



**Power BI
Deployment
Pipelines**



Azure DevOps

Enterprise Power BI deployments

With Azure DevOps and Power BI Deployment Pipelines



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[@MarcLelijveld](https://twitter.com/MarcLelijveld)



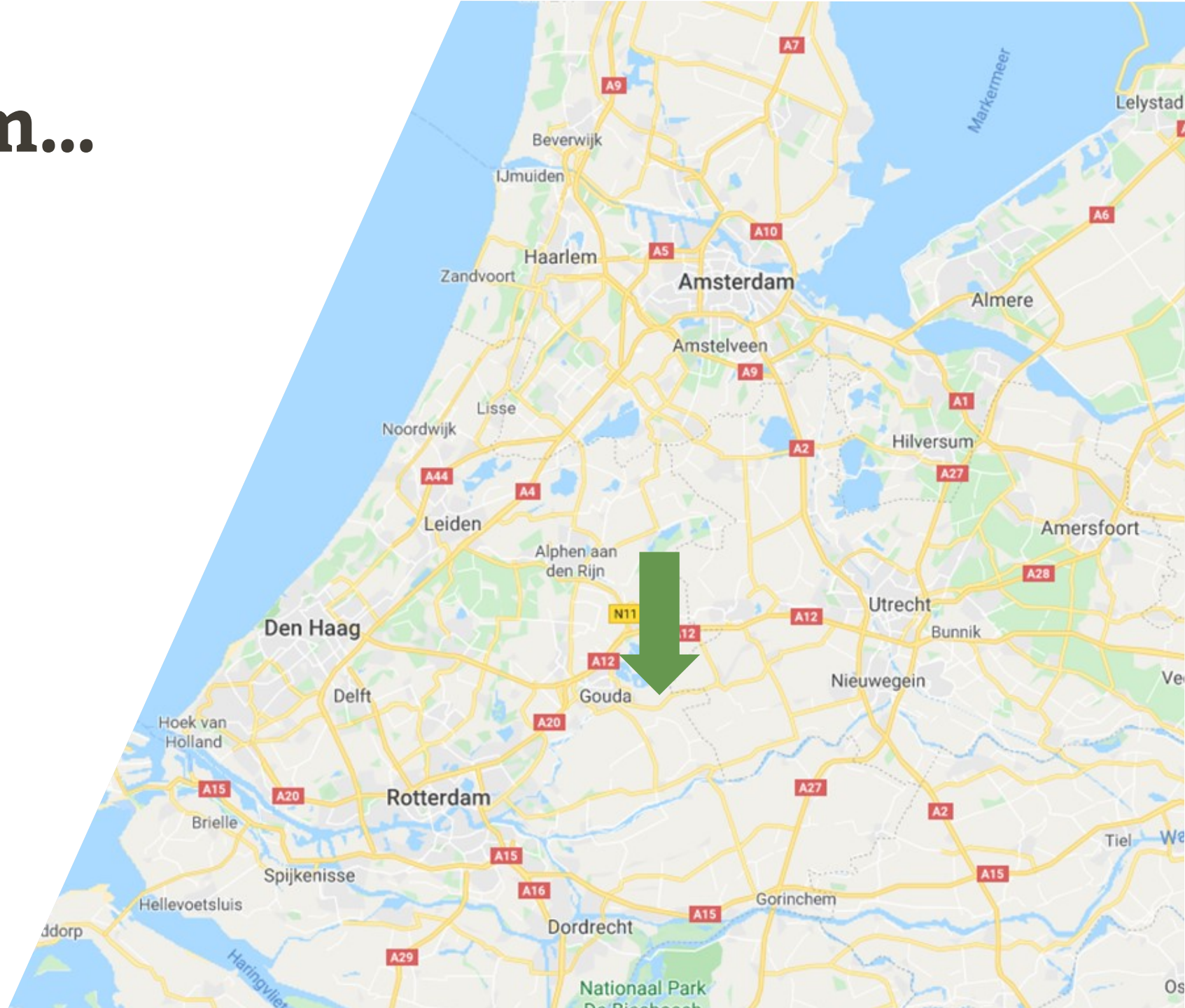
linkedin.com/in/MarcLelijveld



Data-Marc.com



Where I'm from...



What we cover today

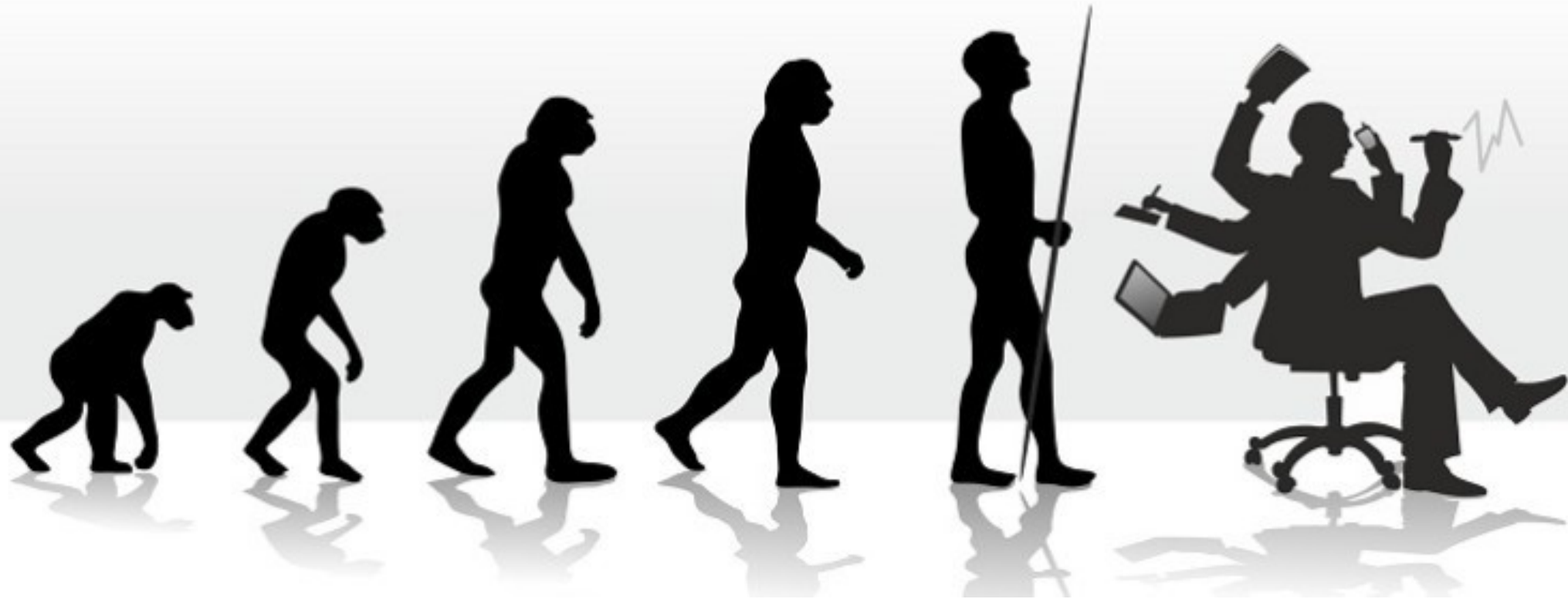
- Our way of working
- The evolution of BI
- Deployment framework
- What about dataflows?
- Azure DevOps vs Deployment Pipelines
- Roadmap



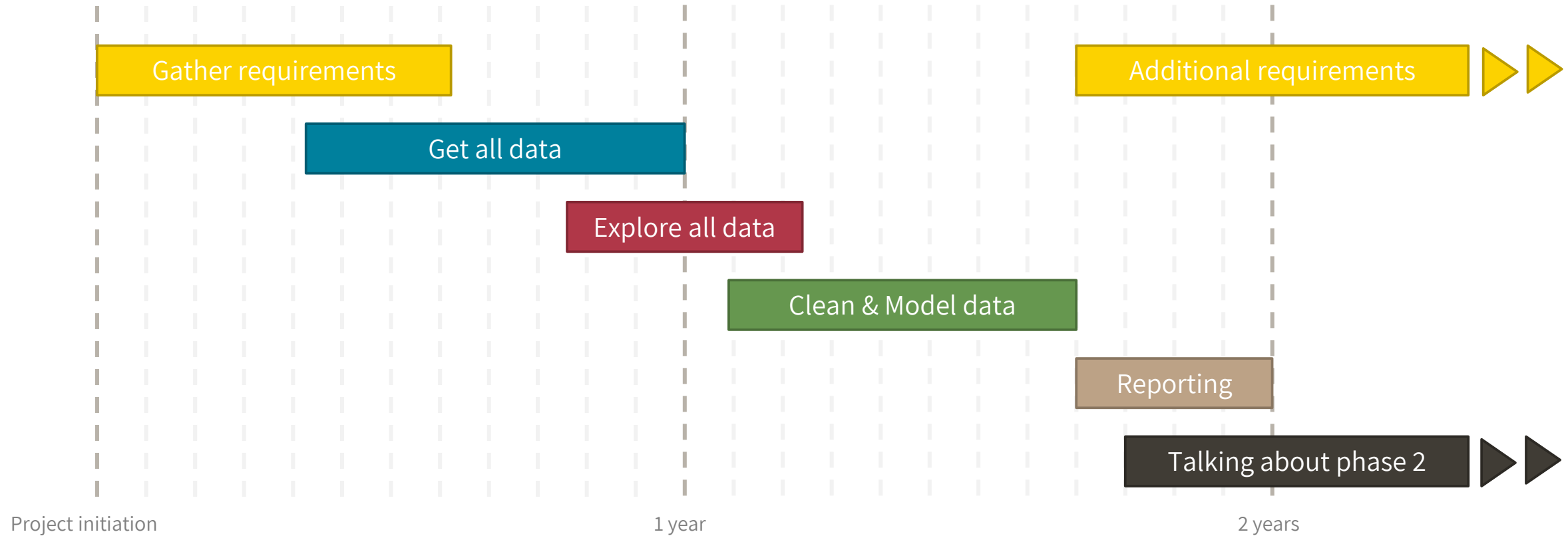
A man in a white shirt and dark trousers is running towards the right, holding a laptop. The background is a light gray wall with various hand-drawn sketches in pencil, including a lightbulb, envelopes, a bar chart, a pie chart, a magnifying glass, and a telephone. The text "Our way of working" is overlaid on the left side of the image.

Our way of working

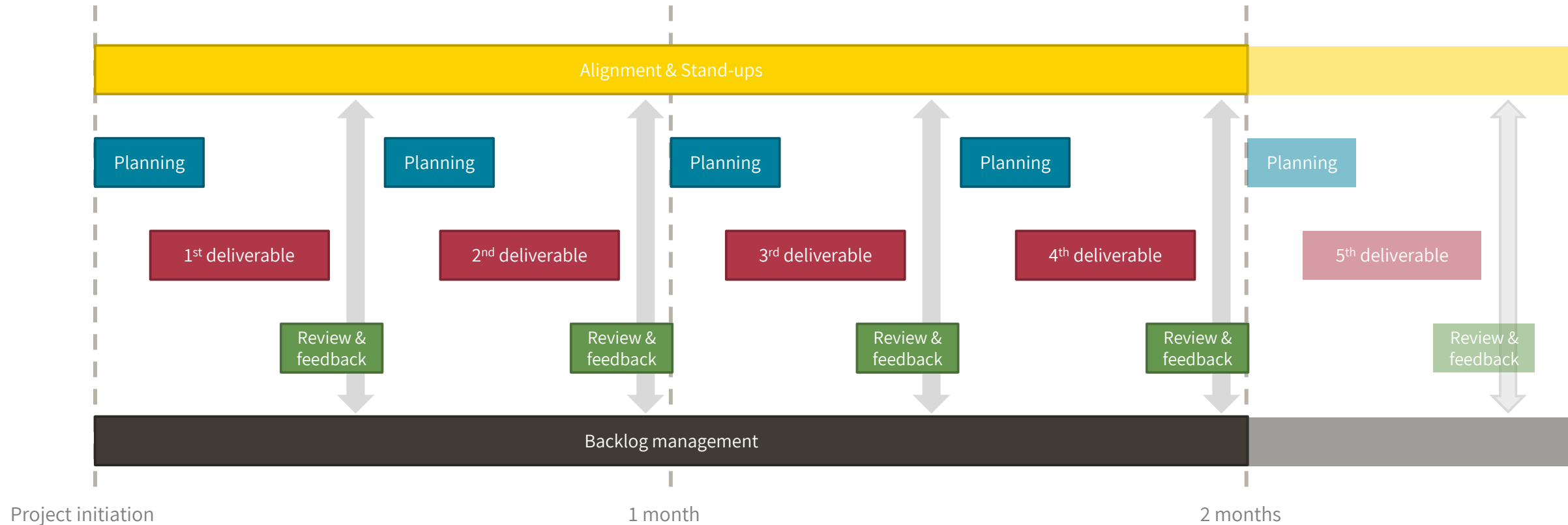
Busy era



Classic approach



Start working agile



The evolution of BI



The evolution of BI

1st wave
Corporate BI

2nd wave
Self-service BI

3rd wave
End user BI



IT to end user



Analyst to end user


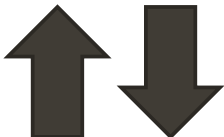



Everyone




Self-service vs End-user BI



Deployment scenarios

	Corporate BI	IT-Managed Self-Service BI	Business-Led Self-Service BI
Approach	 Top-Down	 Blended	 Bottom-Up
Data sources	Published by IT	Only governed sources	Any type of data source
Ownership	Fully supported by IT	IT for data model, Business for reports	Business supports all elements of the solution
Governed by	IT	IT for data, business for reports	Business
Usage scope of business	Only use of content	Creation of (custom) reports and dashboards	Data prep, modelling, reports and dashboards

Deployment scenarios

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100%
IT-Driven

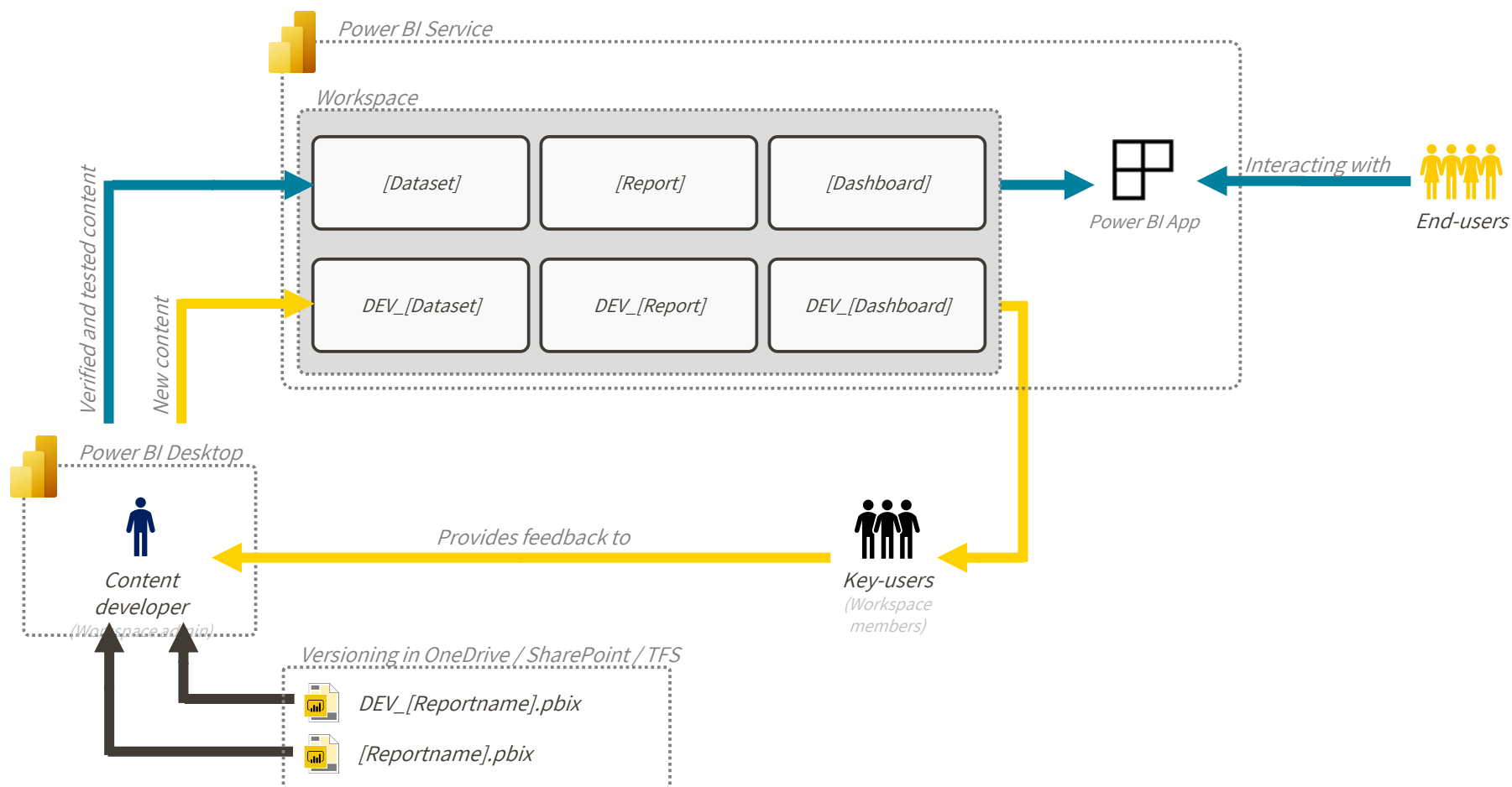
50/50

100%
Business Driven

The background of the slide features a grayscale silhouette of two construction workers inside a building's steel framework. One worker on the left is standing and holding onto a horizontal beam with both hands. The other worker on the right is bent over, using a long tool, possibly a pry bar or lever, to work on a lower part of the structure. The steel beams create a complex geometric pattern of rectangles and triangles.

Deployment framework

Deployment scenario (self service scale)



Deployment scenario (self service scale)

Parameters

New

EnvironmentSwitch

Name

EnvironmentSwitch

Description

Switch between Development, Acceptance and Production environment.

☒ Required

Type

Text

Suggested Values

List of values

1	https://
2	https://
3	https://
*	

Default Value

https://

Current Value

https://

OK

Cancel

Settings for Parameterize Datasource

[Refresh history](#)

▶ Gateway connection

▶ Data source credentials

▶ Parameters

EnvironmentSwitch

Switch between Development, Acceptance and Production environment

https://SomeSite.sharepoint.com/sites/Site01/

SwitchFolderLocation

Switchs folders

C:\Users\MarcL\Documents\Study.xlsx

Apply

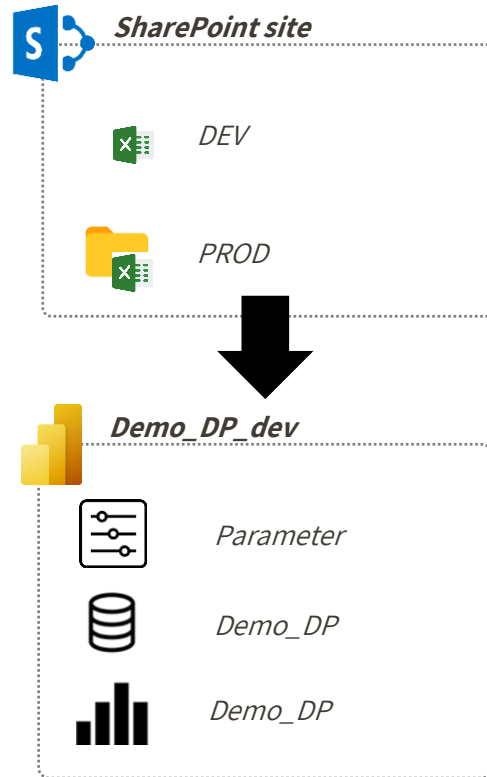
Discard

▶ Scheduled refresh

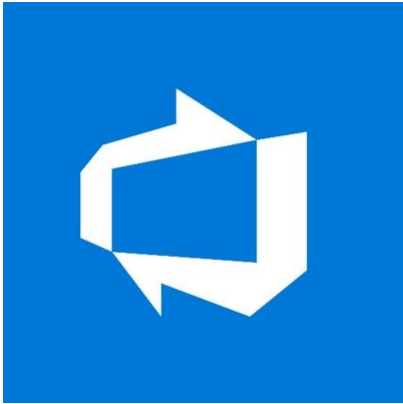
▶ Q&A and Cortana

▶ Featured Q&A questions

Demo contex (self service scale)



Deployment scenario (at enterprise scale)

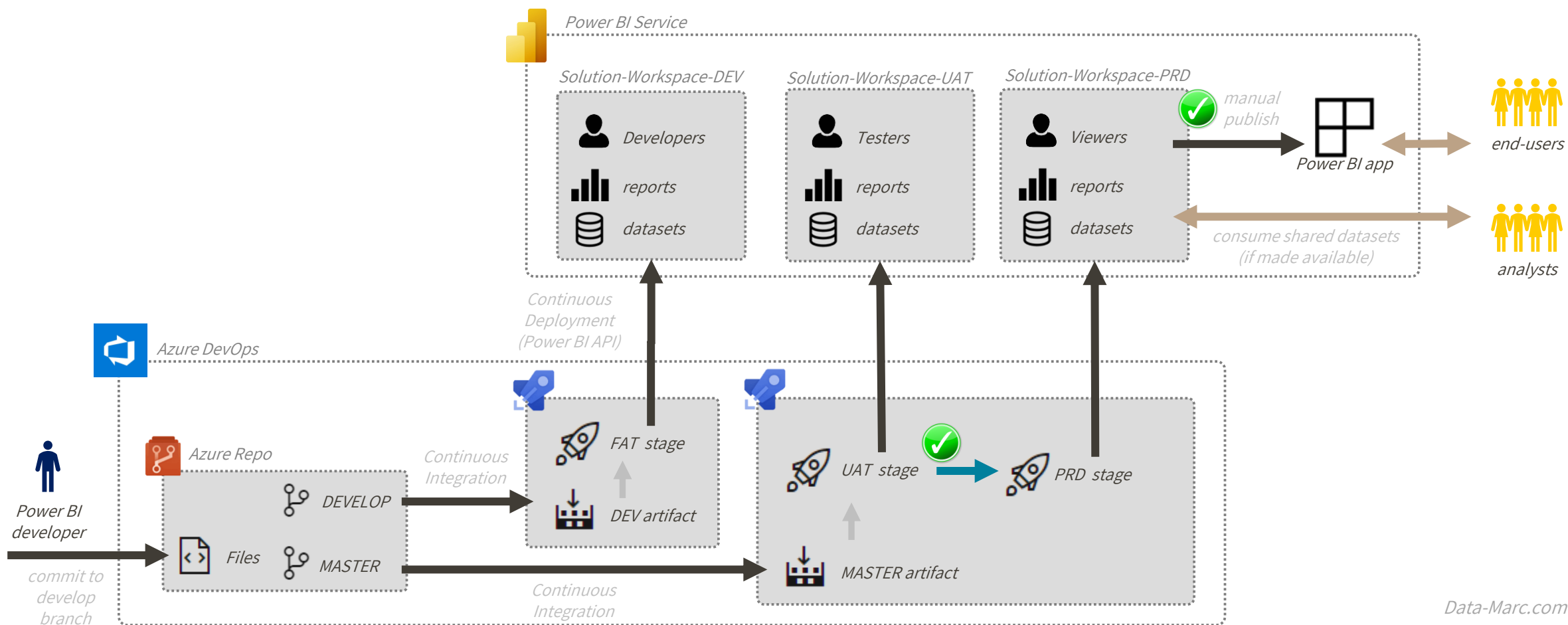


Azure DevOps

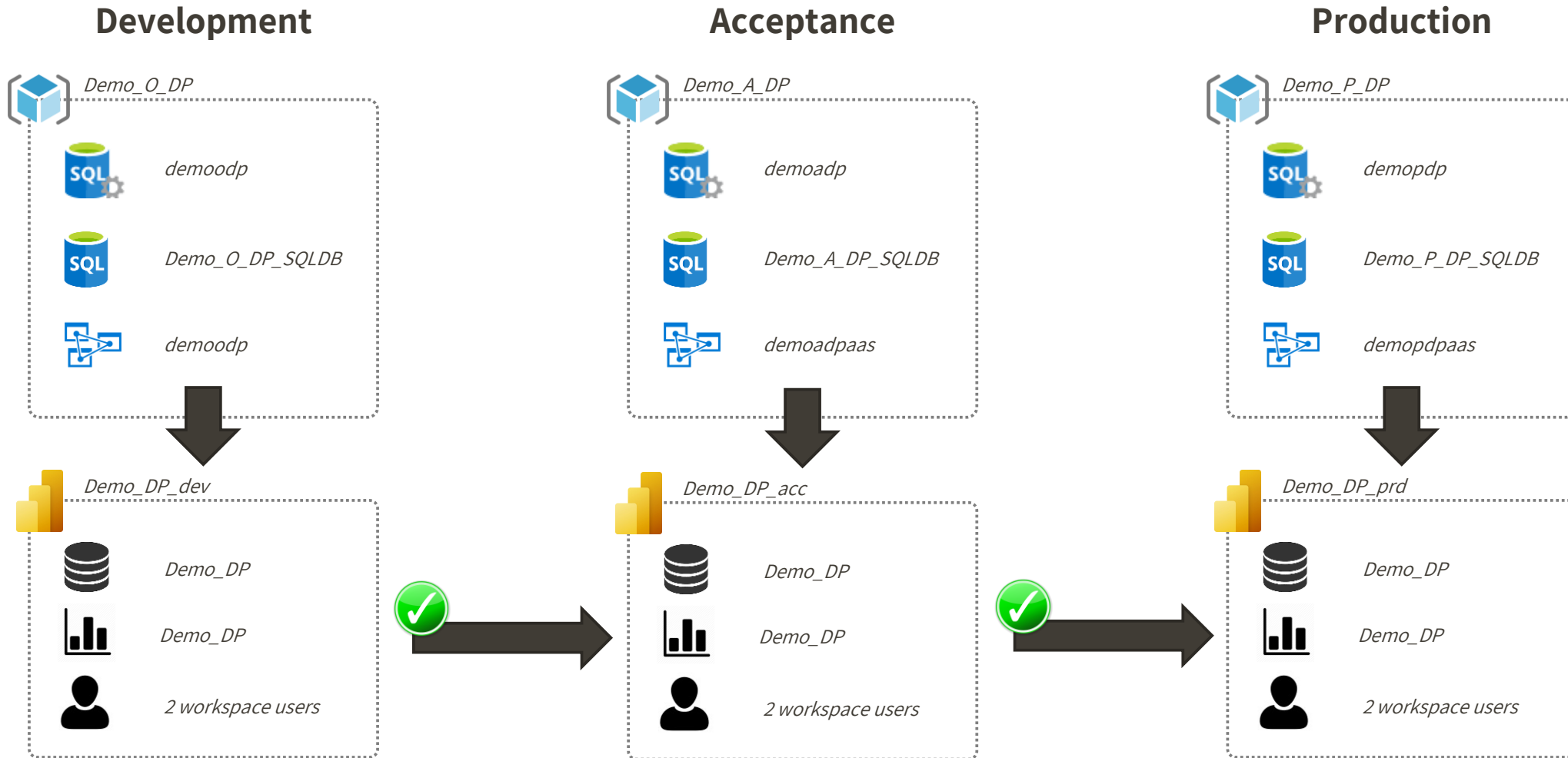


Power BI Service

Deployment scenario (at enterprise scale)



Demo context (at enterprise scale)



Demo time!

Because life is boring without risks



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PBI



Development

1 job, 0 task



Versioning and CI/CD for Power BI with Azure DevOps

ON [NOVEMBER 12, 2019](#) / BY [MARC](#)

/ IN [AZURE](#), [DEVELOPING](#), [POWER BI REST API](#), [POWER BI SERVICE](#), [POWERSHELL](#)

/ [EDIT](#)

Over a year ago, I wrote a [blog](#) about [Multiple tier architecture and continuous delivery with Power BI](#), mainly an overview of the setup and manually creating development and production content. This blog will continue this story in more detail of Power BI CI/CD with Azure DevOps automated deployments. A solution where [Dave Ruijter](#), [Ton Swart](#) and I worked on over the last year. The

SEARCH

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Macaw Power BI Extensions

Macaw | 85 installs | ★★★★★ (0) | Free

Power BI release manager tasks for Azure DevOps.

Get it free

Overview | Q & A | Rating & Review

Macaw Power BI Extensions is a Build and Release Task for Azure Pipelines. With this tasks you can control your Power BI deployment in Azure DevOps

Actions that can be performed with this extension are:

- Group tasks
 - Create or Update Power BI workspace
 - Delete Power BI workspace
 - Write all workspace info to JSON logfile
- Report tasks
 - Create or Update Power BI Report
 - Delete Power BI Report
 - Delete Power BI DataSet
 - Update the datasources of the specified dataset
 - Update the parameters values for the specified dataset

For the custom task to work as it should, you need to configure the following parameters:

- ClientId: The client id of the native Azure Active Directory application. This application should have the appropriate rights in order to use the Power BI Api. To register an application, check the following URL: [Register an Azure AD app to embed Power BI content](#)
- Username: The username of the user that will perform the actions. Make sure the account does not have Multi

Agent phase

Run on agent



Power BI Group Tasks: CreateWorkspace

Power BI: Group Tasks



Power BI Report Task: CreateReport

Power BI: Report Tasks



Power BI Report Task: UpdateParameter

Power BI: Report Tasks

Categories

Azure Pipelines

Works with

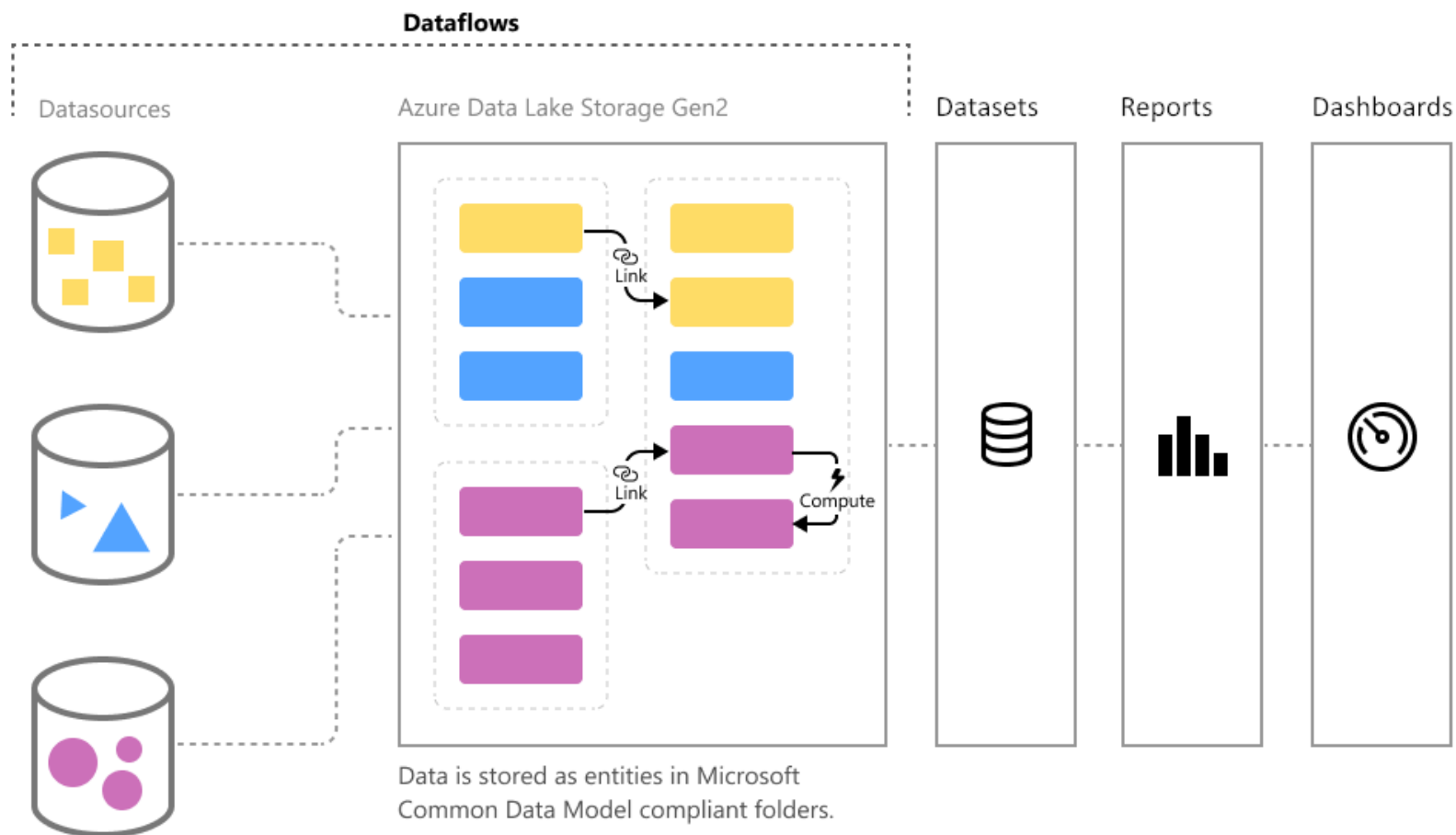
Azure DevOps Services

Azure DevOps Server

Resources

[License](#)

But what about dataflows?



Dashboards Reports Workbooks Datasets Dataflows

Move dataflows across workspaces with the Power BI REST API

ON [OCTOBER 22, 2019](#) / BY [MARC](#)
/ IN [DATAFLOWS](#), [DEVELOPING](#), [POWER BI REST API](#), [POWER BI SERVICE](#),
[POWERSHELL](#)
/ [EDIT](#)

Dataflows are part of the Power BI service for a while now. More and more people are starting to benefit from it in multiple perspectives. The two most heard ones are re-use of data (and logic), but also isolate refreshes to avoid dependencies of refresh failures from different sources.

Same as for your data sources, you might have different workspaces setup in different stages of your DTAP development approach. In the past, I wrote a

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CATEGORIES

Adoption (1)



Create a deployment pipeline

Use a pipeline to manage your workspace content through the deployment stages, continuously delivering the latest content to your users.

DevOps vs Deployment Pipelines

1 Create a pipeline

Start by creating the pipeline you'll use for managing and deploying the workspace content

2 Assign your workspace

Select your workspace and assign it to a deployment stage (development, test, or production).

3 Develop and test your content

Manage, preview, and compare your workspace content until its ready for releasing to users

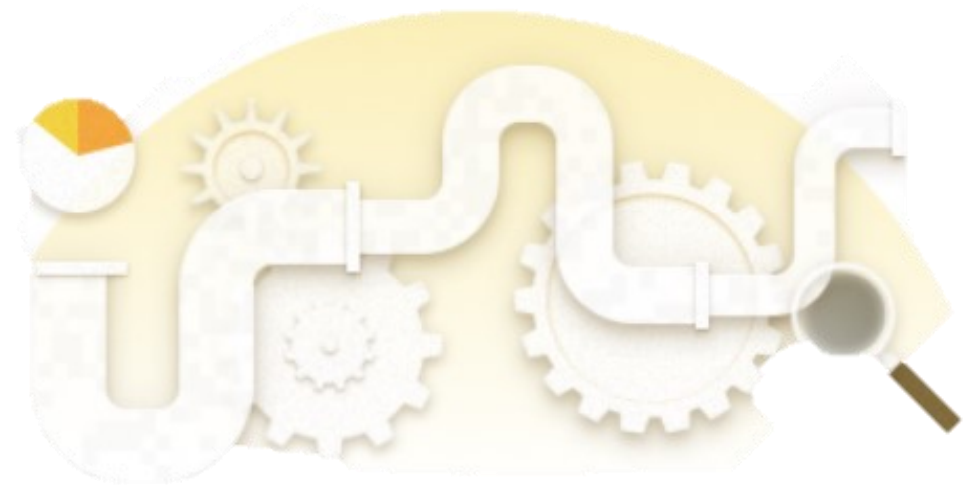
4 Share with your users

Deploy your content to production and share it with your organization

Create a pipeline

How it works

- Meta data deployment
- Incremental deployment
- Requires Premium! (must be P-sku in production!)
- No dataflow support (yet)
- No versioning (yet?)





Development

Design, review, and revise your content in a development workspace. When it's ready to test and preview, deploy the content to the test stage. [Learn more](#)

Documentation demo

DATASETS REPORTS DASHBOARDS

5 Refresh now 5 5

Select related X 3 selected

Historical sales

MyFoods income

Product revenue

✓ Sales analysis drilldown

+ New

✓ Sentiment analysis

Historical sales

✓ MyFoods income

Show less ^

[Publish app](#)

[Deploy to test](#)

Test

Test and verify your content in a preproduction workspace. When it's ready to distribute, deploy the content to the production stage. [Learn more](#)

Documentation demo [Test]

DATASETS REPORTS DASHBOARDS

4 Refresh now 3 5

Historical sales

MyFoods income

Product revenue

Sentiment analysis

Historical sales

MyFoods income

Show less ^

[Publish app](#)

[Deploy to production](#)

Production

Your content has been tested and is ready to distribute to your consumers as an app or by access to the production workspace. [Learn more](#)

Documentation demo [Produ...]

DATASETS REPORTS DASHBOARDS


4 Refresh now 3 5


Show more v


[Publish app](#)

[Update app](#)

Deployment settings


 Documentation demo

 Development
Design, review, and revise your content in a development workspace. When it's ready to test and preview, deploy the content to the test stage. [Learn more](#)

 Test
Test and verify your content in a preproduction workspace. When it's ready to distribute, deploy the content to the production stage. [Learn more](#)


Documentation demo

DATASETS 5 [Refresh now](#) | REPORTS 5 | DASHBOARDS 5

Show more  [Publish app](#) [Deploy to test](#)

Documentation demo [Test]

DATASETS 5 [Refresh now](#) | REPORTS 5 | DASHBOARDS 5

Show more  [Publish app](#) [Deploy to production](#)

← Sales analysis drilldown

Create rules defining parameter values and data sources for this dataset. These rules will be applied when deploying to this stage. You can go to [dataset settings](#) to edit parameters and data sources directly. [Learn more](#)

▾ Data source rules



No rules were added yet

Define the data source that will be connected to this dataset.

[+ Add rule](#)

▸ Parameters rules



Power BI Deployment Pipelines



Working with multiple users is a native functionality



Meta data and incremental deployments is default



Requires Power BI Premium



No versioning capability



No support for dataflows



Azure DevOps



Working with multiple users is a native functionality



Full overwrite at every deployment, unless you customize to use XMLA



Works for both Pro and Premium



Azure DevOps repositories can be used for versioning



Dataflow support can be added by customizing the pipelines

Comparison

Functionality	Azure DevOps	Deployment Pipelines	Better option
Working with multiple users	Yes	Yes	-
Incremental deployment	No	Yes	Deployment pipelines
Meta data deployment	No	Yes	Deployment pipelines
Requires Power BI Premium	No	Yes	DevOps
Versioning	Yes	No	DevOps
Dataflow support	Yes	Yes (preview – June 2021)	DevOps (because preview state)
Integration with other processes	Yes	Yes (preview – May 2021)	DevOps (because preview state)
Customization	Yes	No	-

Why you should care about Power BI Deployment Pipelines

ON [JULY 9, 2020](#) / BY [MARC](#) / IN [POWER BI PREMIUM](#), [POWER BI SERVICE](#) / [EDIT](#)

After a short holiday break, it is time for a new blog post! This time about one of the most exciting functionalities in Power BI that has been released in the past release wave, Power BI Deployment Pipelines!

In this blog I will elaborate on what Power BI Deployment Pipelines are, why it is an important part of your landscape and a comparison to other options you

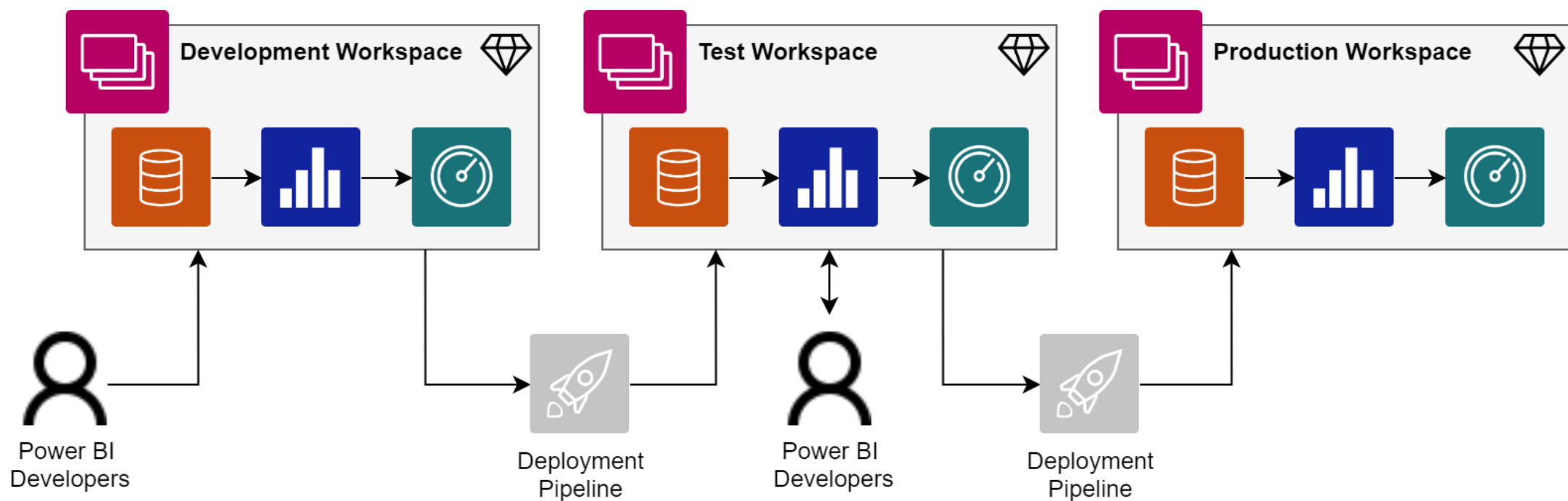
SEARCH



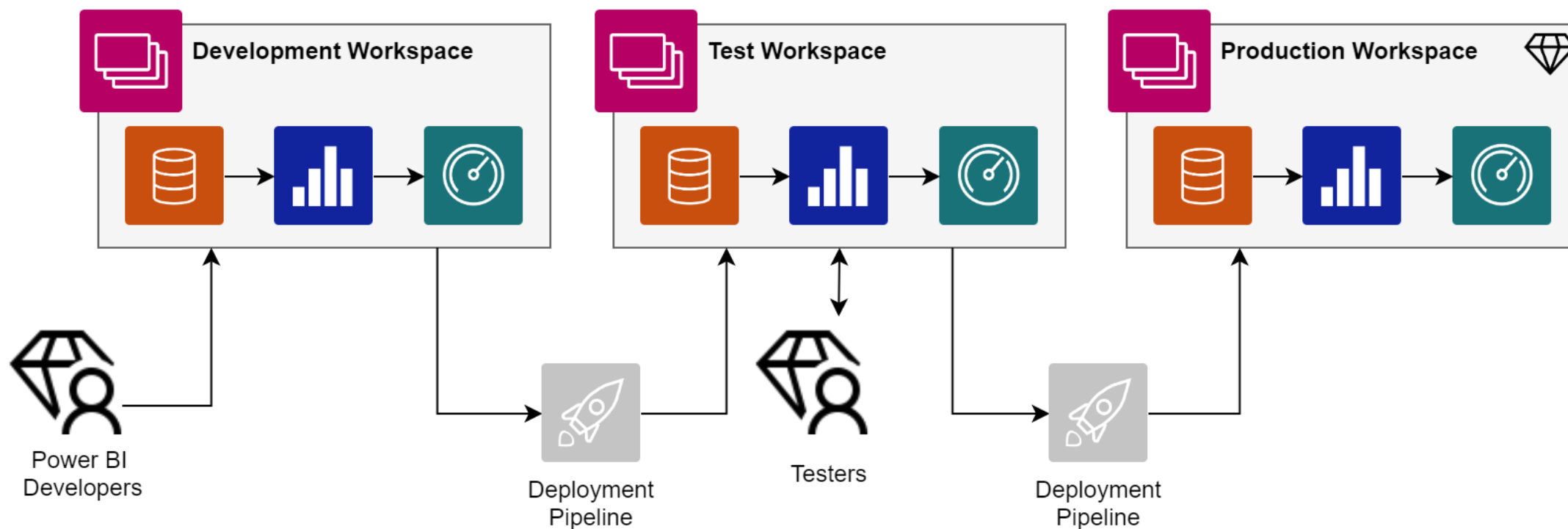
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Default setup



Possible option to lower capacity allocation



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Leverage Power BI Deployment Pipelines with Premium per user licensing

ON [OCTOBER 5, 2020](#) / BY [MARC](#)

/ IN [DEVELOPING](#), [POWER BI PREMIUM](#), [POWER BI SERVICE](#)

At Microsoft Ignite, there were two really exciting announcements when it comes to enterprise features for Power BI. Both directly took my attention, as well as for many others. Obviously, the first one is Power BI Premium per user (PPU) licensing. Secondly, Deployment Pipelines reached General Availability!

Two super important features for enterprises and the maturity of Power BI! Let's have a look at both announcements and how these announcements together will have a massive impact!

SEARCH



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Roadmap

Deployment pipelines - dataflows support

02/03/2021 • 2 minutes to read •  

Important

Some of the functionality described in this release plan has not been released. Delivery timelines may change and projected functionality may not be released (see [Microsoft policy](#)). Learn more: [What's new and planned](#)

Enabled for	Public preview	General availability
Admins, makers, marketers, or analysts, automatically	Jun 2021	-

Feature details

Dataflows is an essential part of the Power BI data pipeline. In this feature, we'll add additional capabilities for managing dataflows, including:

1. detecting changes that are made to a dataflow and highlighting those changes in the pipeline **compare** feature.
2. deploying new and updated dataflows across the lifecycle stages (dev/test/prod).
3. maintaining the relationship of dataflows with datasets across deployments and pipeline stages.

Dataflow support – June 2021 release

The screenshot displays the Power BI Deployment Pipelines web interface. The browser address bar shows the URL: <https://dxt.powerbi.com/pipelines/c0fdb115-69e0-4728-9a3f-6f5b1ed3ba7f>. The page title is "MVP summit demo" with the subtitle "Demo pipeline of MyFoods.com".

The interface is divided into two main sections: "Development" and "Test".

Development Stage:

- Header: "Development" with a "Learn more" link.
- Description: "Design, review, and revise your content in a development workspace. When it's ready to test and preview, deploy the content to the test stage."
- Content: "MyFoods Sales [Development]" with a shield icon.
- Navigation: "DATAFLWS" (1), "DATASETS" (4), "REPORTS" (5), "DASHBOARDS" (2). A "Refresh all" button is next to the datasets count.
- Select related: A dropdown menu is open, showing "1 selected". The list includes:
 - Product Orders (selected, with a "Differs" button)
 - Historical sales
 - MyFoods income
 - Product revenue
 - Sales analysis drilldown
 - Historical sales
 - MyFoods income
 - Product revenue
- Buttons: "Show less ^", "Publish app >", and "Deploy to test".


Test Stage:

- Header: "Test" with a "Learn more" link.
- Description: "Test and verify your content in a preproduction workspace. When it's ready to distribute, deploy the content to the production stage."
- Content: "MyFoods Sales [Test]" with a shield icon and deployment info: "Deployed: 3/04/2021, 4:30:30 PM".
- Navigation: "DATAFLWS" (1), "DATASETS" (4), "REPORTS" (5), "DASHBOARDS" (2). A "Refresh all" button is next to the datasets count.
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- Buttons: "Show less ^", "Publish app >", and "Deploy to production".

A "Compare" button with a circular arrow icon is located between the two stages, with a "1" indicator below it.

Roadmap

Deployment pipelines - automation and Azure DevOps integration

09/16/2020 • 2 minutes to read • 

📌 Important

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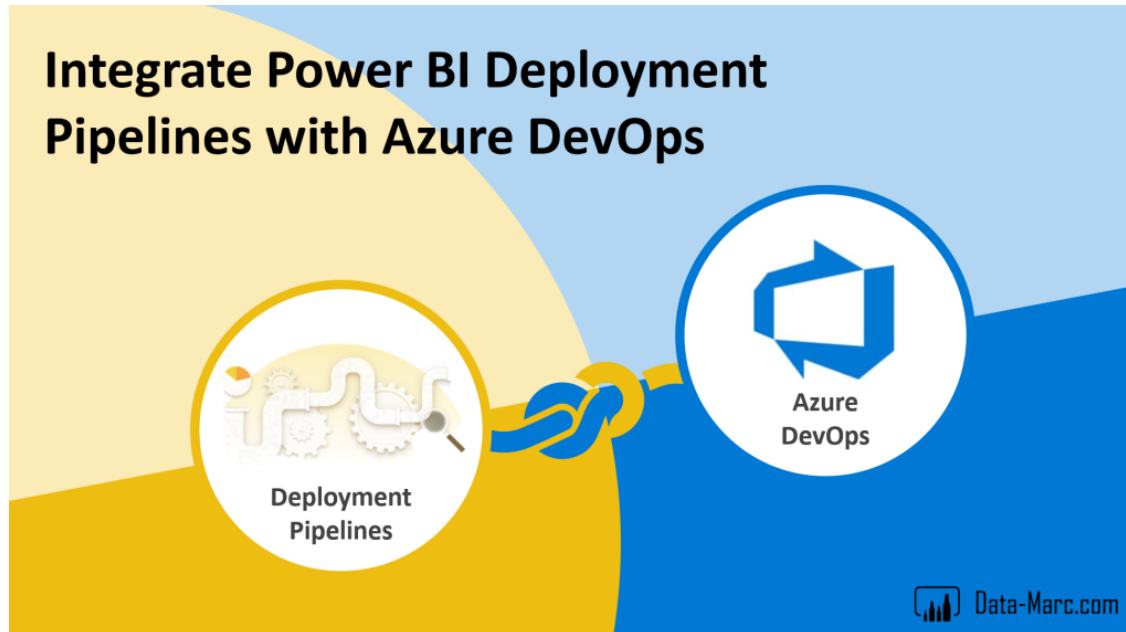
Enabled for	Public preview	General availability
Admins, makers, marketers, or analysts, automatically	Mar 2021	

Business value

Many enterprises use Azure DevOps or GitHub to manage their data products. Those enterprises will now have the ability to connect externally into a Power BI deployment pipeline and trigger deployment of content updates. This opens plenty of use cases, such as deploying multiple pipelines at the same time, scheduling deployment to run at specific hours, or managing the deployments through Azure pipelines and leveraging all of its CI/CD capabilities.


Feature details

Better together!



Better together!







Visual Studio | Marketplace

Sign in 

Azure DevOps > Azure Pipelines > Macaw Power BI Extensions



Macaw Power BI Extensions

Macaw |  541 installs |      (1) | Free

Power BI release manager tasks for VSTS.

Get it free


Overview Q & A Rating & Review

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- Report tasks
 - Create or Update Power BI Report
 - Delete Power BI Report
 - Delete Power BI DataSet
 - Update the parameters values for the specified dataset
- Pipeline tasks

Agent job

 Run on agent



Power BI Group Tasks: Create
Power BI: Group Tasks



Power BI Report Task: Create
Power BI: Report Tasks



Categories

Azure Pipelines

Wrap up

Professionalize your deployment process

Easy **roll-back** if needed with automated versioning

Roll-out **more than only Power BI** in one go using DevOps!

Deployment pipelines is worth using! But not complete yet.

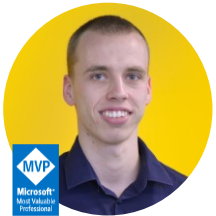
XMLA read/write is even more awesome!

Combine them, as they are **better together!**

LET'S
RECAP...

Thanks for attending!

[Https://data-marc.com/?s=Deployment](https://data-marc.com/?s=Deployment)



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