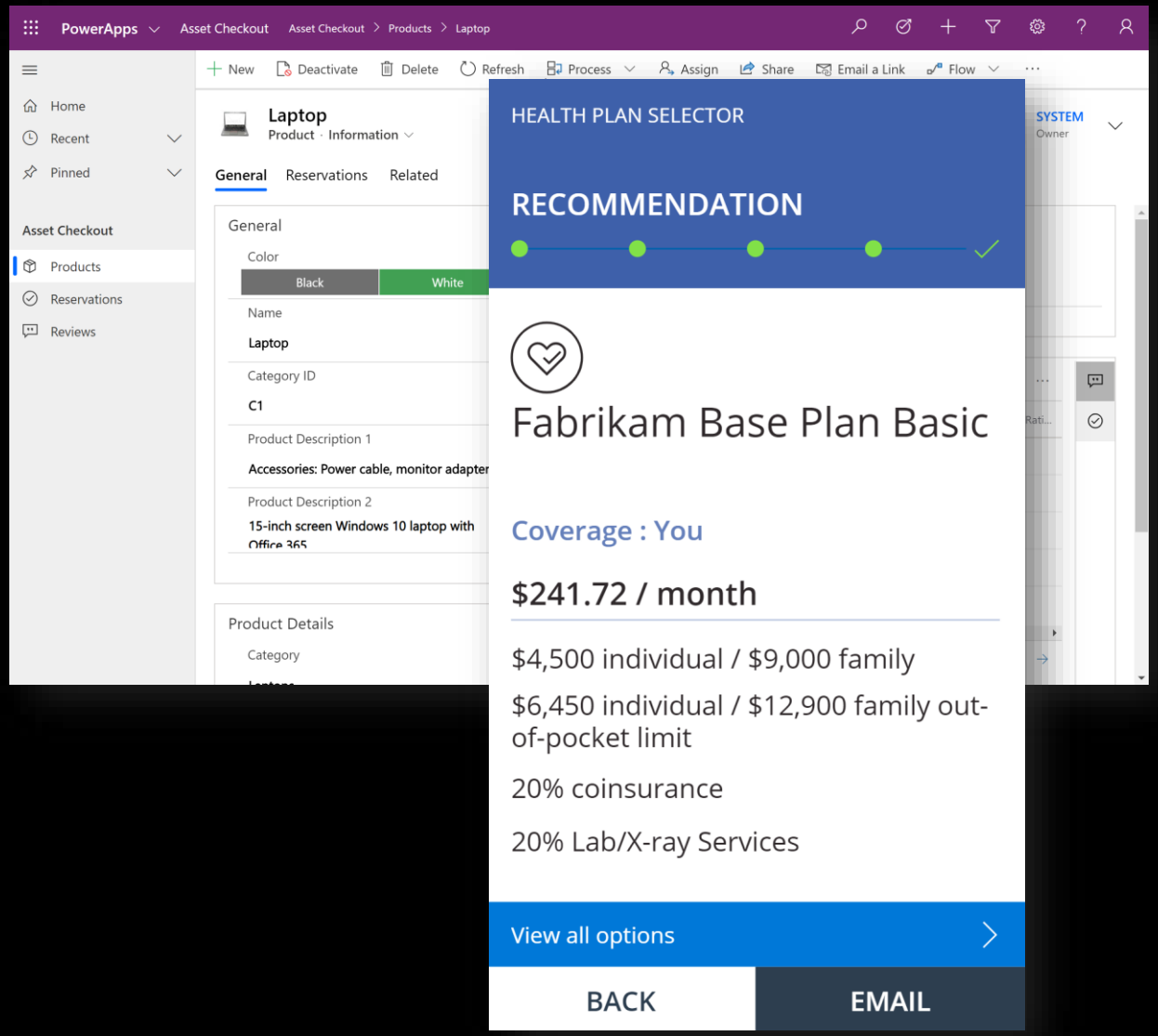
1. **Canvas screens** show the exact placement and presentation of each screen of the app allowing makers to create their UI using drag and drop.

2. **Data sources** allow apps to connect to over 325+ data sources through connectors and create custom connectors from APIs.

3. **Properties** allow simple settings like fonts, colors, boards, size to be quick customized for each control.

4. **Expressions** support simple to advanced functions to be created to define the interactions between data sources and controls.

Power Apps
Deciding on an App Type



Suited for Model-driven:

- **CDS** as primary data source
- **UI** aligned to **consistent** model driven and Dynamics navigation and styling
- **Limited** theming / **styling requirements**
- Maker skills aligned to **declarative designers**
- **Multiple**/Unknown **form factor** requirements
- Need for **centralized maintenance** of objects like Forms, Views, Business Rules, etc.

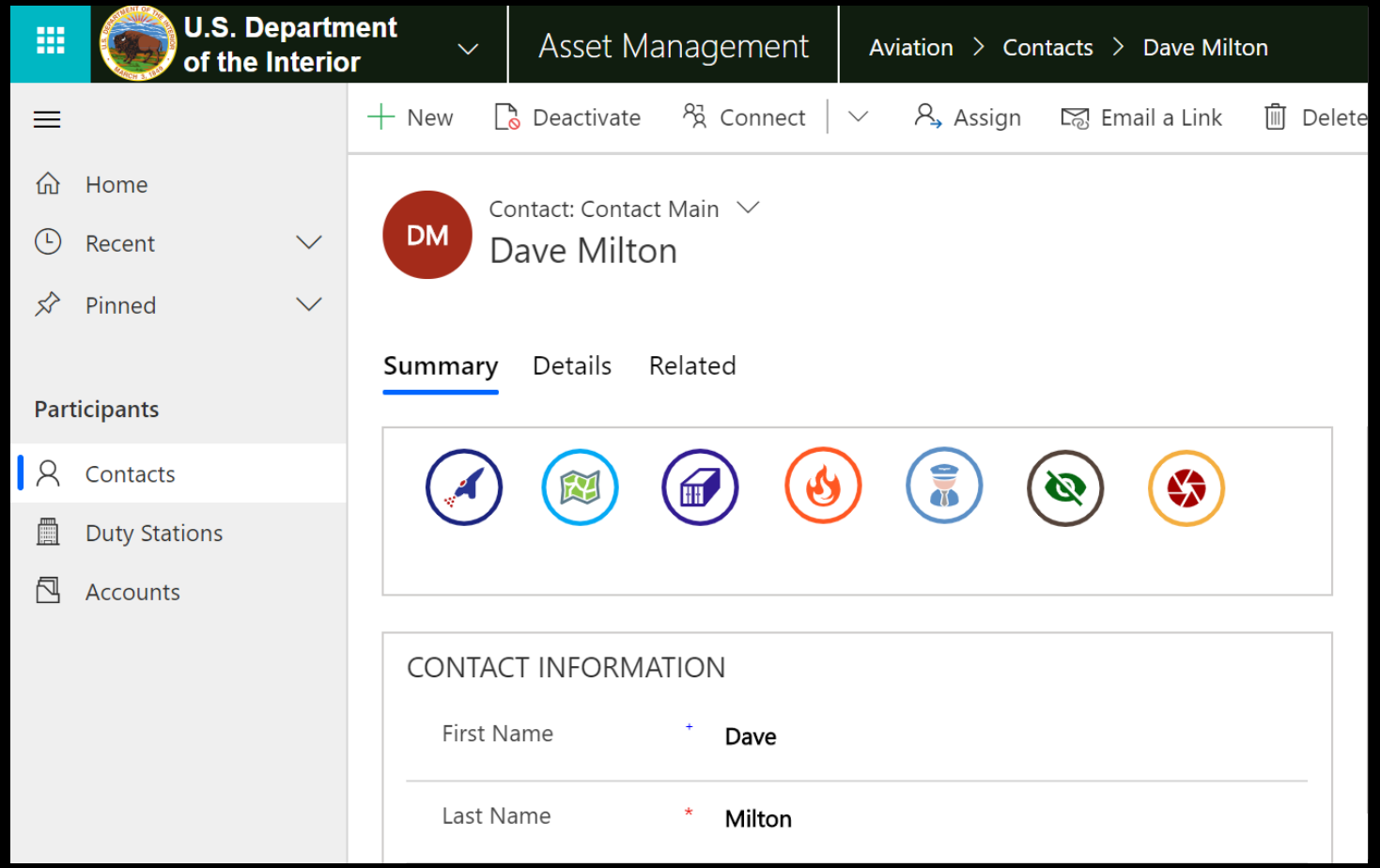
Suited for Canvas:

- Task based, **focused scenario**
- **Precision UI** requirements
- **Specific Navigation** UI
- **Form factor specific** UI
- Maker skills aligned to **expressions and formulas**
- **Non-CDS and CDS** data sources

Power Apps
Embed Canvas Apps

Put a Power App in your Power App!

- Alternative to legacy web resources
- Embedded canvas apps can navigate, refresh, and save the host form. See more
- Use responsive layout

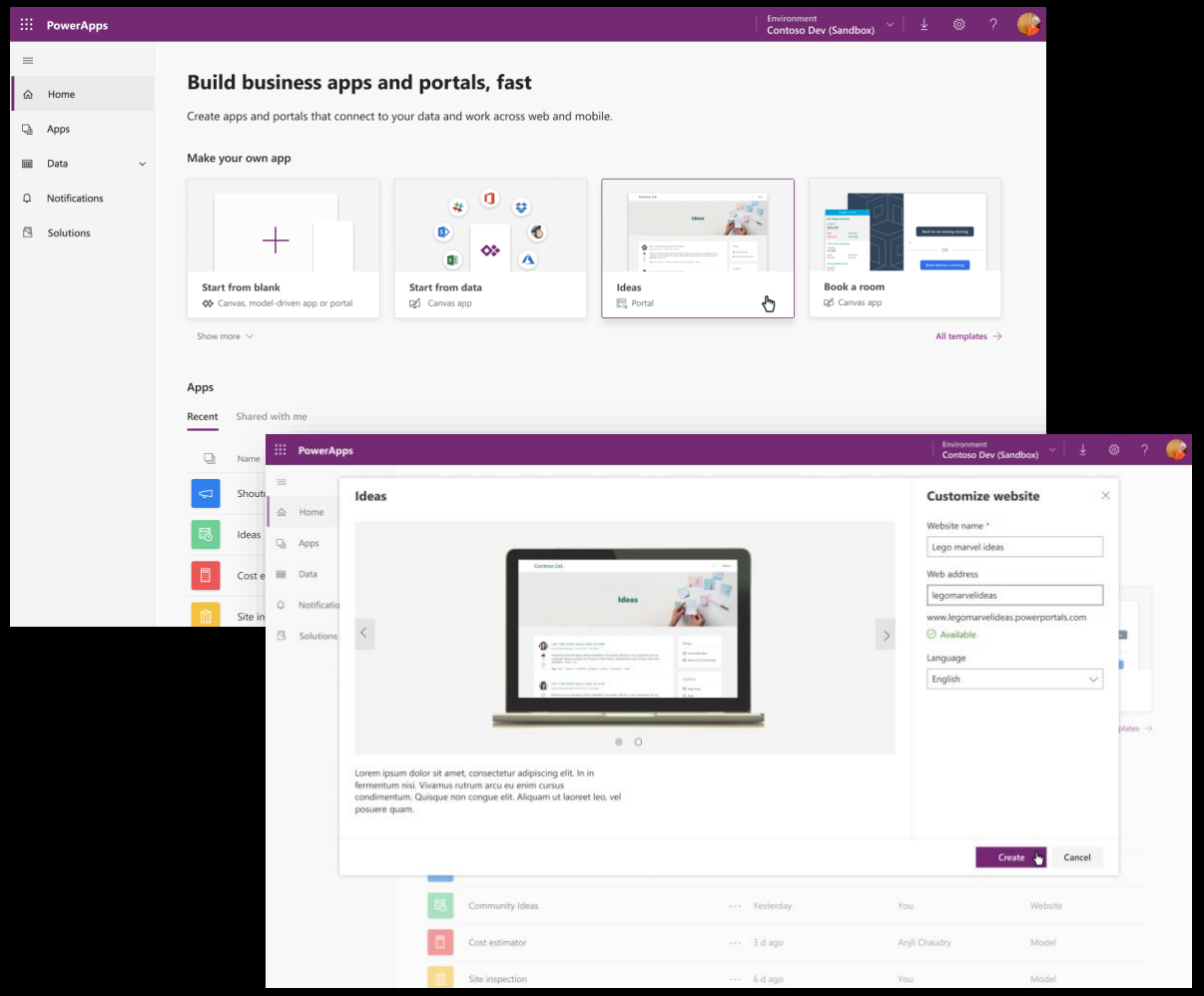


Microsoft

Power Apps Portals

Power Apps Portals

Powerful websites for external users



Predefined Templates
Use a predefined template or create your own portal

Built-in Authentication
Content can be made available anonymously, or through a variety of authentication providers (custom, Facebook, Google, AAD, etc.)

WYSIWYG
Create and manage pages in few clicks increasing your productivity multifold

Expose CDS Data
Use Model driven app constructs like forms, views, charts, dashboards etc. to surface CDS data

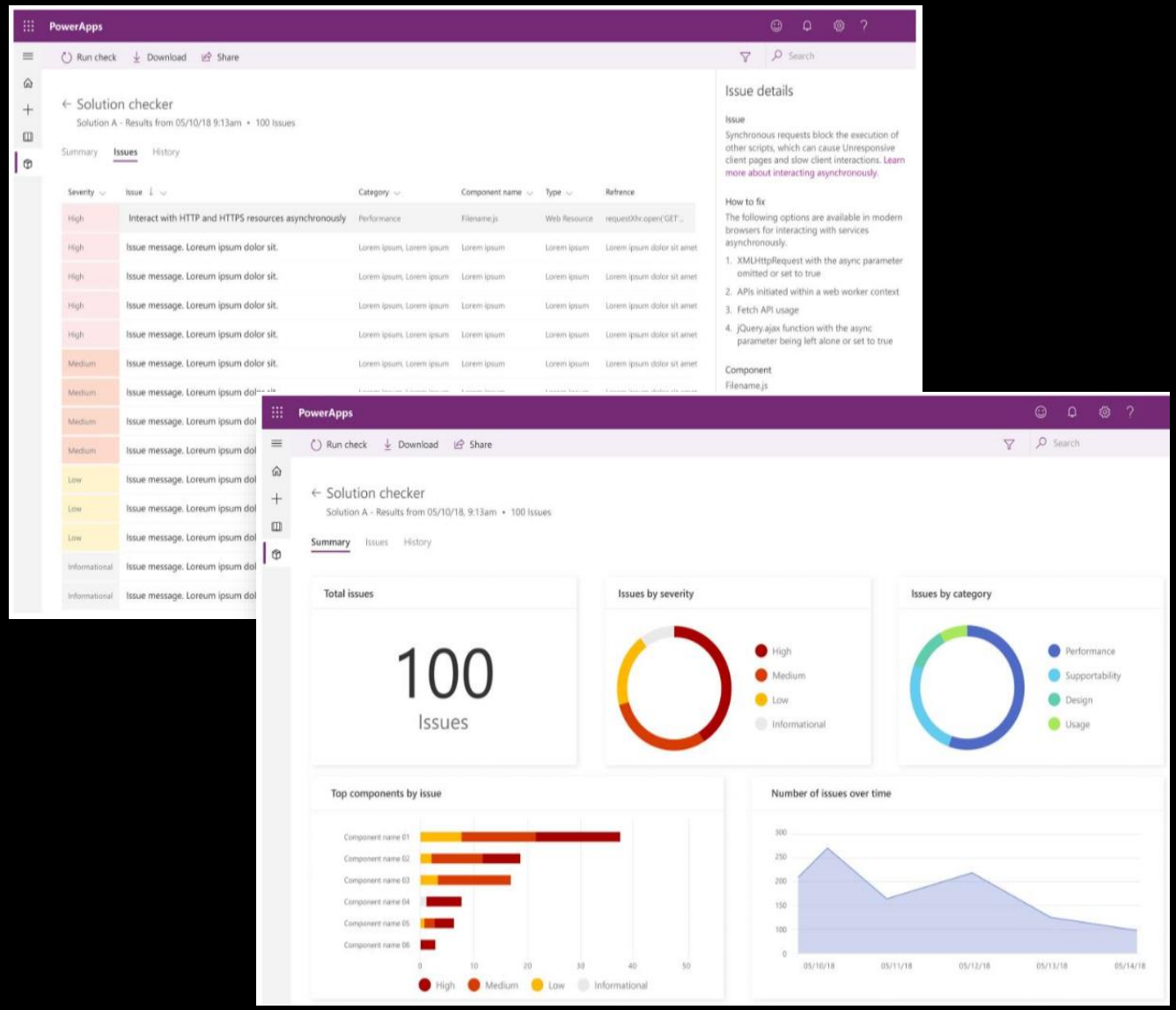
Microsoft

Solution Checker

Solution Checker

Quality, quality, quality

- **Static analysis** of Power Apps Solutions
- Specific **performance and stability risks** called out by **severity**
- Online results to **quickly review issues** and **recommended fixes**
- **Check** your solution **during Export**
- New **reliability rules** added
- Full **localization** support



Solution Checker
Report Components

What is checked?

- Web resources (JavaScript, HTML)
- Plug-ins & Message step configurations
- Custom workflow activities/actions

Best practices covering

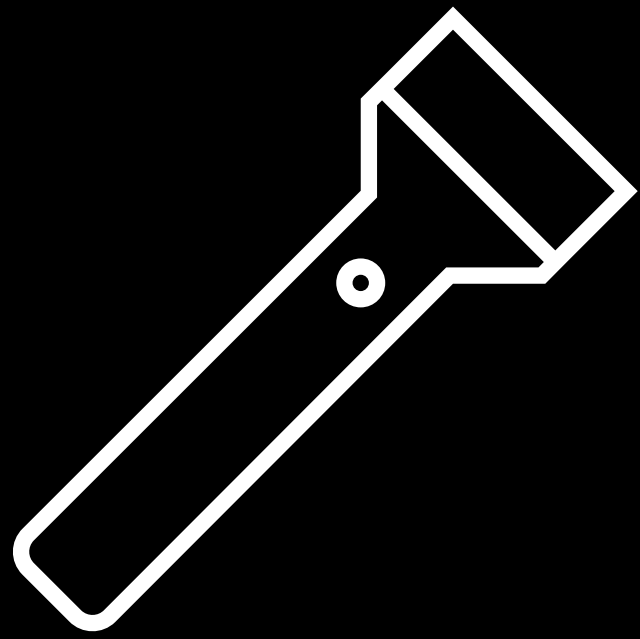
- Performance
- Usage
- Design
- Supportability
- Maintainability
- Upgrade readiness

Solution checker report

- Issue
- Category impacted (Performance, Usage…)
- Severity
- Component (Web resource, plug-in…)
- Location (JavaScript filename, Assembly name…)
- Line # / Function (JavaScript)
- Module/Type/Member (Plug-in/Custom workflow)
- Specific code statement
- Detailed guidance linkage to doc articles

Series Spotlight: Lamna Healthcare Company

- Modern patient care organization
- Data is on the Common Data Service
- New business requirements



Microsoft

DEMO #1

Microsoft

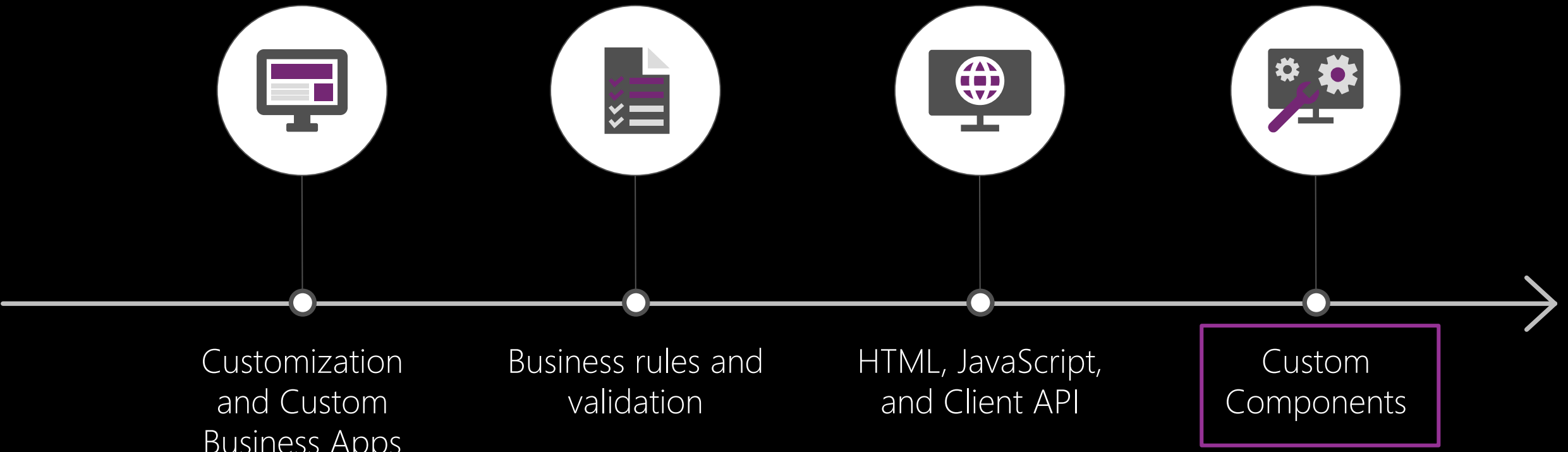
DEMO #2

Microsoft

Power Apps Component Framework

Power Apps

Client-side Extensibility



Configuration → Code

Power Apps Component Framework

What is it?

*One unified framework across canvas and model-driven apps which **enables 1st and 3rd party developers to build responsive and reusable components** using their choice of libraries and services.*

Visual

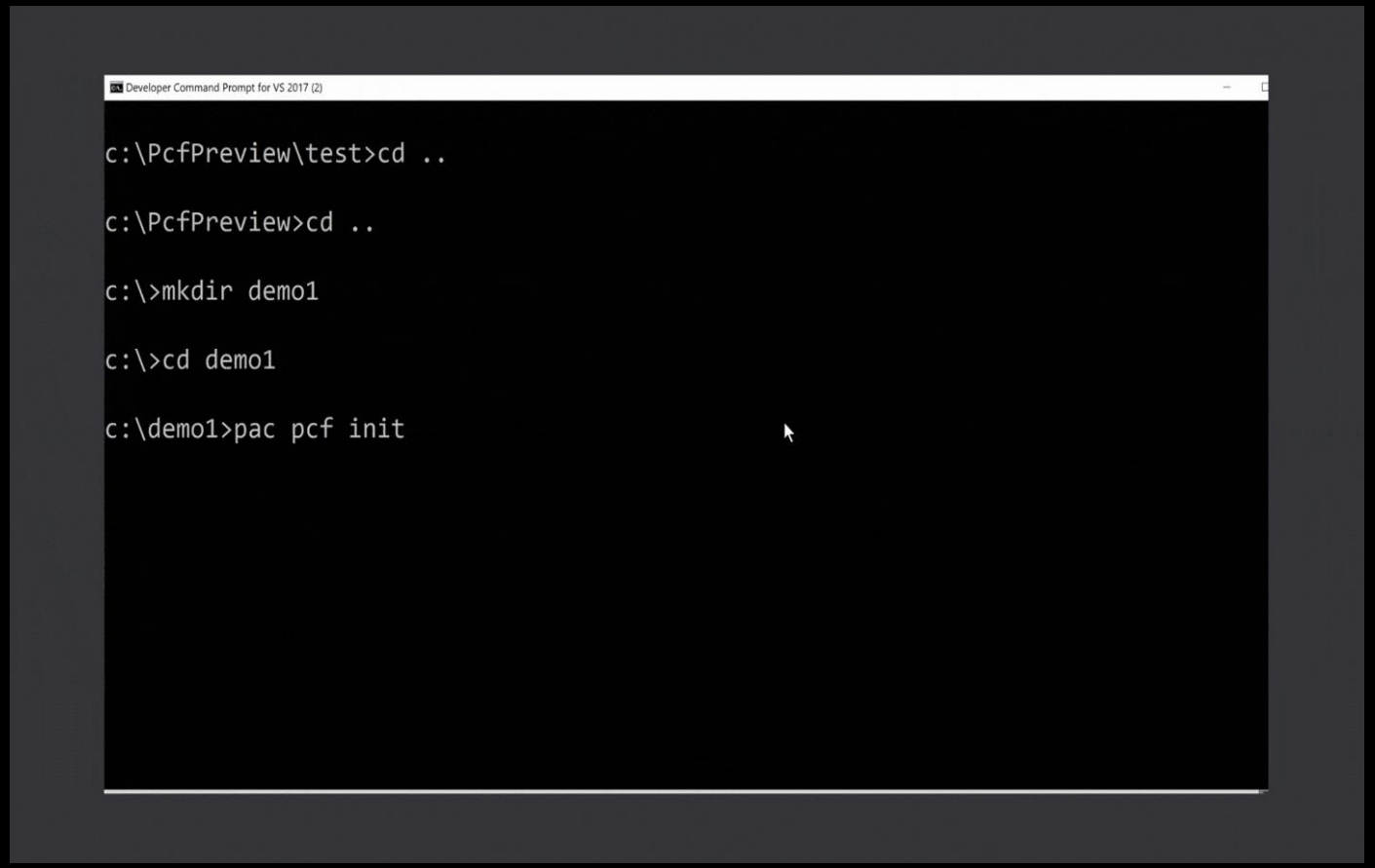
Field Data
Dataset
Unbound

Extendable

MetadataDriven
Configurable
Reusable

Portable

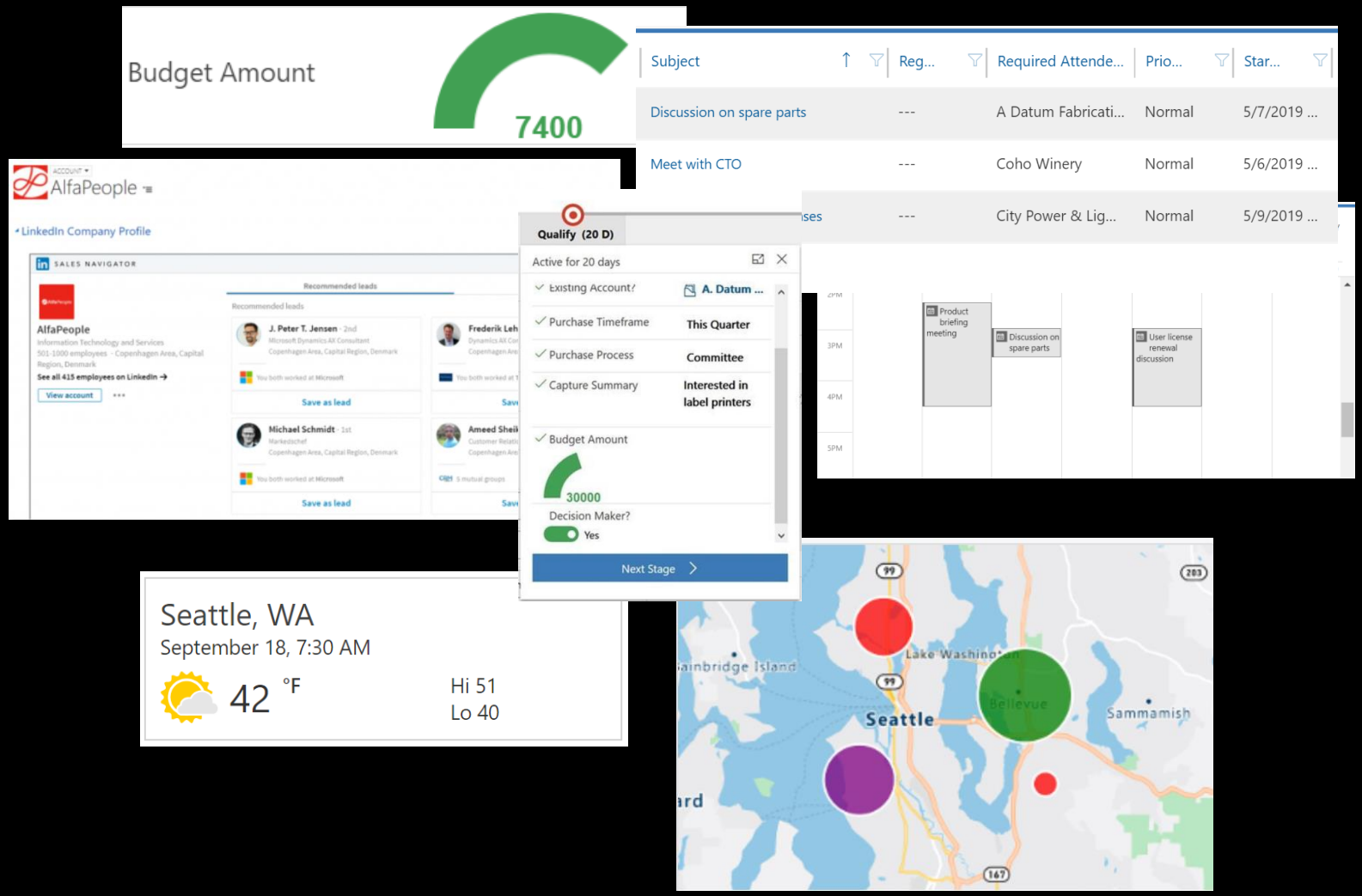
Solution Aware
App Source
Mobile/Web



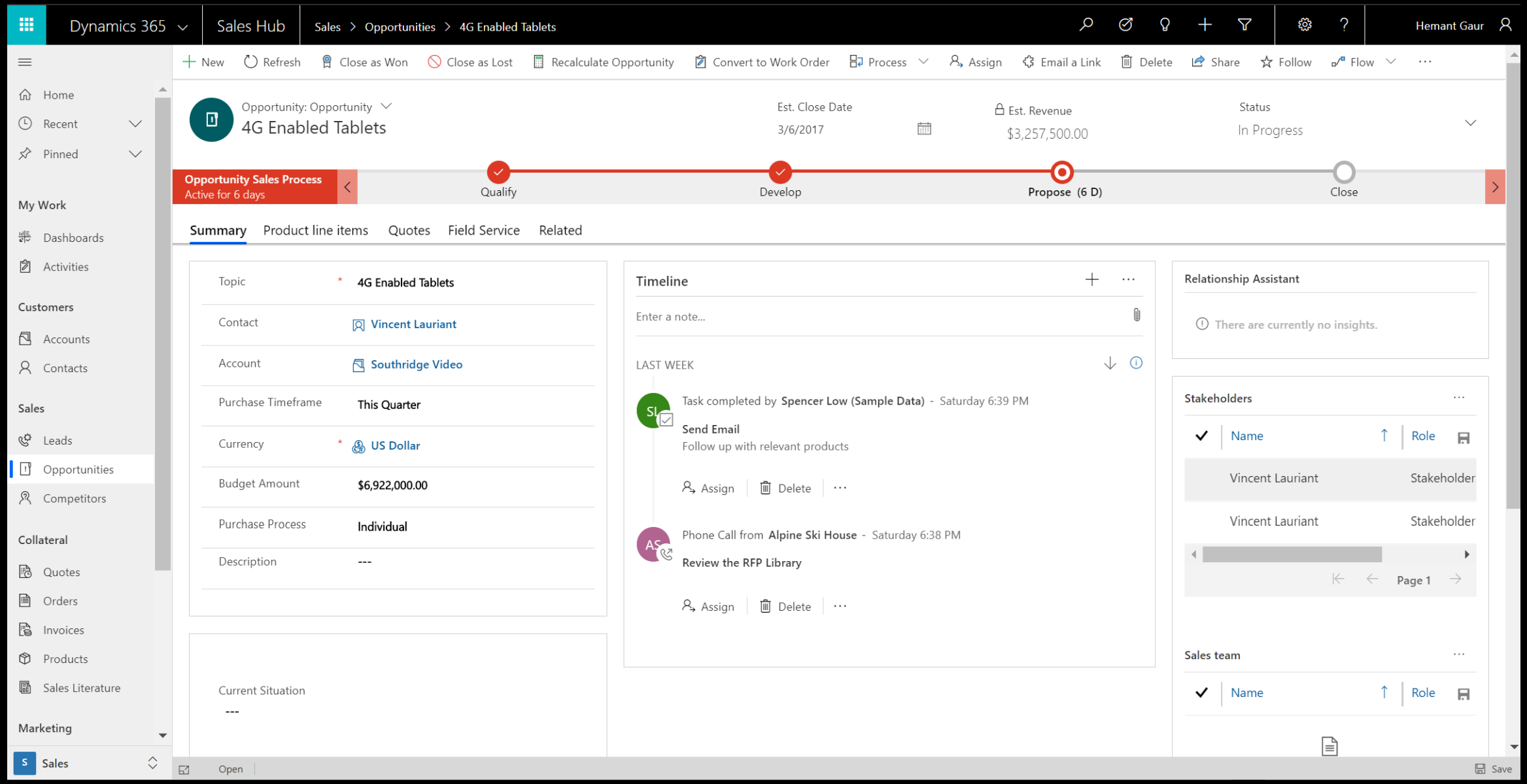
Power Apps Component Framework

What components can I add?

- Field control on the form
- Entity grid
- Unbound controls
- Business Process step
- Display external content
- Utilize external services

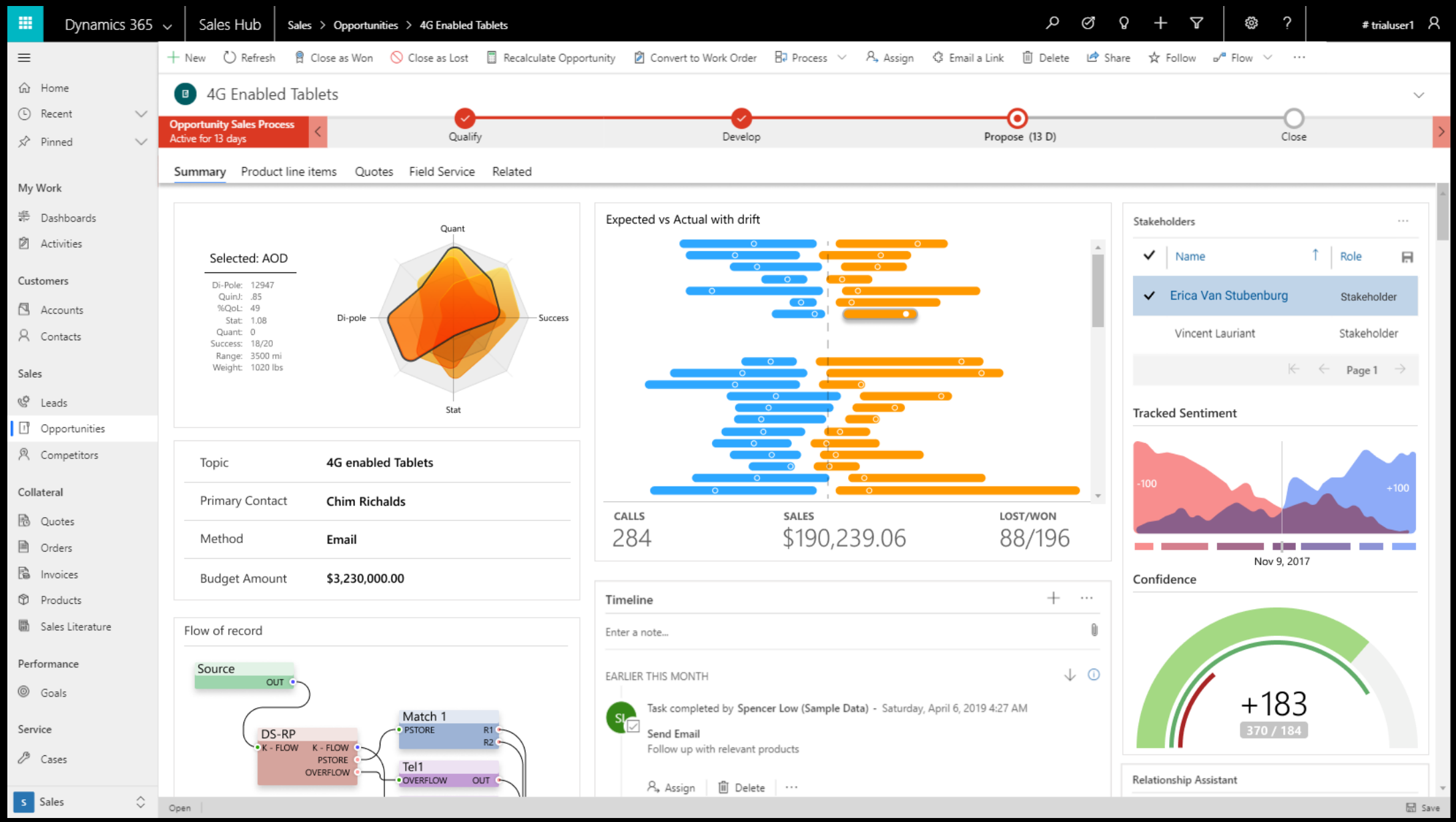


Before


Dynamics 365
Sales Hub
Sales > Opportunities > 4G Enabled Tablets
Hemant Gaur
New
Refresh
Close as Won
Close as Lost
Recalculate Opportunity
Convert to Work Order
Process
Assign
Email a Link
Delete
Share
Follow
Flow
Home
Recent
Pinned
My Work
Dashboards
Activities
Customers
Accounts
Contacts
Sales
Leads
Opportunities
Competitors
Collateral
Quotes
Orders
Invoices
Products
Sales Literature
Marketing
Sales
Opportunity: Opportunity
4G Enabled Tablets
Est. Close Date
3/6/2017
Est. Revenue
$3,257,500.00
Status
In Progress
Opportunity Sales Process
Active for 6 days
Qualify
Develop
Propose (6 D)
Close
Summary
Product line items
Quotes
Field Service
Related
Topic * 4G Enabled Tablets
Contact Vincent Lauriant
Account Southridge Video
Purchase Timeframe This Quarter
Currency * US Dollar
Budget Amount $6,922,000.00
Purchase Process Individual
Description ---
Current Situation

Timeline
Enter a note...
LAST WEEK
Task completed by Spencer Low (Sample Data) - Saturday 6:39 PM
Send Email
Follow up with relevant products
Assign
Delete
Phone Call from Alpine Ski House - Saturday 6:38 PM
Review the RFP Library
Assign
Delete
Relationship Assistant
There are currently no insights.
Stakeholders
Name
Role
Vincent Lauriant
Stakeholder
Vincent Lauriant
Stakeholder
Page 1
Sales team
Name
Role
Open
Save

After


Dynamics 365
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New
Refresh
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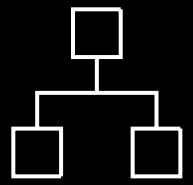
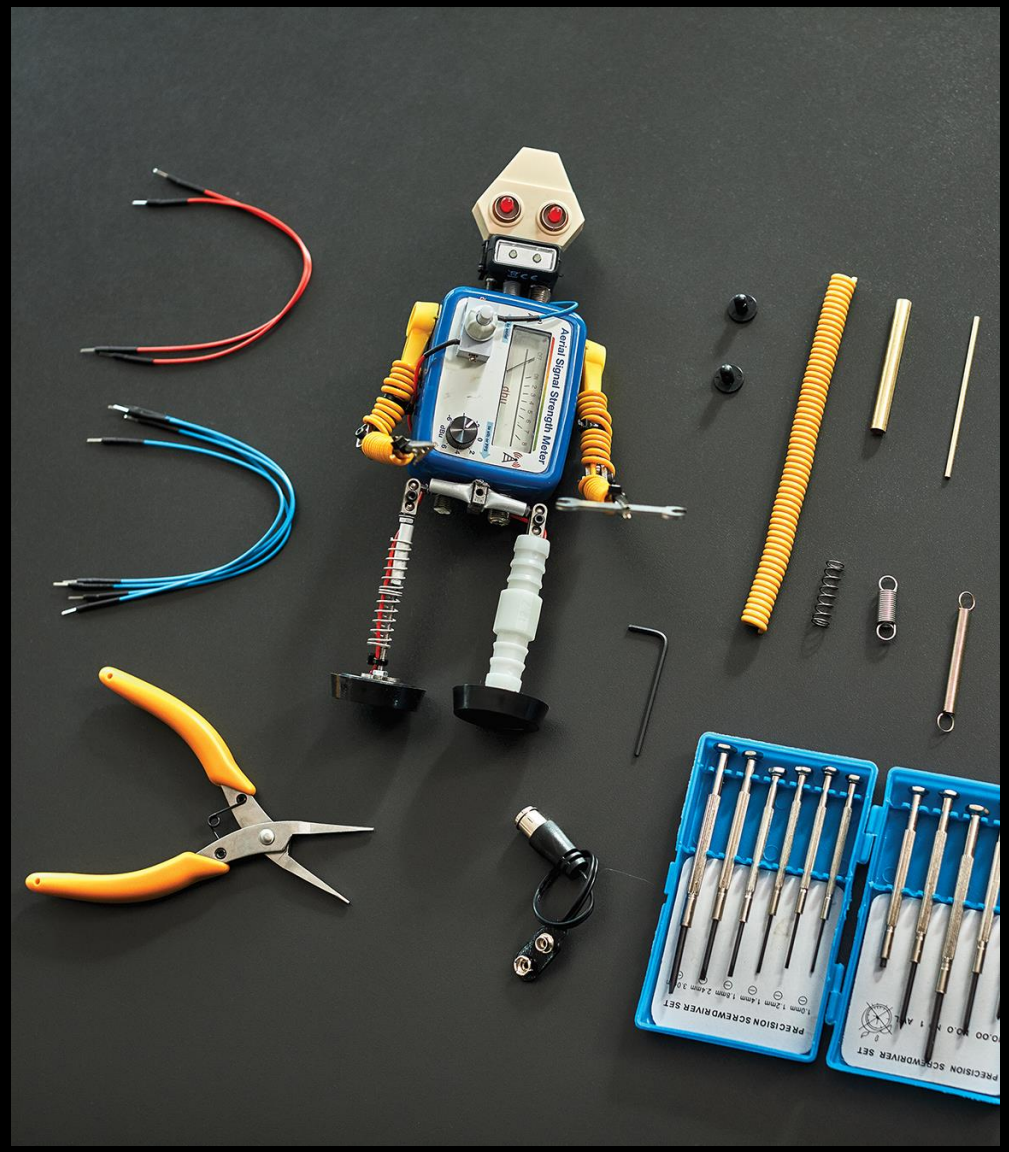
Accounts
Contacts
Sales
Leads
Opportunities
Competitors
Collateral
Quotes
Orders
Invoices
Products
Sales Literature
Performance
Goals
Service
Cases
Sales
4G Enabled Tablets
Opportunity Sales Process
Active for 13 days
Qualify
Develop
Propose (13 D)
Close
Summary
Product line items
Quotes
Field Service
Related
Selected: AOD
Di-Pole: 12947
QuinJ: .85
%QoL: 49
Stat: 1.08
Quant: 0
Success: 18/20
Range: 3500 mi
Weight: 1020 lbs
Quant
Di-pole
Success
Stat
Topic
4G enabled Tablets
Primary Contact
Chim Richalds
Method
Email
Budget Amount
$3,230,000.00
Flow of record
Source
OUT
DS-RP
K - FLOW
K - FLOW
PSTORE
OVERFLOW
Match 1
PSTORE
R1
R2
Tel1
OVERFLOW
OUT
Expected vs Actual with drift
CALLS
284
SALES
$190,239.06
LOST/WON
88/196
Timeline
Enter a note...
EARLIER THIS MONTH
Task completed by Spencer Low (Sample Data) - Saturday, April 6, 2019 4:27 AM
Send Email
Follow up with relevant products
Assign
Delete
Stakeholders
Name
Role
Erica Van Stubenburg
Stakeholder
Vincent Lauriant
Stakeholder
Page 1
Tracked Sentiment
-100
+100
Nov 9, 2017
Confidence
+183
370 / 184
Relationship Assistant
Open
Save

Power Apps Component Framework

What makes a Power Apps component?



Manifest Input File	Component Implementation	Resource Files
Control definition • Name • Version • Properties • Resource files	Code • TypeScript or JavaScript • User Interface • Functionality	Static Resources • CSS • Localization • Images, etc.



Samples & Documentation at https://aka.ms/pcfdocs
Preview announcement at https://aka.ms/pcfblog

Power Apps Component Framework

Developer tooling – Power Apps CLI

Simple command line interface (CLI)
Control templates support (field and dataset)

Built in validations
Catch issues prior to deployment

Automated build processes

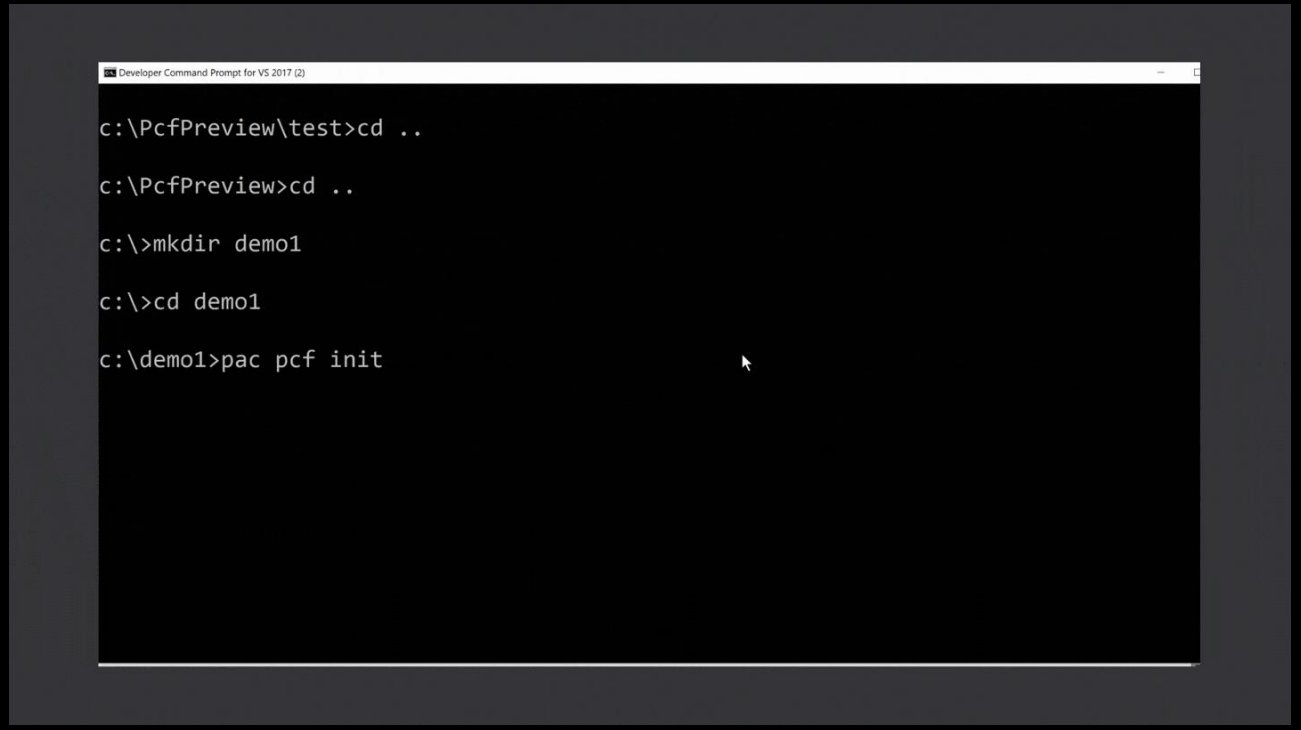
Local debug harness
Render and test controls locally

Solution packaging support

Continue to evolve support matrix
Include components such as Plugins & Web resources

IDE of your choice can be used
Once a control is created using the CLI

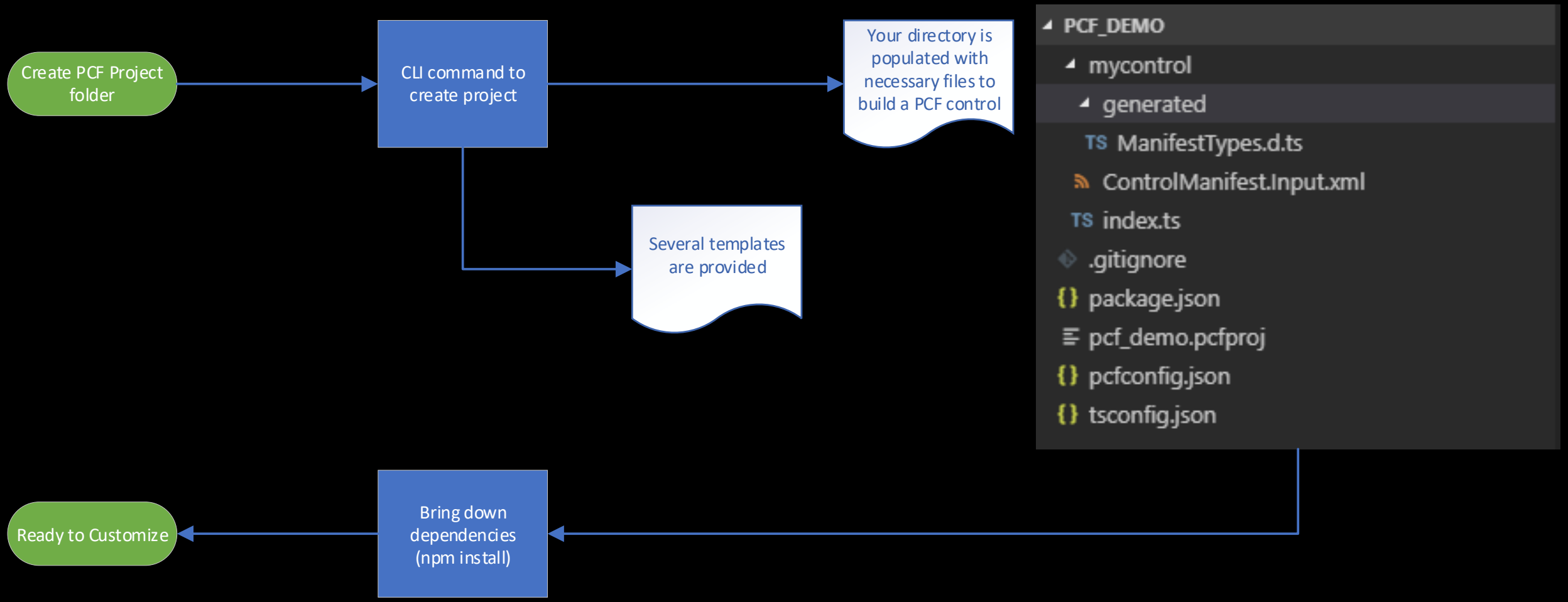
Visual Studio plugin support coming soon



CLI enables you to build custom components for Power Apps faster and more efficiently.

Power Apps Component Framework

How to start developing

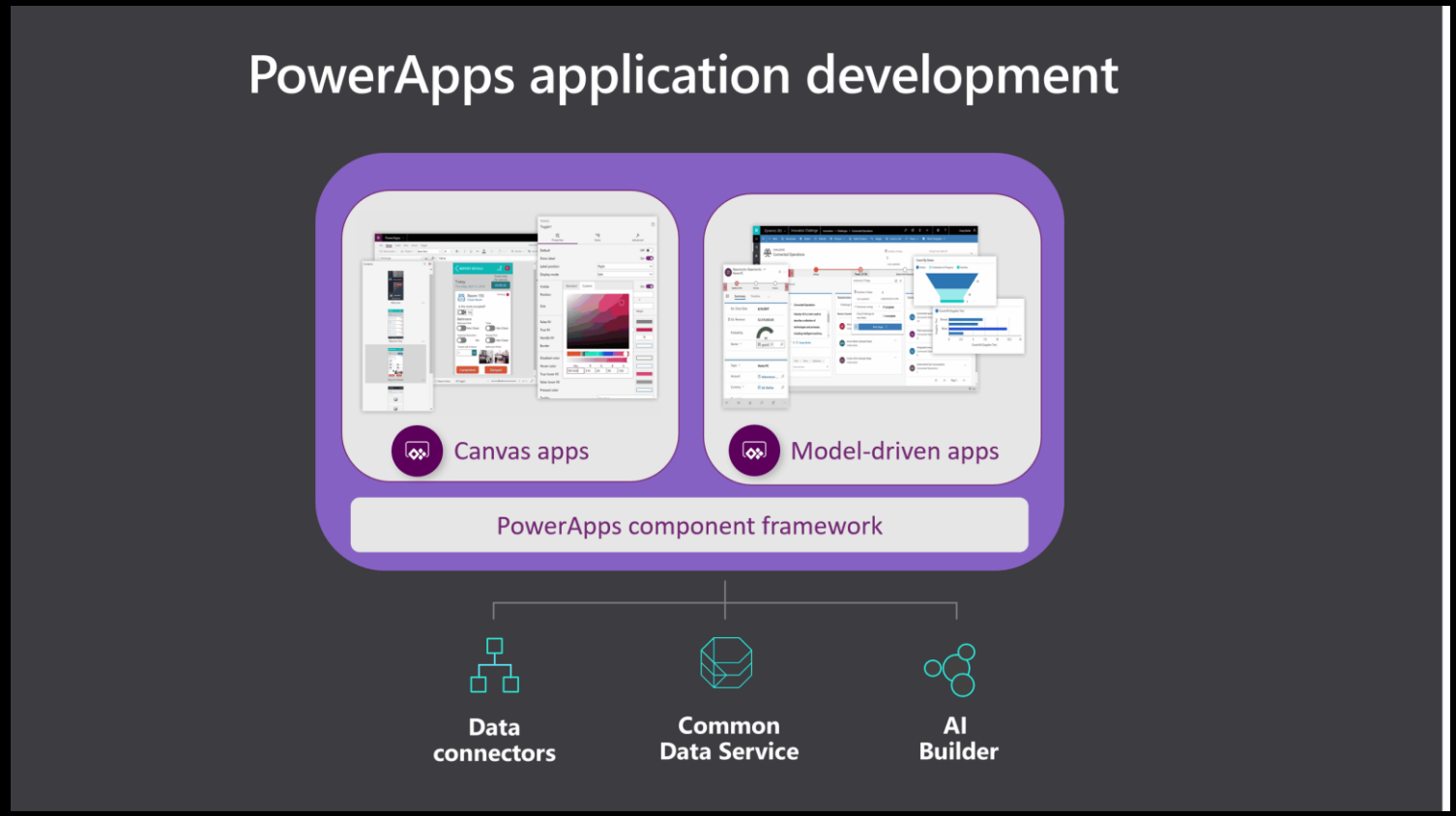


Power Apps Component Framework

Now on canvas apps!

IN PUBLIC PREVIEW NOW

- **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



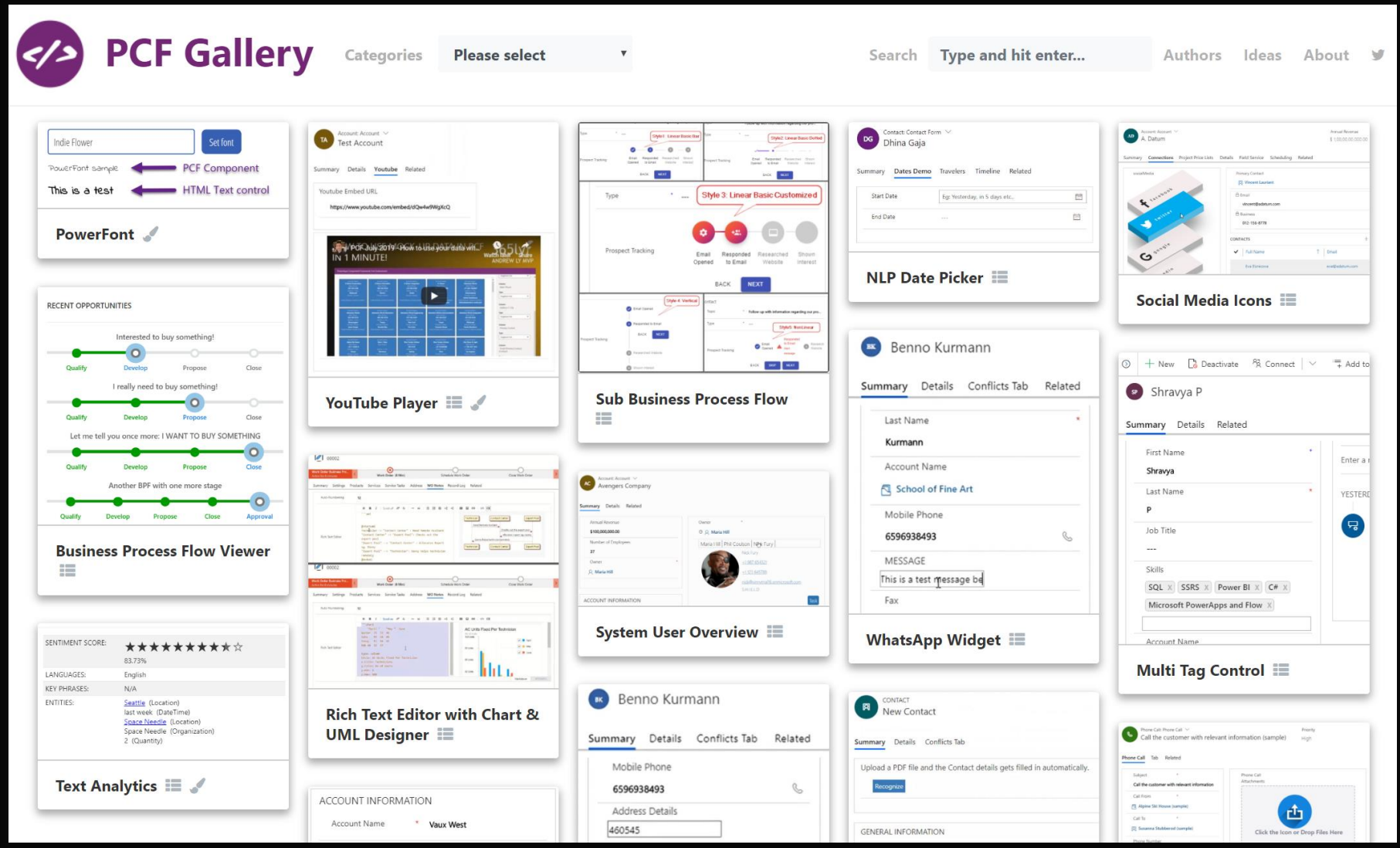
Same set of custom components across model and canvas apps

https://aka.ms/PCFCanvasBlog

PCF Gallery

Components created by 3rd parties

- **Example components** created by external 3rd party users
- Download from **GitHub** today!
- **Add** them to your app
- **Create and Share** your own component



https://pcf.gallery/

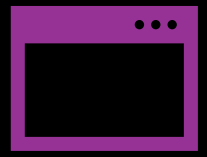
Microsoft

DEMO #3

What did we cover today?

Understanding how Power Apps empower every developer to do more

How to use components to easily wire up a reusable navigation system



How to create a pop-up window to display on screen when a user commits an action

Overview of Power Apps Component Framework and how to embed a PCF control

Coming up next:

June 23, 2020

Automate Business Processes

- Power Automate
- Power Virtual Agents

Questions?

Thank You!