

# Power Pages ALM

Dynamics 365 FastTrack  
Architecture Insights

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# Agenda

- 
- Objectives
  - Introduction to the website structure
  - Existing tools
  - What's ALM ?
  - Download/Upload using Power Platform CLI

# Objectives



# Purpose of this document



Highlight how to use a **source code version control** system with Power Pages (With approving changes, getting the history of features)

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Present a possible use case for a **healthy ALM process** with the development of your website

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Define a **common process** to move the website configuration & developments from an environment to another

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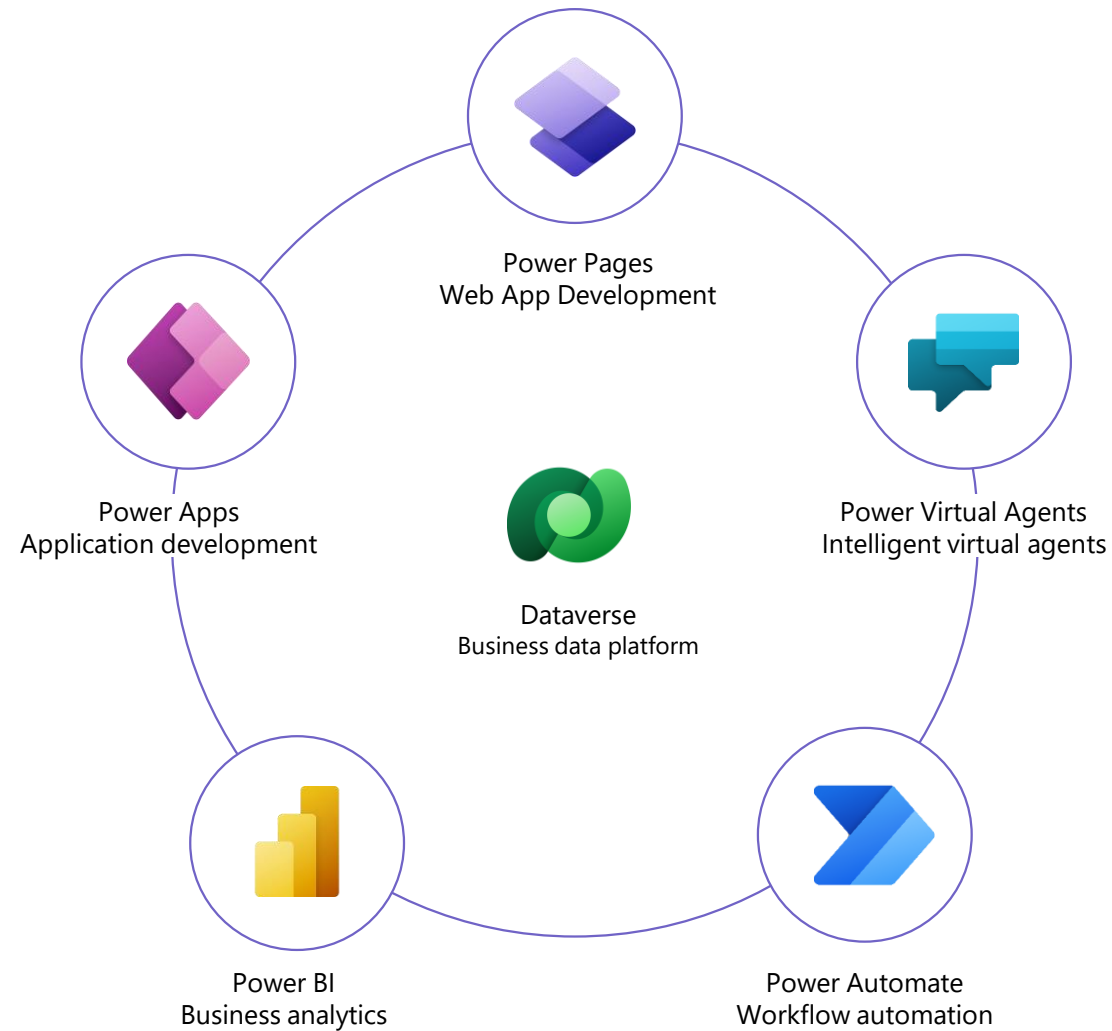


**Automate** the website **deployments** & avoid manual tasks



# Introduction to the website structure

# Components around Power Pages



# Components around Power Pages



## Dataverse

Metadata & Data

- Business data shown on the website sits in Dataverse records
- **Deliver solutions following the ALM strategy and best practice mentioned in this docs** [Application lifecycle management \(ALM\) basics with Microsoft Power Platform - Power Platform | Microsoft Docs](#)



## Power Pages Website

Configuration, Content & Code stored in Dataverse records

- Entirely of the website is stored records in Dataverse tables installed by Microsoft Power Pages during initial deployment
- Using the **Power Platform Build Tools** with DevOps or the **Power Platform CLI**

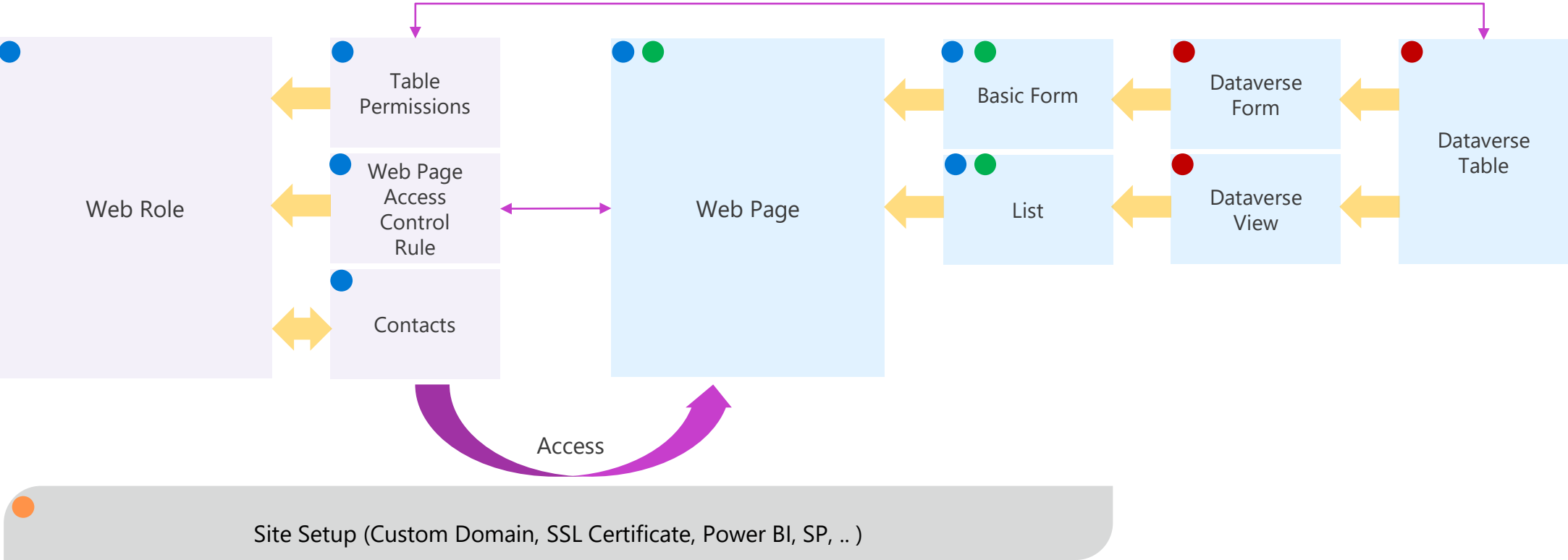


## Power Pages site

Deployment, Setup and Integration Configuration

- Site that actually runs the website as defined in Dataverse
- **Manual tasks** to be performed by **administrators**, currently are creation of the site itself, setting up the initial URL, enabling integration to SharePoint or Power B, etc/
- Power Pages Admin API to contain List, Update, Create, Delete commands for the Sites hosts

# Power Pages Design



- Configuration stored in Dataverse Data
- Dataverse Metadata
- Content & Code
- Manual Configuration

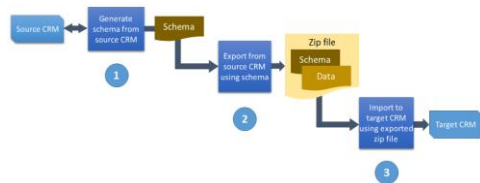




Existing tools

# Power Pages / website Deployment Methods

## Microsoft Configuration Migration Tool



### Manual Process

Can be automated with PowerShell  
The original way to move whole site or configuration

## XrmToolbox\* Portals Records Mover

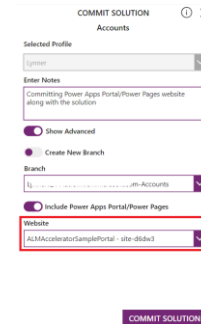
(\* This is a Community Tool)



### Manual Process

Flexibility of what to move

## ALM Accelerator for Power Platform features for moving Power Pages Websites (Preview)





Existing project  
process

# How teams work today : Environment Strategy

Many Dynamics 365 & Power Pages implementations from new projects to ongoing build and maintenance phases:

## Simple Environment Layout



**Important: Developer Lifecycle for Power Pages requires running in cloud Environment to preview work, this layout works without limitation when there is a single developer working in the DEV environment.**

## Advanced Environment Layout



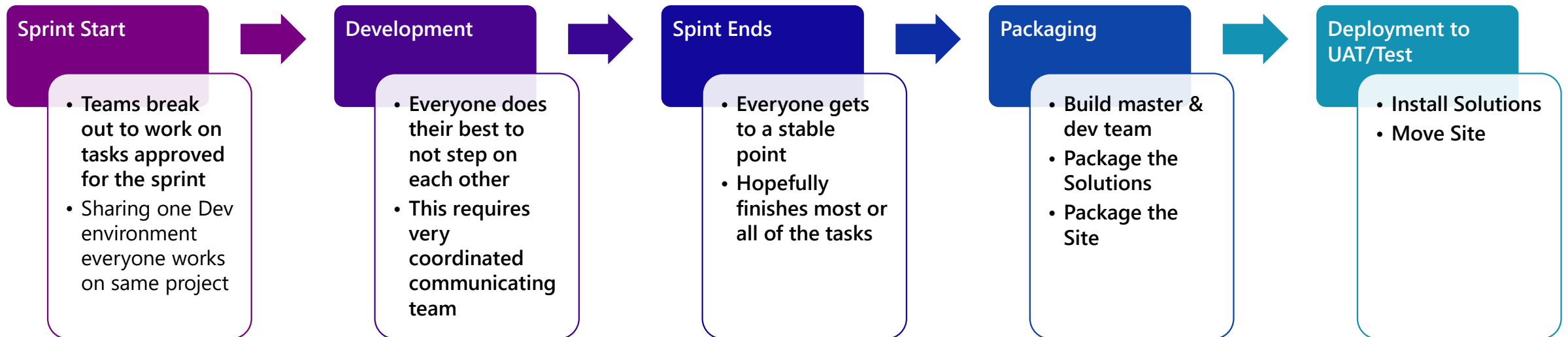
Customers can create any number of environment strategists to suite their compliance and governance needs of their organizations. Microsoft only recommendation is to have a **strategy defined**.

# How teams work today : Sprint Phase

We see this in many Dynamics 365 & Power Pages implementations from new projects to ongoing build and maintenance phases.

Work tasks are grouped into work duration of time such as a sprint of 2 weeks, more or less.

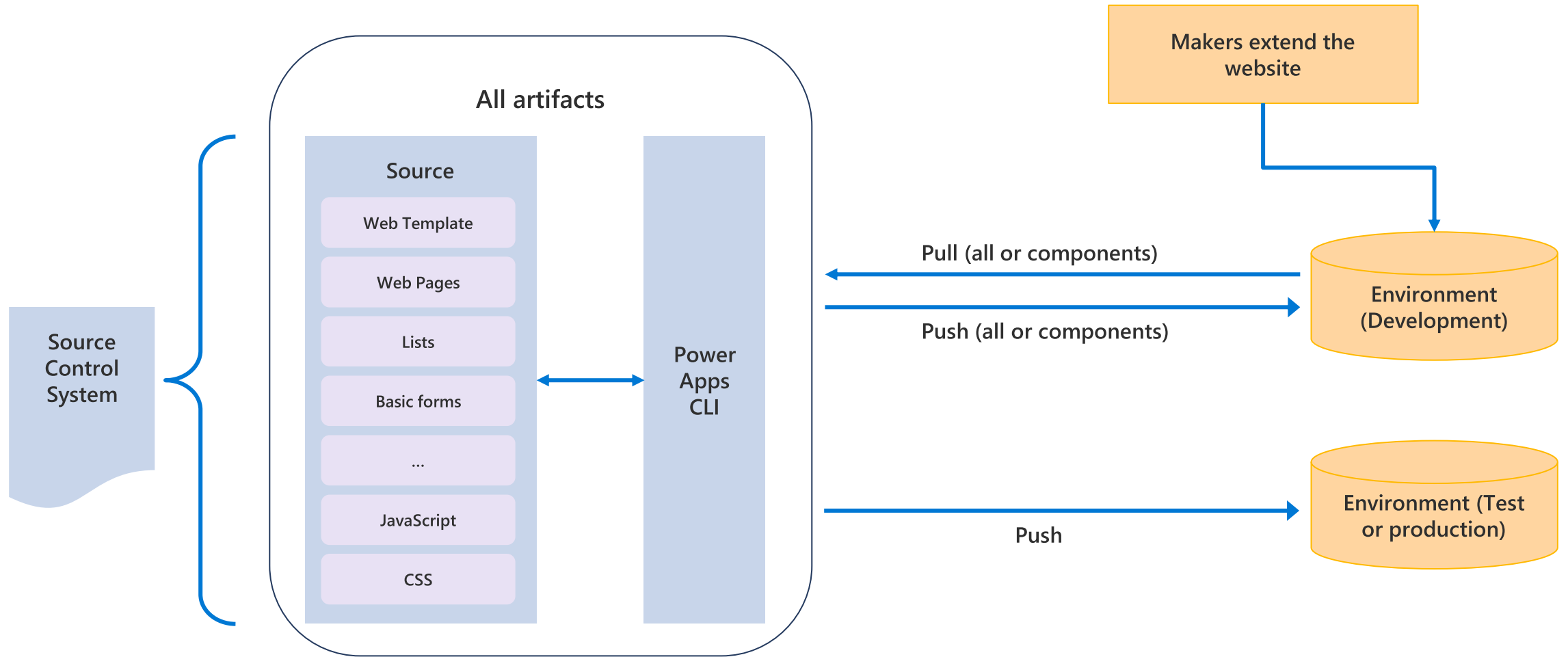
Single Developer Environment is shared, and everyone waits for all tasks to complete end of sprint.



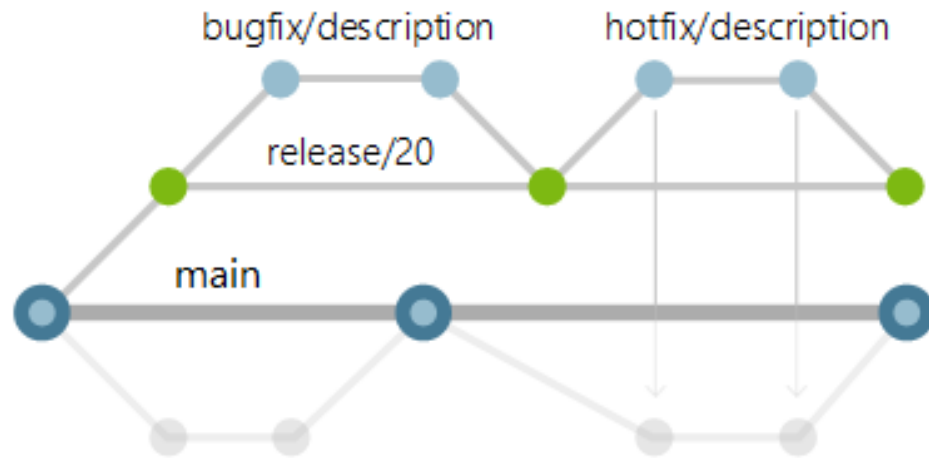


What's ALM ?

# Source control process



# Branching Strategy



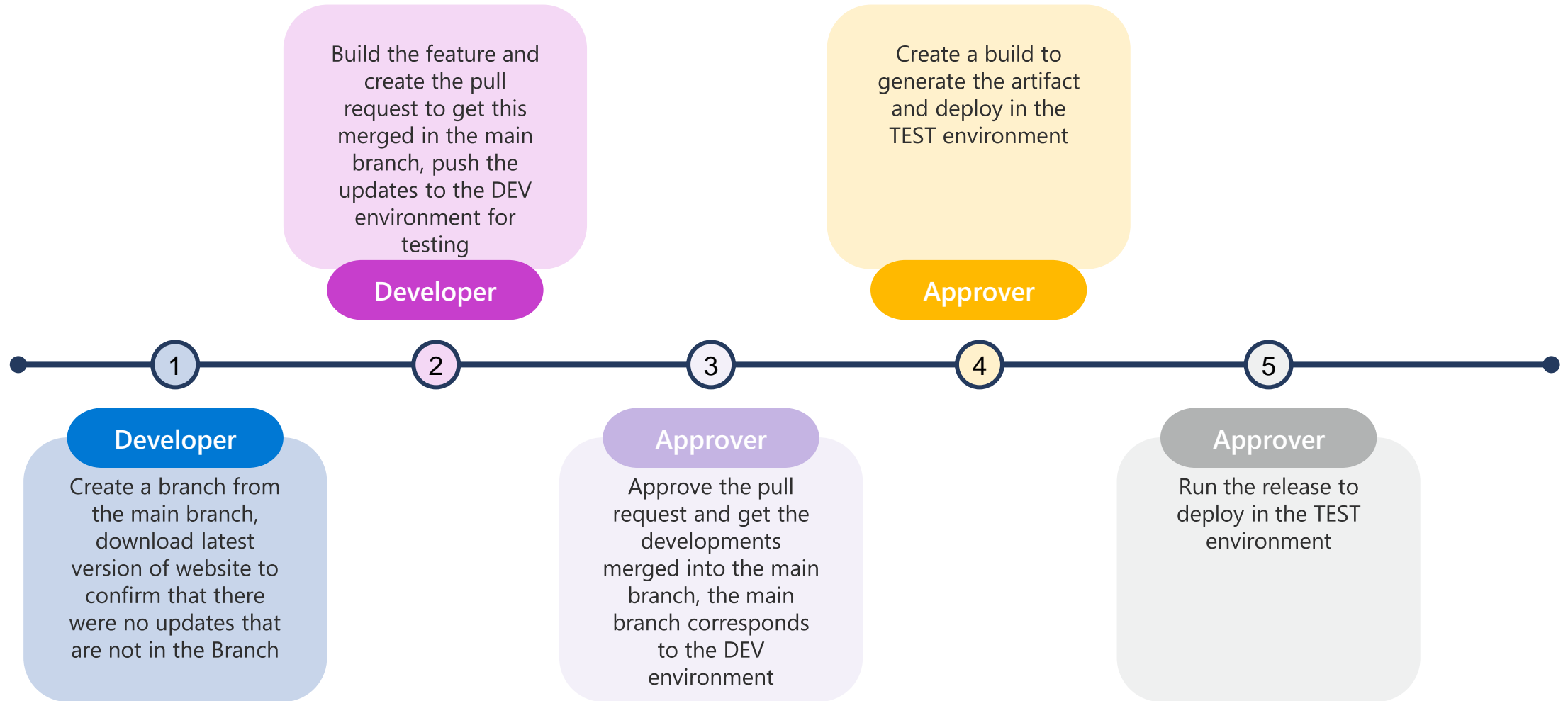
It's the strategy adopted when developing and configuring features, merging and deploying using a version control system

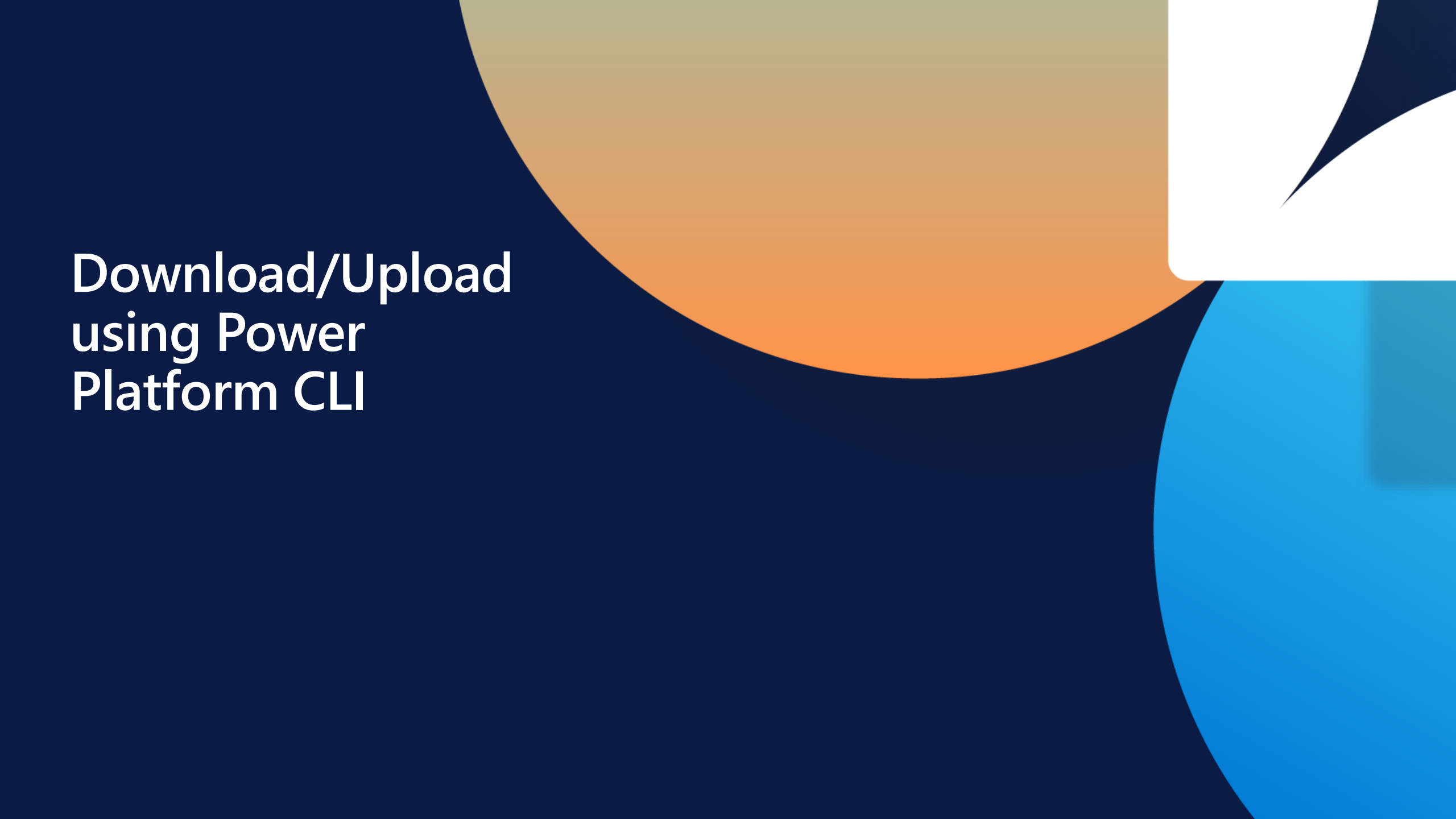


A specific strategy should be defined and clarified when using Power Pages as the low-code makers won't be pushing updates to DevOps branches and won't be pushing their updates.



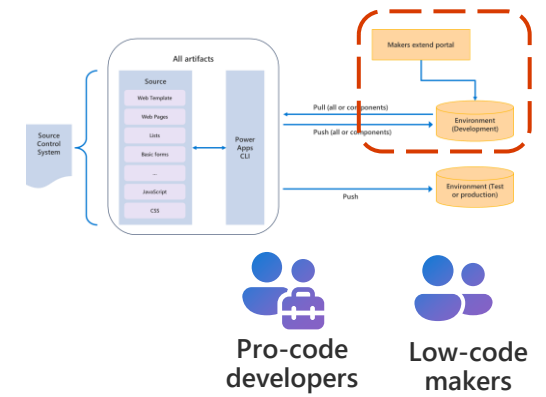
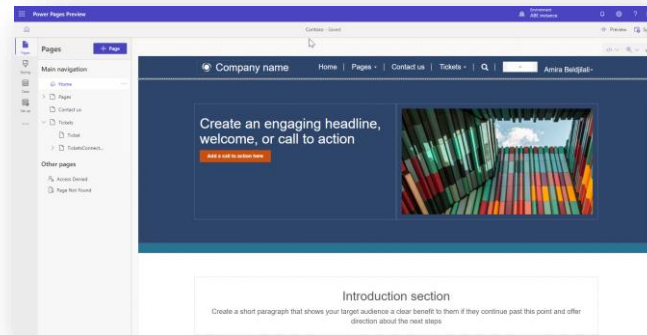
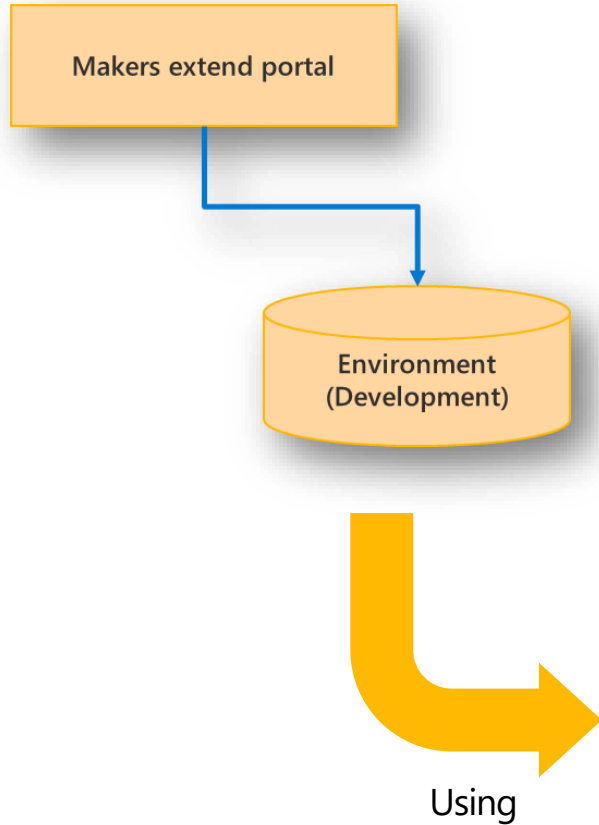
# Feature Lifecycle





Download/Upload  
using Power  
Platform CLI

# Extend the Website using the Power Pages Studio

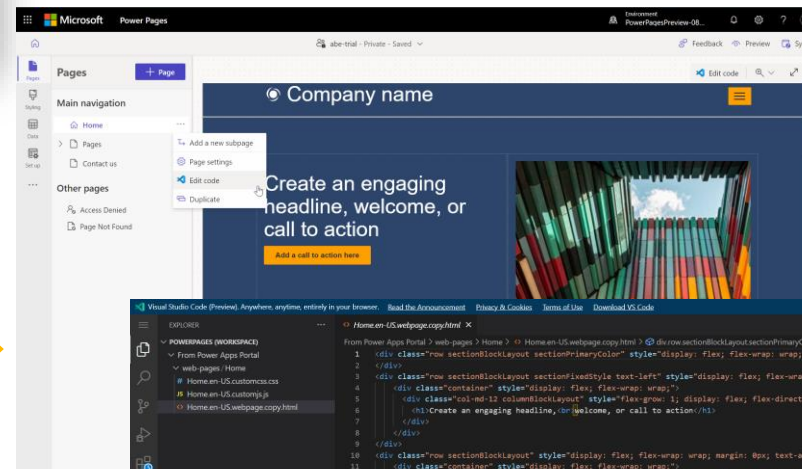
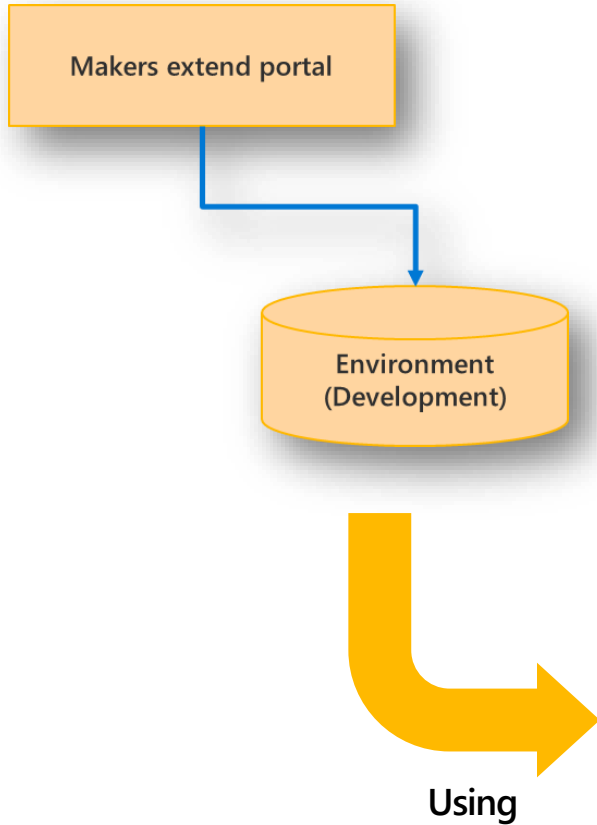
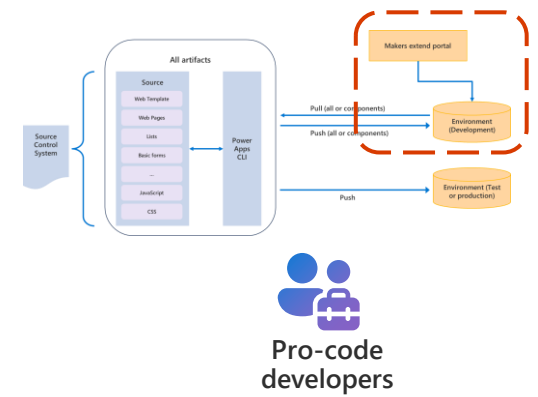


Administrators provide several environments and **authorize updates & developments** in one environment only which is **the Development one**



**Makers extend** and configure the website using the Power Pages maker

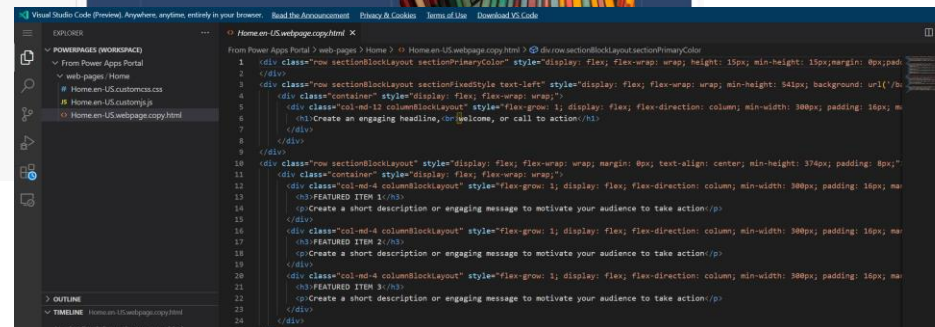
# Extend the Website using the Power Pages Studio & Visual Code Online



Power Pages offers the possibility to use a **Visual Code extension** to update the code



Developers need to consider using the VC extension **if they are updating only one page for example**



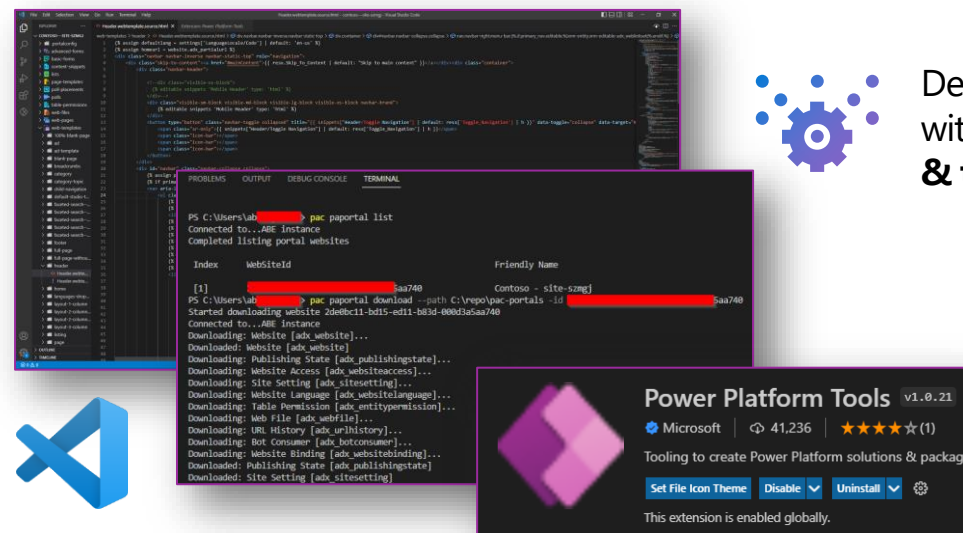
The diagram illustrates the CI/CD pipeline for Pro-code developers. It shows the flow of artifacts from Source Control System to various environments. The central component is 'All artifacts', which includes Web Template, Web Pages, Lists, User Interface, JavaScript, and CSS. The Source Control System (SCS) is connected to the 'All artifacts' box. The 'All artifacts' box is connected to the 'Power Apps CLI'. The 'Power Apps CLI' is connected to the 'Makers extend portal' and the 'Environment (Development)'. The 'Makers extend portal' is connected to the 'Environment (Development)'. The 'Environment (Development)' is connected to the 'Environment (Test or production)'. The flow is as follows: SCS to All artifacts; All artifacts to Power Apps CLI; Power Apps CLI to Makers extend portal; Makers extend portal to Environment (Development); Environment (Development) to Environment (Test or production). Arrows indicate the direction of flow: SCS to All artifacts (blue); All artifacts to Power Apps CLI (blue); Power Apps CLI to Makers extend portal (blue); Makers extend portal to Environment (Development) (blue); Environment (Development) to Environment (Test or production) (blue). A dashed red line separates the 'All artifacts' box from the 'Makers extend portal' and 'Environment (Development)' components. A solid red line separates the 'Makers extend portal' and 'Environment (Development)' components. A solid red line separates the 'Environment (Development)' and 'Environment (Test or production)' components.



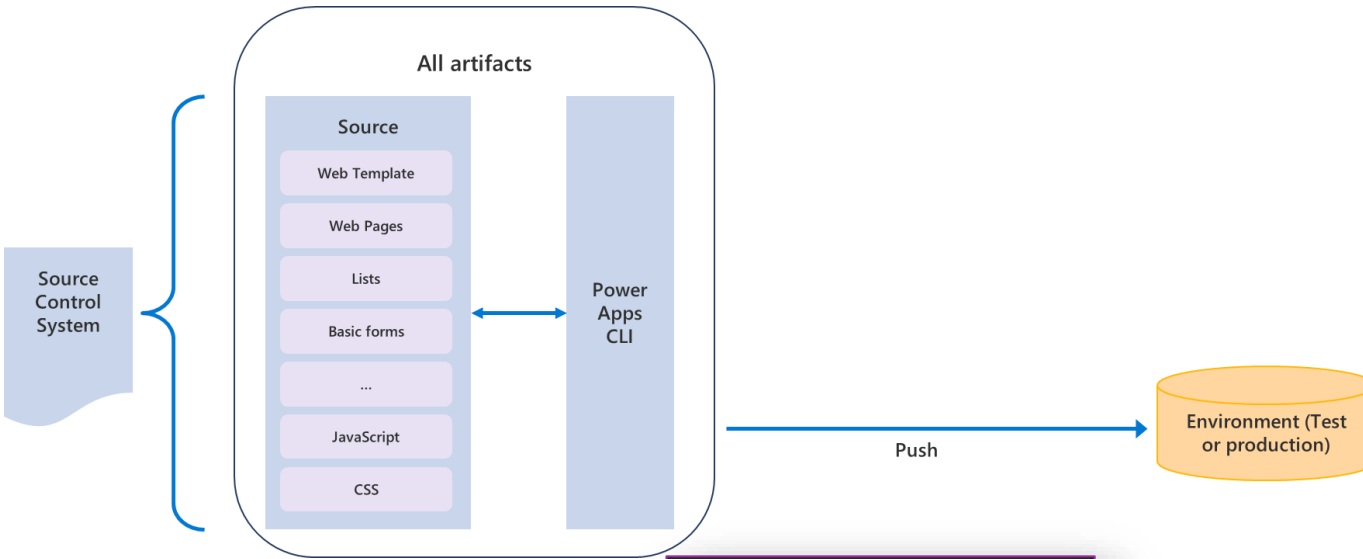
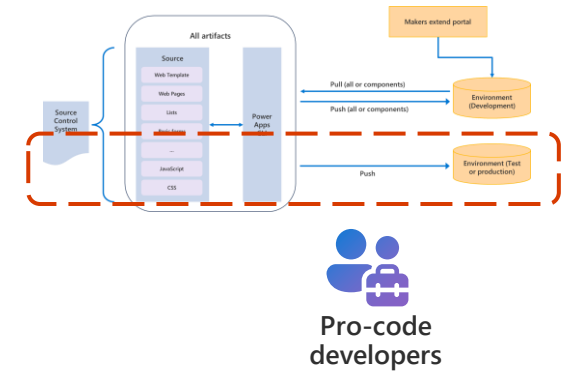
Developers use the **Microsoft Power Platform CLI with portals/ The Power Platform extension** to download and upload updates to the website



Developers use Visual Code to develop features with using : **IntelliSense support, Live preview & the autocomplete**



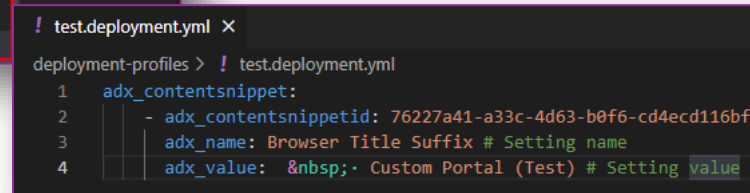
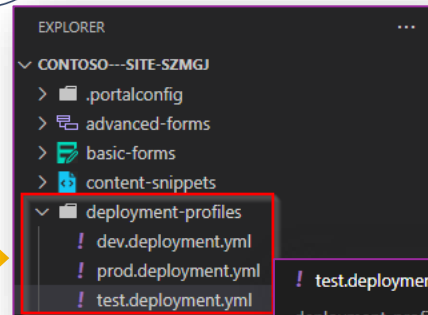
# Deploy the Website using Power Platform CLI



Approvers check the developments via the pull requests **according and using the tools & branching strategy** adopted in the project



Using



Developers/Approvers push updates to the target environment using **Power Platform CLI** with portals & **deployment profiles**

For more Information, refer to: [Power Apps portals: Create deployment profile for dev/test/prod environment using Power Apps CLI | Microsoft Power Apps](#)

## Extend using the Power Pages maker

The screenshot displays the Power Pages Preview environment. The top navigation bar includes the 'Power Pages Preview' title, 'Contoso - Saved', and user information 'Amira Beldjilali'. The left sidebar shows the 'Pages' section with 'Main navigation' (Home, Pages, Contact us, Tickets) and 'Other pages' (Access Denied, Page Not Found). The main content area shows the 'Tickets' page with a table and a view selection dropdown.

**Table Structure:**

Name	Severity	Id
To see records displayed here, choose preview.		

**View Selection Dropdown:**

- Ticket Associated View
- All Tickets
- Ticket Lookup View

**Buttons:** Search, Create, Download



Extend using the  
Power Pages maker

List Websites

Download Website

```
PS C:\repo\pac-portals\contoso---site-szmj>
PS C:\repo\pac-portals\contoso---site-szmj> pac auth create -u https://source instance.dynamics.com
'a[redacted]FastTrack.onmicrosoft.com' authenticated successfully.
Validating connection...
Connected to...ABE instance
Authentication profile created
* DATAVERSE https://source instance.dynamics.com/ : a[redacted]FastTrack.onmicrosoft.com Public
PS C:\repo\pac-portals\contoso---site-szmj>
```



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\repo\pac-portals\contoso---site-szmj> pac paportal list
Connected to...ABE instance
Completed listing portal websites

Index      WebSiteId      Friendly Name
-----
[1]        2c[redacted]00d3a5aa740  Contoso - site-szmj
PS C:\repo\pac-portals\contoso---site-szmj>
```



```
PS C:\repo\pac-portals\contoso---site-szmj>
PS C:\repo\pac-portals\contoso---site-szmj> pac paportal download --path c:\repo\pac-portals\szmj -id 2d[redacted]0d3a5aa740
Started downloading website 2de0bc11-bd15-ed11-b83d-000d3a5aa740
Connected to...ABE instance
Downloading: Website [adx_website]...
Downloaded: Website [adx_website]
Downloading: Publishing State [adx_publishingstate]...
Downloaded: Bot Consumer [adx_botconsumer]...
Downloading: Web File [adx_webfile]...
Downloaded: Website Language [adx_websitelanguage]...
Downloading: Website Binding [adx_websitebinding]...
Downloaded: Table Permission [adx_entitypermission]...
Downloading: Site Setting [adx_sitesetting]...
Downloaded: Website Access [adx_websiteaccess]...
Downloading: URL History [adx_urlhistory]...
```



Extend using the  
Power Pages maker

List Websites

Download Website

Deploy Website to different  
environment(s)

EXPLORER

- CONTOSO---SITE-SZMGJ
  - .portalconfig
  - advanced-forms
  - basic-forms
  - content-snippets
  - deployment-profiles
    - dev.deployment.yml
    - prod.deployment.yml
    - test.deployment.yml

test.deployment.yml X

```
deployment-profiles > ! test.deployment.yml
1  adx_contentsnippet:
2    - adx_contentsnippetid: 76227a41-a33c-4d63-b0f6-cd4ecd116bf8 # Replace with your content snippet ID
3      adx_name: Browser Title Suffix # Setting name
4      adx_value: &nbsp; Custom Portal (Test) # Setting value
```



```
PS C:\repo\pac-portals\contoso---site-szmgj>
PS C:\repo\pac-portals\contoso---site-szmgj> pac auth create -u https://target instance.dynamics.com
'a' FastTrack.onmicrosoft.com authenticated successfully.
Validating connection...
Connected to...ABE instance
Authentication profile created
* DATAVERSE https://target instance.dynamics.com/ : a FastTrack.onmicrosoft.com Public
PS C:\repo\pac-portals\contoso---site-szmgj>
```



```
PS C:\repo\pac-portals\contoso---site-szmgj> pac paportal upload --path "C:\repo\pac-portals\szmgj\contoso---site-szmgj" --deploymentProfile test
Started uploading website data
Connected to...CRM724977
Microsoft PowerPlatform CLI
Version: 1.17.5+gcbb58e8
```

# Deploy using Azure DevOps



# Process

Assumption : The latest version is always in the branch

1

## Prepare

The DevOps repository needs to be prepared at the start of the project

2

## Build

Developers & low-code makers build features and push the code to the main branch

3

## Deploy

The website is getting deployed in other environments

# Process

Assumption : The latest version is always in the branch

## 1 Prepare

Download the  
Website content and  
commit to the main  
branch

The screenshot displays the Azure DevOps web interface for a pipeline named 'Download DEV Portal'. The left sidebar shows the project structure with 'Pipelines' selected. The main area shows the pipeline configuration with the following tasks:

- Get sources (PowerPagesRepo, main)
- Agent job 1 (Run on agent)
- Power Platform Tool Installer (Power Platform Tool Installer)
- Power Platform Download PAPortal (Power Platform Download PAPortal)
- Commit Code (PowerShell)

The 'Power Platform Download PAPortal' task is selected, showing its configuration:

- Task version: 2.\*
- Display name: Power Platform Download PAPortal
- Authentication type: Service Principal/client secret (supports MFA)
- Service connection: sp-portal-deployment-Test
- Environment Url: \$(BuildTools.En...)
- Download path: Portal/Portal-D...
- Id of website: 2de0bc11-bd15...
- Control Option: ...
- Output Variable: ...

The 'Jobs in run #52' table shows the execution progress:

Job	Status	Duration
Agent job 1	Running	45s
Initialize job	Completed	2s
Checkout PowerPagesRepo@main...	Completed	4s
Power Platform Tool Installer	Completed	1s
Power Platform Download PAPor...	Running	32s
Commit Code	Completed	3s
Post-job: Checkout PowerPagesR...	Completed	<1s
Finalize job	Completed	<1s
Report build status	Completed	<1s

The 'Power Platform Download PAPortal' task output shows the download of website content and the generation of the 'Page.webtemplate.source.html' file. The output includes a list of files and folders, such as 'portalconfig', 'basic-forms', 'content-snippets', 'page-templates', 'poll-placements', 'table-permissions', 'web-files', 'web-pages', and 'web-templates'.

# Process

Assumption : The latest version is always in the branch

## 1 Prepare



Download



Create the  
deployment profiles  
with the configuration

```
1 adx_contentsnippet:
2   - adx_contentsnippetid: 76227a41-a33c-4d63-b0f6-cd4ecd116bf8 # Replace with your content snippet ID
3     adx_name: Browser Title Suffix # Setting name
4     adx_value: &nbsp;• Custom Portal (Dev) # Setting value
```

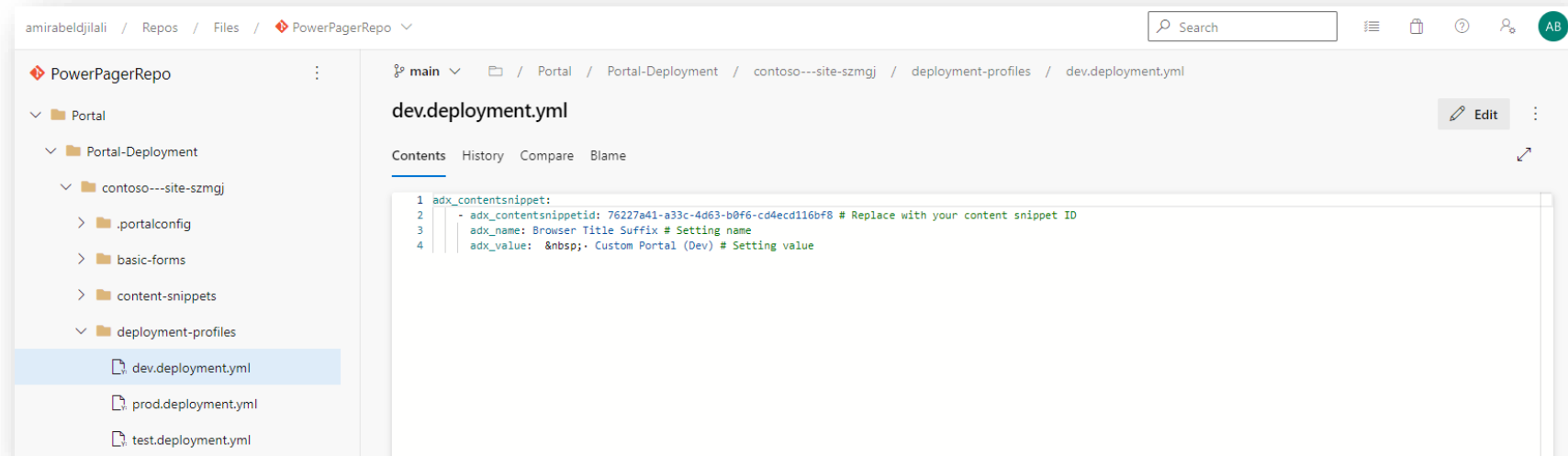
```
1 adx_contentsnippet:
2   - adx_contentsnippetid: 76227a41-a33c-4d63-b0f6-cd4ecd116bf8 # Replace with your content snippet ID
3     adx_name: Browser Title Suffix # Setting name
4     adx_value: &nbsp;• Custom Portal (Test) # Setting value
```

```
1 adx_contentsnippet:
2   - adx_contentsnippetid: 76227a41-a33c-4d63-b0f6-cd4ecd116bf8 # Replace with your content snippet ID
3     adx_name: Browser Title Suffix # Setting name
4     adx_value: &nbsp;• Custom Portal (PRD) # Setting value
```

# Process

Assumption : The latest version is always in the branch

## 1 Prepare



# Process

Assumption : The latest version is always in the branch

## 1 Prepare



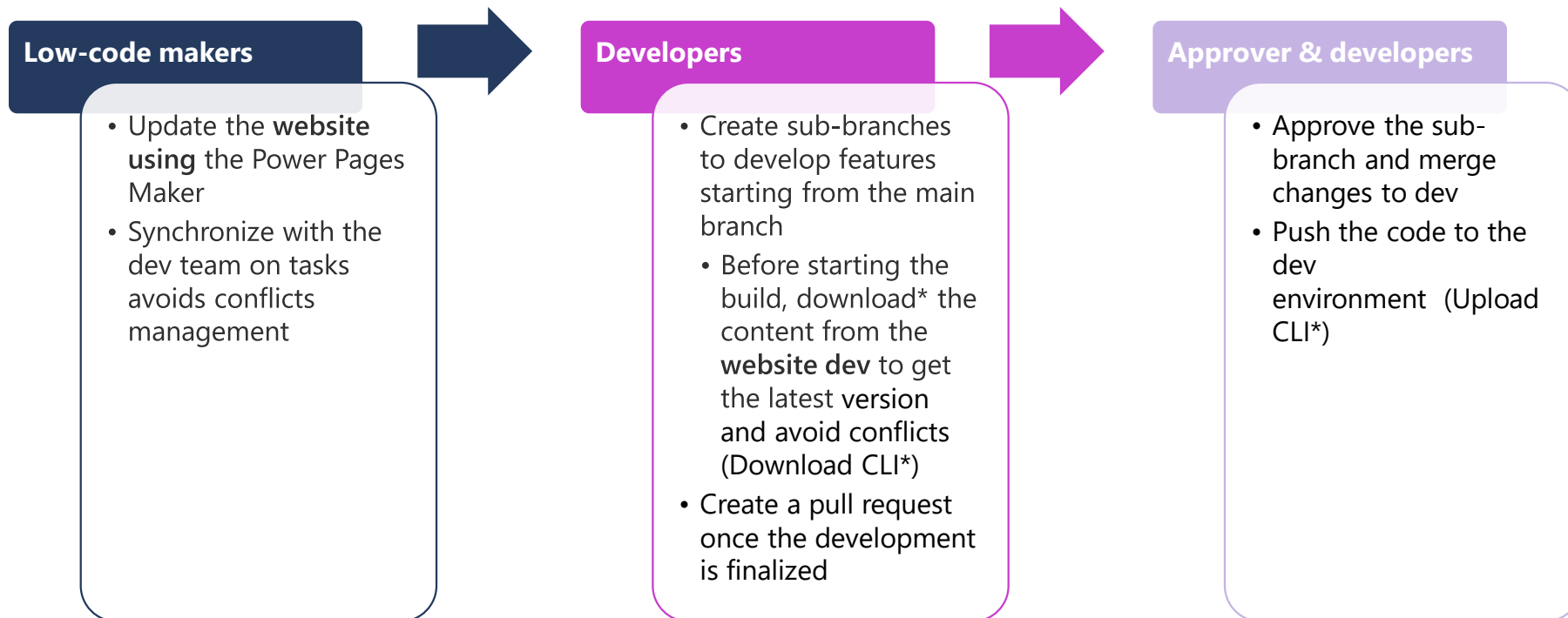
**This should be a one-shot operation to do at the start of the project**

- The content of deployment profiles might change from a customer to another based on the need and the configuration
- For more details, refer to [Tutorial on how to use Power Platform CLI with portals - Power Apps | Microsoft Docs](#)

# Process

Assumption : The latest version is always in the branch

## 2 Build



\*For more details, refer to [Tutorial on how to use Power Platform CLI with portals - Power Apps | Microsoft Docs](#)



# Process

Assumption : The latest version is always in the branch

3

## Deploy



Add a tag to the main branch or use the Ship branch\*



\* According to the branching strategy you are using, you might need to do this step differently

# Process

Assumption : The latest version is always in the branch

3

## Deploy



Tag & Ship



Deploy using the  
Power Platform Build  
Tools

All pipelines > Release Pipeline

Pipeline Tasks Variables Retention Options History

Stage 1  
Deployment process

Agent job  
Run on agent

- Power Platform Tool Installer
- Power Platform Upload PAPortal

Power Platform Upload PAPortal

Task version 2\*

Display name \*

Power Platform Upload PAPortal

Authentication type \*

Username/password (no MFA support) Service Principal/client secret (supports MFA)

Service connection \*

sp-portal-deployment-test

Upload path \*

\$(System.DefaultWorkingDirectory)/\_PowerPageRepo/Portal-Deployment/contoso---site-szmj

Name of deployment profile

test

Environment Url

\$(BuildTools.EnvironmentUrl)

Control Options

Release Pipeline > Release-7 > Stage 1 > Succeeded

< Pipeline Tasks Variables Logs Tests > Deploy Cancel Refresh Download all logs Edit >

Deployment process  
Succeeded

Agent job  
Succeeded

Pool: Hosted Windows 2019 with ... Agent: Hosted Agent

Started: 22/09/2022, 17:31:25 ... 32s

Initialize job	succeeded	3s
Download Artifacts	succeeded	3s
Power Platform Tool Installer	succeeded	2s
Power Platform Upload PAPortal	succeeded	21s
Finalize Job	succeeded	<1s

# Questions

