# Establishing a Power BI Center of Excellence

*Author: Tyler Chessman (github.com/Tylerchessman)*

*Initial Creation: April 26, 2021 | Last Updated: 5/21/2021 12:01:00 PM*

## Summary

There are several publicly available resources that discuss and describe a Center of Excellence (COE) for an enterprise Power BI environment. This document is intended to introduce these existing resources. Key pieces of information have been extracted/synthesized to provide a starting point i.e., succinct, practical guidance for defining and implementing a COE. Suggested action items, along with highlights from an initial (and ongoing) implementation (“case study”), are also included.

## What is a Center of Excellence (COE)?

Using their internal BI [transformation](https://docs.microsoft.com/en-us/power-bi/guidance/center-of-excellence-microsoft-business-intelligence-transformation) as a backdrop, Microsoft describes a COE as a team that’s responsible for “defining company-wide metrics and definitions” – and a business function the organizes “people, processes, and technology components into a comprehensive set of business competencies and capabilities.” To deliver value and business success, the COE can include “change initiatives, standard processes, roles, guidelines, best practices, support, training”. A critical part of the COE is to deliver “discipline at the core” and “flexibility at the edge” i.e., a means of empowering managed self-service BI that builds on top of the core metrics/models provided by the central BI team.

Chris Wagner (analytics architect at Rockwell Automation, a MSFT MVP, and a member of the PBI Client Advisory Board Member) focuses on relational and enablement capabilities in his September 2020 Microsoft Business Application Summit presentation ([How Rockwell Automation is building a world-class Power BI Center of Excellence - YouTube](https://www.youtube.com/watch?v=Qm73y1ce7tc)). A COE is developed by building connections and creating partnerships, establishing regular touch points, and focusing on user enablement. Internal communities bring people together by finding internal champions, connecting with PBI user groups and the PBI team at Microsoft, and local partners. Making things easier for end-users (e.g., providing themes, "golden" data sets, sample Apps, and a Teams site for collaboration) helps the COE focus outward to enable the business.

During his [interview](https://www.youtube.com/watch?v=bkrutXuMUQE) with Kasper de Jonge, and in his [blog posts](https://smartpowerbi.co.uk/2020/10/10/power-bi-centre-of-excellence-what-and-why-part-1-of-pbi-coe-series/), Alex Garcia (head of a PBI COE for “one of the largest Power BI implementations in the world”) asserts that a COE helps businesses “maximise the benefits realisation, fast track the ROI, provide an all-around greater experience” while minimizing risks and downsides associated with self-service BI tools. The COE will provide guidelines and best practices to help the organization leverage all of the PBI Platform benefits (existing and new) – while ensuring a “safe, controlled, and governed environment”.

Closely related to Power BI, the PowerApps Center of Excellence [Starter Kit](https://powerapps.microsoft.com/en-us/blog/introducing-the-powerapps-center-of-excellence-starter-kit/) states that a COE “drives innovation and improvement and brings together like-minded people with similar business goals to share knowledge and success, while at the same time providing standards, consistency, and governance to the organization.” The responsibilities of the COE fall into the four areas of administration/governance, nurturing, supporting, and operating the environment.

These perspectives help to frame the purpose of a PBI COE – and provides a good starting point for implementation efforts. A potential summary definition for a Power BI COE is **a team who provides leadership, best practices, resources, and guidelines to help an organization maximize the benefits of Power BI in a safe, controlled environment.**

#### Suggested Action Item(s)

* *Review the external links at the end of this document – and read/watch existing COE resources that resonate with your environment.*
* *Establish an initial definition of a COE for your organization. Be prepared to revisit and revise based on justification, scope, and priorities.*

#### Case Study

ABC Company, a large manufacturer in the U.S., had an existing footprint of 1000 active Power BI users, along with two Premium capacities. An engineering group within the organization, in the process of migrating an on-premise Hadoop environment to an modern data warehouse platform in the cloud, recently began ramping up its usage of Power BI. Consisting of engineers, data analysts, and several hundred end-users, there was concerns around data duplication, deployment lifecycle management, and establishment and implementation of best practices. A director of data engineering, within the group, reached out to Microsoft to talk about his concerns and seek input/guidance for moving forward.

## Getting started with a COE

### Step 1 – Clarify and Justify

Adjust (as needed) the above definition to build a justification for investing in a COE. One suggestion is to use Alex Garcia’s [idea](https://smartpowerbi.co.uk/2020/10/10/building-the-business-case-for-a-power-bi-centre-of-excellence/) of focusing on objectives and activities, their associated impact/benefits – along with the risks of *not* achieving these objectives. The definition should reflect what is most important to the organization.

#### Suggested Action Item(s)

* *With your definition in place, write up a short justification as to why a COE is needed – and the risks of not having one.*

#### Case Study

*ABC Company reviewed the existing links/resources – and began to put in place as set of informal goals/objectives for a COE. The director scheduled an advanced training workshop for the data analysts/power users. He also scheduled a series of bi-weekly calls with the local Microsoft account team to talk through tactical issues e.g., deployment lifecycle options. Based on perceptions within the organization (the term “COE” was associated with a bureaucratic – rather than innovate – group) , the director ultimately decided not to use the term COE – and instead focused on “operationalizing Power BI practices”.*

### Step 2 – Scope the COE & Identify the Team

The practices of purposes of a COE will be driven in large part by priorities – and will likely change over time. With that said, Power BI is a technology that deals with organizational data; users need training, the technology needs to be monitored, and the data needs to be secured. In Alex Garcia’s [post](https://smartpowerbi.co.uk/2020/10/22/scoping-a-power-bi-centre-of-excellence-part-3-of-pbi-coe-series/), the scope of the COE includes architecture and strategy guidance, community enablement, governance, development , and run (monitoring, troubleshooting, licensing). The PowerApps COE [starter kit](https://powerapps.microsoft.com/en-us/blog/introducing-the-powerapps-center-of-excellence-starter-kit/) lists four responsibility area – administration/governance, nurture (i.e. training, guidance, tools), support, and operations. Chris Wagner’s talk is very focused on community enablement. As a potential starting point, here is a diagram of the scope discussed in Alex’s post –

Diagram

Description automatically generated

The COE scope will drive team requirements, but typical roles include:

* Business Sponsor – someone who understands the benefits of PBI in general – and in the objectives/activities of the COE in particular. May have a particular point-of-view in terms of an adoption roadmap. Large organization (especially a decentralized org) may have more than one.
* PBI Champion – help evangelize PBI; often a subject matter expert, with an analytical background. Works with the sponsor to promote and deploy and PBI across a division/organization. In a large organization, there can be multiple champions (e.g., per department, division, functional area).
* COE lead – potentially the sponsor, champion, or BI architect – responsible for selling the idea of the COE, building the COE team, identifying and managing the implementation of activities, and tracking COE progress/effectiveness.
* BI Architect – representative of an enterprise BI team, understands data warehousing process - including reporting and analytics. Will help set standards for central reporting.
* Power User – representative of self-service BI community, works in an analytical role, and will have a strong POV on how PBI can serve the power user community.

Supporting roles / extended v-team roles may include:

* a O365 Global Admin/PBI Administrator(s)
* Data Steward(s)
* Security Architect

#### Suggested Action Item(s)

* *With your definition in place, write up a short justification as to why a COE is needed – and the risks of not having one.*

#### Case Study

*Given there was already an existing Power BI community, along with an admin team, the director put focus on supporting the roughly 400 users within the core engineering group – while trying to indirectly influence/assist the existing 1000 thousand users. His team was virtual – and initial efforts were designed to address issues related to self-service analytics – specifically, the use of legacy tools, reliance on experts with limited bandwidth, and lack of best-practices related to data acquisition and refresh.*

### Step 3 – Setup Base-Level Monitoring

This step may seem a bit “early” in the overall process of building a COE, but It is essential to collect/expose usage data (along with security related events) to help deliver a “safe, controlled environment”; monitoring can also help identify potential community members/champions (see next step). Monitoring may be implemented by an administrative/operations team and, in addition to usage monitoring, should also include the performance related information. Base-level activity is available in the Admin portal (Usage metrics), but most organizations will want to extract/store activity data. To create a custom user activity repository, the Power BI Activity Logs can be [downloaded](https://powerbi.microsoft.com/en-us/blog/the-power-bi-activity-log-makes-it-easy-to-download-activity-data-for-custom-usage-reporting/) via REST API and PowerShell cmdlets. More information is available here - [Track user activities in Power BI - Power BI | Microsoft Docs](https://docs.microsoft.com/en-us/power-bi/admin/service-admin-auditing). A reference architecture (think of it as a quick-start) for extracting, storing, and reporting against these logs can be found here – <https://github.com/tylerchessman/PBIMonitoring>. Note: At some point in the near future, workspace/tenant usage information will integrate with Log Analytics, making it even easier to set up a monitoring framework; check the [Power BI Blog](https://powerbi.microsoft.com/en-us/blog/) for updates.

Performance monitoring for Premium G2 utilization is available via an App – see [Premium Gen2 utilization analysis app now available | Microsoft Power BI Blog | Microsoft Power BI](https://powerbi.microsoft.com/en-us/blog/premium-gen2-utilization-analysis-app-now-available/)

To enable *users/teams* to see usage/performance related data for the reports within their own workspaces, first enable usage metrics (see [Power BI admin portal - Power BI | Microsoft Docs](https://docs.microsoft.com/en-us/power-bi/admin/service-admin-portal#control-usage-metrics)). Then, make sure report authors know how to create/use these metrics - [Monitor usage metrics in the new workspace experience (preview) - Power BI | Microsoft Docs](https://docs.microsoft.com/en-us/power-bi/collaborate-share/service-modern-usage-metrics)

Related to the concept of monitoring, the COE team is likely going to be asked (and expected to help answer) questions related to impact analysis, data lineage/source usage. Typical questions may include –

* Are there any reports that use the XYZ database?
* Where the data in this Power BI dataset come from?
* Who populated the database (that this Power BI report uses)?

Some of these questions can be answered directly in the Power BI Portal, via the [lineage](https://docs.microsoft.com/en-us/power-bi/collaborate-share/service-data-lineage) and [impact](https://docs.microsoft.com/en-us/power-bi/collaborate-share/service-dataset-impact-analysis) analysis views available within a workspace. For a more holistic view (including the ability to easily navigate across the entire PBI tenant, an external catalog/lineage tool may be beneficial. In Public Preview (as of April 2021), [Azure Purview](https://azure.microsoft.com/en-us/services/purview/) is an example of a product that can complement the capabilities in Power BI.

A final note about monitoring – organizations typically have robust goals/policies related to governance and desired state/usage. Common examples include –

* There needs to an approval process for creating a Workspace
* Users should not be able to publish a dataset with data from the XYZ system – unless approved by …
* Sharing content with external users is prohibited (except for …)

Some of these policies can be enforced “up-front” (for example, see the documentation/guidance on adjusting tenant-level settings - [Tenant settings guidance - Power BI | Microsoft Docs](https://docs.microsoft.com/en-us/power-bi/guidance/admin-tenant-settings)). Other policies may instead need to be communicated, monitored, and remediated. The COE will need to strike the appropriate balance between governance/enforcement – and enablement/empowerment.

#### Suggested Action Item(s)

* *Implement monitoring at the tenant level; develop a plan to share this information with the COE team*
* *Configure self-service monitoring for workspace owners.*

#### Case Study

*The organization already had logging/monitoring of PBI activities in-place, but the data and associated reports were limited to a small IT team. It was recommended to give the extended team access to the reports.*

### Step 4 – Build and Empower the Community

#### Build

Building the community is a key effort of a COE – providing leadership to deliver best practices, resources, and guidelines. If an organization is early its adoption of PBI, community build out can be integrated as part of the deployment (refer to Tyler’s Power BI Enterprise Deployment Workshop for help with a rollout approach – including roles, provisioning, initial training, and evangelism - [GitHub - tylerchessman/PBIEnterpriseDeploymentWorkshop: Instructor-led workshop for helping administrators learn how to deploy, manage, and monitor Power BI.](https://github.com/tylerchessman/PBIEnterpriseDeploymentWorkshop)). For a customer example, refer to Schlumberger’s three-phase deployment approach (Pilot, Stealth Launch, Official Launch); they discuss their implementation at the 2019 Business Applications Summit - [Customer stories with Fiserv and Schlumberger - BRK1014 - YouTube](https://www.youtube.com/watch?v=yKRdZW5WUVY). (note: Schlumberger starts at 26 minutes into the video; their deployment discussion begins at around 34 minutes. Their COE discussion begins at ~45:30).

If PBI is already broadly deployed (but there isn’t an established community), consider polling existing users to understand the key areas of strength, issues, challenges, and goals; if available, use the monitoring reports to identify key users. Build the community by using the practical tips discussed in the Rockwell presentation (refer to summarized notes at the end of this document) e.g.,

* Start by finding the internal champions that can help “shepherd the platform along”.
* Enhance the internal community with connections to local user groups, the PBI team at Microsoft (via PBI forums), and (where applicable) local partners.
* Define and begin delivery of regular touch points (~8:35 into the Rockwell video). This can include:
  + a monthly user group (which would include overview of updates, sample reports/solutions)
  + Re-post/summarization of articles, videos, blog posts. Use this to keep folks excited, help them see what others are doing, etc.
  + Weekly power hours – see ~11:00 into the video.

#### Empower

By building a community, establishing regular touch points, and encouraging the exchange of information, a COE is on its way to enabling end-users. Remember the COE needs to be able to serve both new and existing users – at different skill levels. For example, if an analyst or BI practitioner wanted to start leveraging Power BI, how would they begin? Where would they go for tooling (e.g., Desktop) and licensing? What about initial training – is this something done internally, or are there links to external training resources? Similarly, how does an organization empower a “end-user”? End-users will not create data models (they may not even create reports) but they will still want to learn how to find reports, how to use bookmarks, set up subscriptions, etc. Is there an onboarding site, is there end-user training available?

With regular touchpoints and community interactions, the COE will be able to see what user are doing, and continue to find opportunities to educate, make things easier and more efficient, and refine the guardrails (governance) needed for a safe, controlled environment.

#### Suggested Action Item(s)

* *Start small – pick one area that can deliver a win for the end-user community.*
* *Combine community events/training with actionable follow ups i.e. encourage a hear-see-do approach where possible.*

#### Case Study

*Noticing many users were extracting data to their local machine (using a legacy home-grown tool), copying the data (as files) to SharePoint folders, and then building the Power BI Desktop reports (from the files in SharePoint), the group decided to first invest in building out a playbook for self-service analytics. The playbook would -*

* *show users how to leverage Power Query to connect to some of the more popular organizational data sources (including the new cloud data warehouse)*
* *give step-by-step guidance of how to build, publish, and refresh a report*
* *provide links to workspaces with example reports*

*To introduce the playbook, it was suggested to first select and work with a small “pilot” group to use the playbook guidance in refactoring an existing report. The group could then present (at an upcoming internal user-group meeting) their implementation – and talk about how the new approach saved time, reduced dependency on automation scripts, and eliminated potential points of failure. At the end of the group meeting, the playbook would be introduced as the “leave-behind”, thus supporting a hear-see-do approach.* ***Note****: to help minimize costs, the program manager in charge of this effort leveraged an intern program to help develop the playbook.*

*In parallel to the playbook, the team also begin building a training course – based on publicly available content, but customized to include common ABC data source and oriented around how to* ***address specific business problems*** *e.g., analyzing product yield.*

### Step 5 – Repeat Steps 1-4

As an organization’s implementation and adoption of Power BI matures, so will the COE - though certain principles (guiding, enabling, empowering, etc.) should remain consistent. Power BI is also itself a fast-moving technology; new capabilities are being introduced each month, which will require additional guidance, training, and governance. As Chris Wagner states at the end of his talk, keeping focused on enabling the business (turning the focus *out* instead of *in*) will help the COE remain relevant and valuable.

# External Links/Resources

## COE Rockwell presentation - [How Rockwell Automation is building a world-class Power BI Center of Excellence - YouTube](https://nam06.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DQm73y1ce7tc&data=04%7C01%7Ctylerc%40microsoft.com%7C96347d35d12340de0dec08d8d79ff99e%7C72f988bf86f141af91ab2d7cd011db47%7C1%7C0%7C637496429491577972%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=9OfauAgiASHPk9IXst5VpAGsOZDGD2dr76MFnSLdXZo%3D&reserved=0)

* Presentation by **Chris Wagner**, Analytics Architect at Rockwell Automation, a MSFT MVP – and a member of the PBI Client Advisory Board Member
* What it takes to build out a COE
  + Building Connections and Creating Partnerships
  + Regular Touch Points
  + Focus on enablement
* What is a COE?
  + Building out an internal community – bringing people together
    - Finding those **internal champions** – can be simple lunch-n-learns – be on the lookup for other champions – make those connections that can help shepherd the platform
    - Connecting with **PBI User Groups** – connect with the local group, hundreds of them world-wide – learn from others and share
    - Connecting with the **PBI team at Microsoft** – a very connected team, responsive to the community
    - Connect with local **Partners** – realize you cannot do everything by yourself.  We all have limited time and resources; gold partners can facilitate and help ensure work gets done
* Where do we start?

|  |  |
| --- | --- |
| * Realize some of the bullets (to the right) will take time – not everything done at once…. * Monthly User Group   + Should be reviewing new PBI features/functionality   + Show new reports, what people are doing   + A forum to possibly see where people may be doing the same thing – learn from one another   + Create excitement for people who are working with PBI.  Foster community and grow knowledge * Articles/Blogs – good way to share knowledge * Weekly Power Hours – big success at Rockwell   + 8-10 am on Fridays   + Sessions to bring community together – work through problems people may encounter.   + See-Do-Teach philosophy – internalize learnings   + Oppty for others to teach others – and ability to cross train e.g., I know PBI, but not Power Apps nearly as well | Graphical user interface  Description automatically generated with medium confidence |

* More about Weekly Power Hours
  + First event 600 people, but now a more manageable 50-70 users
  + Use Teams to facilitate Power Hours – it something is more challenging, table for a meeting outside of Power Hour – or step outside to a different Teams Meeting – join back later…
  + Have had their Partner(s) participate in Power Hours as well – very successful
  + Have found additional champions through Power Hours as well (e.g., finding someone who, using PowerAutomate, automated an entire process for a division)
* Making things easy for PBI Creators and Consumers…

|  |  |
| --- | --- |
| * Looking at the Road to Analytics, and putting guard rails for…   + Security   + Noisy Neighbor protection * Working with end-users, seeing what they are doing, and helping educate to make things easier and more efficient   + Example (20:00 into video) – users had built a lot of slow reports – were using PBI for effectively paginated reports   + Showed users how to do this with PBI Paginated reports (.rdl) and helped improve perf * Making sure a core set of Resources are available (take these one step at a time) – examples include building Themes (careersbi.com – some of this collateral available) * Publish all of this via PBI Sample App – so people can consume (and a Team Site for files that may not be easily shared in PBI) | Text  Description automatically generated |

* Closing thoughts/etc
  + When you are looking at a community of practice, focus on how you can enable those in the business – turn focus out instead of in.

## COE – Online Power BI Documentation (<https://docs.microsoft.com/en-us/power-bi/guidance/center-of-excellence-microsoft-business-intelligence-transformation>)

* Using their internal journey (within the Finance and other internal teams) as a backdrop, Microsoft talks about a process of delivering “…centralized BI managed by IT and extending it with self-service BI (SSBI) led to success. We describe it in two creative ways: *discipline at the core* and *flexibility at the edge*.”
  + Discipline at the core – IT retains control by curating a single master data source
  + Flexibility at the edge – analysts in Finance, Sales, and Marketing are empowered to conduct *managed self-servce BI (SSBI)*
* Microsoft defines a COE as “a central team that’s responsible for defining company-wide metrics and definitions, and much more”.
  + A COE is also a “business function” that organizes people, processes, and technology components into a “comprehensive set of business competencies and capabilities”.
* A COE is critical to delivering value and maximizing business success – which can include
  + Change initiatives
  + Standard processes
  + Roles
  + Guidelines
  + Best Practices
  + Support
  + Training
* Establishing a COE - [Establish a Center of Excellence - Power BI | Microsoft Docs](https://docs.microsoft.com/en-us/power-bi/guidance/center-of-excellence-establish)
  + Also known as the BI Platform, the team is broken out in Shared capabilities and dedicated delivery roles.

## Building a PowerBI Center of Excellence with Alex Garcia

* Interview with Kasper de Jonge and Alex Garcia – head of PBI COE for a large organization.
* [Building a Power BI Center of Excellence with Alex Garcia - YouTube](https://www.youtube.com/watch?v=bkrutXuMUQE)

## Introducing the PowerApps Center of Excellence Starter Kit

* [Introducing the PowerApps Center of Excellence Starter Kit | Microsoft Power Apps](https://powerapps.microsoft.com/en-us/blog/introducing-the-powerapps-center-of-excellence-starter-kit/)

## Schlumberger PBI Rollout and COE discussion – 2019 Business Application Summit

* Video available here - [Customer stories with Fiserv and Schlumberger - BRK1014 - YouTube](https://www.youtube.com/watch?v=yKRdZW5WUVY), begins at ~26 minutes.

## COE for Power Platform – Microsoft Consulting Services (MCS)

Available in two delivery models, the Center of Excellence (CoE) for Power Platform is a MCS primed engagement where Microsoft will use a hands-on approach in which joint customer and Microsoft teams will drive cultural change, adopt an innovative way of working, and embed use of cloud-native Power Platform (Power Apps, Power Automate, Power BI, AI builder, Portals and Virtual Agents) technology and principles.

* COE Essentials is a 4-week engagement with 2 resources which aims to establish core Center of Excellence principles and governance processes for the Microsoft Power Platform. This reduces the time to value for an enterprise customer by providing the necessary enterprise foundational capabilities, governance processes, tools, templates and IP as early as possible in the customer's Power Platform journey.
* COE Enterprise is a larger 3-6-month engagement with 6-8 resources consisting of 5 enterprise work streams whereas the maturity of the customer center of excellence team increases during the engagement, Microsoft participation will be reduced. In this engagement we will also go through iterations of app implementation with the customer with the goal to leave the customer team with capability to continue the Center of Excellence (CoE) with limited involvement from Microsoft.

*Please contact your Microsoft account team to learn more about this* [*offering*](https://servicesportfolio.net/Offer/Index?Title=Center%20of%20Excellence%20for%20Power%20Platform&OID=1724)*.*