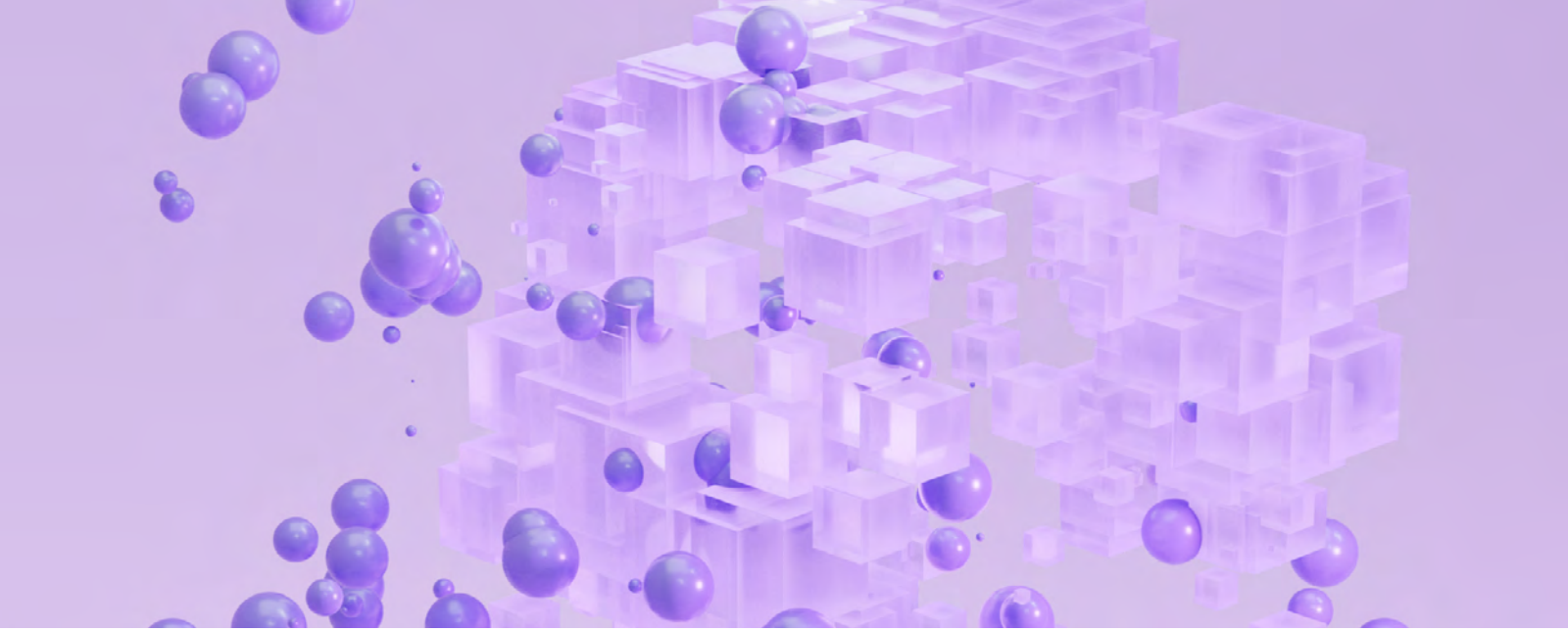
Microsoft 365

Make building collaborative apps easy

with Microsoft Teams and Microsoft Power Platform integration



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Executive summary

In today's world of hybrid work, there's a growing demand for businesses to build the next generation of apps centred around collaboration. We need a new class of collaborative apps that encourage user productivity, combining all modes of collaboration – including meetings, messaging, document collaboration and business process automation – that are integrated to get work done faster and more efficiently. Although this integration across the organisation without having to switch across various software platforms gives developers the chance to build new types of collaborative apps, there just aren't enough developers to help make this happen.

Adopting low-code app development platforms helps IT teams serve their business customers better than ever before. Microsoft Power Platform allows app makers or developers to build apps quickly, and Microsoft Teams allows teams to chat, meet, call and collaborate all in one place. Together, Microsoft Teams and Power Platform become a powerful duo, collecting and sharing critical information, automating repetitive tasks and allowing people to chat with interactive bots.

Teams and Power Platform integration provides the ability to extend the reach of app development platforms to app makers. Instead of relying on traditional full-stack developers, any app maker with an understanding of business domains can create simple business apps through modelling and a graphical interface. Traditional app developers can work with a new group of app makers to seamlessly extend and scale this collaborative app building capability using the breadth of complex functions and custom connectors. Developers using code can provide the required application programming interfaces (APIs) as custom connectors for any app maker to consume and make enterprise-ready apps. Full-stack app developers can work more quickly with this platform by eliminating the need to build core modules for apps from scratch. Thus, Power Platform, the low-code app and workflow suite, speeds up the iteration and development of collaborative apps in Microsoft Teams.

To better understand what low-code platforms offer to app makers and developers – and how to get started working with them – we've pulled together the critical information in this eBook. This eBook is also targeted to practice leads, partners and systems integrators (SIs), providing insight into how they can use low-code application platform capabilities to serve their clients by using less technically skilled resources. Teams and Power Platform help them with rapid application prototyping through diverse and less technically skilled resources while streamlining the application development ecosystem.

Purpose

The purpose of this eBook is to summarise and highlight how app makers and developers can work together using the tools of their choice to build apps faster. App makers can use Power Platform in Teams to build collaborative business apps faster using less code, and developers can scale and extend those apps with Microsoft Azure services and other complex business logic.

Section 1

Collaborative apps are critical for hybrid work

Hybrid work is here to stay and improved collaboration is vital for everyone. However, people are struggling to stay focused with the collaboration tools and apps they need to work in today's hybrid work environment.

There are already various tools and apps at people's disposal for different tasks. Although these tools and apps are critical to business functions, people are continually switching between tasks and tools, which hinders their daily productivity. Switching between apps and tools wastes people's time and effort and creates distractions. Businesses need to build meaningful, collaborative apps where people can focus on work and spend more time on things that matter to them. There's tremendous untapped potential for businesses if we can better protect workers' attention and provide more opportunities to reduce the complexity of getting work done.

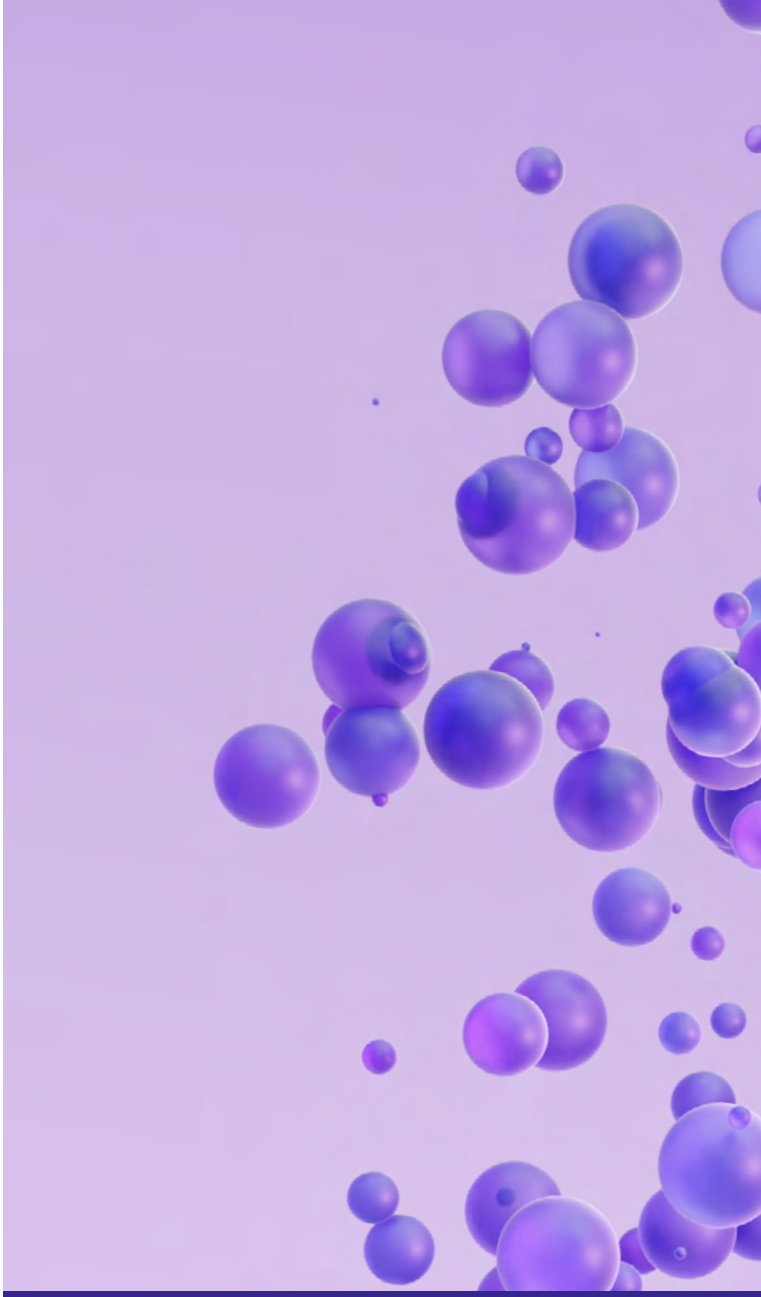
52%

of workers' time is spent dealing with unnecessary interruptions and searching for information.[1]

In a productivity study, workers across industries said that a staggering 52% of their time each week – more than half of their work productivity – was spent inefficiently due to unnecessary interruptions, including distractions from multiple tools for meetings, calls, emails and searching for information from their colleagues. Employees rate themselves as up to three times happier or more productive when they're in a flow state.[1]

The growing demand for building collaborative apps

We need a new class of apps centred around collaboration. They must be presented in rich ways across the places where people work and spend most of their time. There's a demand for apps that enhance synchronous and asynchronous modes of collaboration within real-time meetings, ad hoc messaging, document collaboration and business process automation – to improve the overall collaborative experience. These apps must combine people with business processes within the context of collaboration so that everyone can get their work done more effectively. People need to efficiently work with others and stay in the flow without switching across multiple apps, tools and datapoints.



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Space and time

Most organisations think about hybrid work only in terms of location (whether teams are in a single area or distributed). Gartner's research, however, shows that organisations must also think about time spent (whether teams are working asynchronously or synchronously).[2]

[1] Report: Work Reworked, Microsoft partnered with the London Business School and KRC Research, 2019

[2] 4 Modes of Collaboration Are Key to Success in Hybrid Work, Gartner, June 2021

Section 2

The collaborative app gap challenge

The demand for collaborative apps opens new opportunities for developers to extend existing apps and build new experiences where collaboration is at the core.

Businesses need apps centred around collaboration, integration and automation across business processes, information and data at the same place where people are increasingly meeting, learning and working. This integration and accessibility across the organisation without switching across software platforms creates opportunities for developers to create new collaborative apps.

Organisations are falling behind in meeting business needs

The challenge with custom collaborative apps and solutions is that there aren't enough developers to embrace this change.

Organisations are undergoing digital transformation at a rapid pace and there's a demand for developers to re-platform and modernise applications. Most organisations, however, struggle with having enough developers to meet this requirement. The demand for professional developers is growing at a rate that's five times higher compared to other jobs for the next 10 years.[3] IT teams are facing resource constraints in meeting the need to build the apps that businesses are demanding. They're facing developer resource constraints in building apps and modernising their existing ones and the development cycle takes too much time and effort for them to be able to keep up with the speed at which businesses change and innovate.

[3] U.S. Bureau of Labor Statistics: Software Developers, Quality Assurance Analysts and Testers

Section 3

Bridging the gap

A low-code application platform is one major way to help businesses modernise and simplify their app development portfolio. It simplifies the development complexities associated with process automation, integration and rapid prototyping.

IT leaders' and SIs' practice leads can capitalise on low-code development platform opportunities by diversifying their development teams and extending the development reach to less technical users. Low-code application development platforms provide them with the addition of less technically skilled resources in app development when serving clients or businesses, allowing them to deploy an ecosystem of solutions faster.

The low-code development platform model allows everyone, including business users or less technical users, to be developers and get involved in app development. Instead of depending or waiting on traditional developers, any user with business domain expertise (but less development experience) can build collaborative apps to solve business or client needs. Such business users are known as app makers. With the help of a low-code platform tool, app makers can envision, design, build and implement apps – for example, to simplify, automate or transform tasks and processes. Developers can engage with app makers to create apps that require more complex functionality and integration. Their strong development skills can help app makers build and extend their low-code apps. This leaves the grunt and simple prototyping work to app makers, freeing up the core development team to focus on other development tasks that require more technical skill sets.

The low-code application development approach

Low-code tools start with the idea that common components, standard code and predictable app behaviours can be captured as prebuilt components and automated processes. App makers can identify problems or client needs and create collaborative apps by virtually selecting these existing components and actions from menus. Developers can work with them to create any required custom connectors and functions requiring more development efforts. App makers can directly integrate these connectors and functions into the collaborative app to extend its reach and widen its usage.

Gartner predicts that low-code application building will gather more than 65% of all app development functions by 2024.[4]

Developers don't need to spend time building components from scratch. They get the required capabilities out of the box to build an app's core module.

Low-code tools provide a built-in app life cycle management system to build, debug, deploy and manage collaborative apps throughout the app life cycle. This simplifies the various stages of the development process for developers – from testing to debugging to deployment. The result is an accelerated process for designing, building and deploying apps.

This collaborative app development paradigm between developers and app makers – so-called 'fusion' teams – can help meet the business demand for app modernisation or any client request for SIs. Fusion teams help them meet diverse skill sets and cross-functional, cross-disciplinary teams, including developers, business managers and IT experts, to collaborate and develop faster solutions to match today's business demands. App makers can quickly build apps based on business needs and work with developers to fill in the gaps. Those who use the apps can provide suggestions and feedback on missing functionality or any required changes.

65%

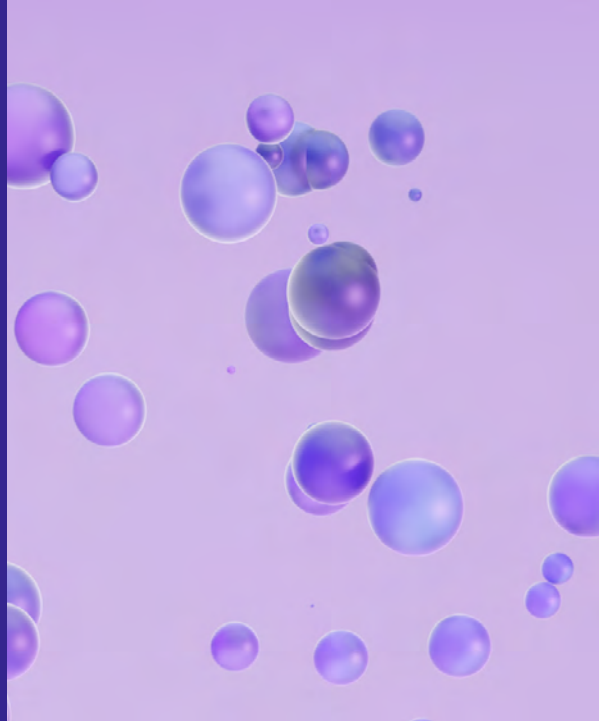
or more of all app development functions will be gathered by low-code functions by 2024.[4]

[4] The Rise of Low-Code App Development, Forbes, April 2020

Section 4

Transform with Power Platform:

The platform for every developer



Power Platform is a set of tools that includes Microsoft Power BI, Microsoft Power Apps, Microsoft Power Automate and Microsoft Power Virtual Agents.

Any developer or app maker can analyse data for insights using Power BI; create custom apps using Power Apps; automate workflows using Power Automate and build intelligent bots with a no-code interface using Power Virtual Agents. Power Platform speeds up the iteration and development of collaborative apps. With Power Platform, app makers can create a proof of concept in a few hours, create a workable app in few days and have production-ready apps by developers in a week or two. Developers don't have to worry about the core building block work of security, governance and integration; Power Platform offers out-of-the-box capabilities that support this.

Power Platform lowers development costs by up to 48% over traditional coding by increasing the speed of development and reducing the number of resources needed to maintain your apps.[5]

Power Platform lowers development costs by up to

48% [5]

[5] The Total Economic Impact of Microsoft Power Platform commissioned study conducted by Forrester Consulting, February 2021

Power Platform has data connectors, scalable AI builders and Microsoft Dataverse to generate a working app with simple integration and interaction with existing data. There are hundreds of ready-to-go connectors for Power Platform that enable app makers and developers to connect data and actions without having to code. Examples of popular connectors include Salesforce, Twitter, Dropbox, Google services and more. AI Builder lets app makers and developers add AI capabilities to the workflows and apps they create to predict outcomes and help improve business performance without having to write code.

To dive deeper into learning about how to build better applications, you can check out the Transform your business applications with fusion development learning path. Not only will this show you how a fusion development team functions and how a developer can enable their app makers to build amazing Power Platform applications or solutions, but it will also explain how to use pro-code tools and frameworks that are already familiar and comfortable, like JavaScript, ASP.NET Core web APIs and Azure API Management.

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An industry leader

Gartner Magic Quadrant names Microsoft Power Apps a leader for low code application platforms.[6]

[6] 2020 Gartner Magic Quadrant for Enterprise Low Code Application Platforms, September 2020

Power Platform: The rich development tool

The Power Platform features and capabilities mentioned earlier are great for app makers when building simple apps. Developers can work seamlessly with app makers to help solve complex technical challenges using the rich extensibility model provided by the Power Platform components.

There are hundreds of connectors to connect to Microsoft and non-Microsoft services. But if app makers want to communicate with services that aren't available as prebuilt connectors, developers can create and share custom connectors with triggers and actions to address this scenario. A custom connector is a wrapper or a proxy around an API that interacts with Power Platform and the backend service or data source. Power Platform can connect to various APIs via a custom connector focused on intricate capabilities like writing backend APIs, complex logic or integration. Developers can use Azure Functions and Azure API Management to create custom connectors to access Azure Services like Azure Logic Apps, Azure Cognitive Services and Analysis Services. They can then publish custom connectors to Power Platform for app makers to consume and easily incorporate the complex business logic into their apps. Developers can also use the HTTP connector to fetch resources from various web services authenticated by Azure Active Directory (AD) or from an on-premises web service.

Most things that developers need to do to build UI and integrate business logic and workflow can be done both rapidly and effectively in Power Platform. Developers can build more complex apps with multiple data sources, business logic and advanced controls. And if they need more custom logic on the back end, they also have all the coding environments available in Azure, including APIs and managed services like Azure Functions, Kubernetes, Cognitive Services and much more. They can build APIs as serverless functions, integrate Power Apps as part of CI/CD pipelines and publish Power Apps to Teams for increased discoverability.

Developers can use robust and rich tooling with Power Platform to easily extend apps or solutions. Power Platform provides true app development and automation experience. This includes app development and management processes for developers for testing and continuous integration and development, version control, issue tracking, one-click deployment and much more. Power Platform makes it easy for developers to build and extend Power Platform apps and solutions with native Microsoft Visual Studio and Visual Studio Code integrations. They can create their own software development life cycle (SDLC) workflows or use preconfigured templates with GitHub Actions to develop, test and deliver Power Platform solutions. These Power Platform capabilities mean that developers can easily participate in fusion teams while staying in their development tools of choice.

Inspiration

Opportunities to use Power Platform

There are endless opportunities to create business applications with Power Platform. To give an idea of where Power Platform can help, here are five examples.

Expense approvals

Use Power Apps and the Power Automate workflow to streamline and automate the workflows associated with creating, approving and controlling expense claims. Create Power BI reports to monitor pending expense claims and view expense history. Extend an app with other data sources like SharePoint or integrate it with any existing HR or accounting system to transfer requests along with status.

Internet of Things (IoT)-based applications

Build IoT-connected solutions with Power Platform. Sensor data flows to an Azure Stack Edge device and travel via Azure API management to Power Apps. Developers can build an Azure API connector that's automatically discoverable in their Power Apps studio. They can choose to show sensor data in the app and alert experts when certain thresholds are reached by adding business logic with Power Automate.

HR onboarding

Support HR and new employees during the onboarding process by creating an app in Power Apps to integrate data from other Microsoft 365 services and Microsoft Office applications. Users can centralise employee contact information and link processes, policy guides and approval workflows, and then use notification services or connectors to get notified when new employees have completed training or other onboarding processes.

IT helpdesk

Use a Power Apps template and Power Virtual Agents to build an interactive helpdesk tool to submit IT tickets, quickly find answers, track progress of open tickets and review details of previous requests. You can enable the tool to send emails or approval routing using a Power Automate flow, an approvals connector or a ServiceNow connector. Tickets can be stored in a SharePoint Issue List.

Issue reporting

Create an app using Microsoft Teams messages and Planner tasks to raise and manage issues. Employees can log issues in Teams and provide details, pick from a defined list of issue types and assign the issue to the person responsible for resolving those types of issues. The manager can review their team's issues and issue history and manage issue resolution.

Section 5

Building collaborative apps with Teams

With more than 250 million monthly active users, Microsoft Teams is how people are getting work done. When it comes to collaborative apps, they're even more effective when integrated with the Teams canvas.

Teams as a collaborative and contextual fabric

Microsoft Teams – being the shell and experience layer – enables you to collaborate at the forefront of app design. It simplifies work, allowing you to stay in the flow and become more productive and efficient. With Teams, you can plug in your cloud logic using cloud services such as Azure. You can also use the rich and low-code platform capabilities of Power Platform to write your business apps.

Azure Communication Services helps you build custom apps that interact with Teams and participants over voice, video, chat and screen sharing.

Microsoft Graph is a database where people, their relationships, meetings, documents, what's shared with whom and what's trending in the organisation are captured at the data tier.

Dataverse is where structured business process schemas live together. Fluid frameworks, connectors and adaptive cards sit on top of the databases. At the highest tier, we have Teams and Microsoft Office, with collaboration at the centre. Collaborative apps are built once on Teams and can be deployed anywhere, whether on a Windows or Mac desktop, on the web or even on mobile. Finally, integrated developer tools – Microsoft Visual Studio and GitHub – are used to extend and build collaborative apps.

Section 6

Low-code tools merge with collaboration platforms

Power Platform – a set of tools for all developers, including app makers and developers – merges with the popular, collaborative Teams platform to create the right environment for building valuable apps where workers collaborate.

Teams integration with Power Platform

Any app maker can create an entirely new category of modern collaborative apps with Teams using Power Platform. Power Platform-based apps and workflows let hybrid workers be more productive in Teams by collecting and sharing critical information, automating repetitive tasks and allowing them to chat with interactive bots. Developers can add Azure services like Analysis Services, Cognitive Services and Azure IoT Edge to these collaborative apps and make them more unique.

Dataverse for Teams is a built-in, low-code data platform used to build custom apps, bots and flows using Power Apps, Power Virtual Agents and Power Automate. It's automatically created for the team selected when you create an app or bot in Teams for the first time or install a Power Apps app from the app catalogue for the first time. It can store, manage and share team-specific data, apps and flows. It provides relational data storage, rich data types, enterprise-grade governance and one-click solution deployment.

Automate routine tasks and workflows with Power Automate

Any app maker can create workflows to automate repetitive work, including simple automation and advanced scenarios with branches and loops, directly within the Teams environment with the Power Automate app. They can trigger flows or actions, grant approvals and get notifications from any message in Teams.

Build custom and purpose-built apps with Power Apps

App makers and developers can create and share low-code, purpose-built apps using an integrated Power Apps studio by connecting business data stored in a new underlying data platform, such as Dataverse for Teams, Microsoft 365 or other data source connectors.

Build bots using a guided, no-code graphical interface with Power Virtual Agents

Power Virtual Agents enables developers and app makers to easily create powerful virtual agents using a guided, no-code graphical interface – all without the need for data scientists or developers. They can easily integrate bots with hundreds of services and systems or they can create custom workflows – providing an opportunity to answer frequently asked questions faster and more efficiently.

Uncover insights with Power BI

With Power BI, developers and app makers can share and collaborate with interactive Power BI content such as dashboards, reports, datasets and workbooks with others in Teams channels and chats. They can connect and get a consolidated view of your data across the business through a unified display and use data from various apps in Teams to identify areas to lean into or improve upon.

Integrated developer capabilities with Teams and Power Platform

Developers can unlock more possibilities and innovation by integrating Azure Services through APIs with Power Platform in Teams. They can write advanced client or server-side logic using Azure Machine Learning, Cognitive Services, Bing APIs, custom code or any service of their choice. They can also use Azure DevOps to seamlessly manage your solution.

Microsoft Power Fx as the low-code programming language

Power Fx is a low-code language that can be used across Power Platform. It's a general-purpose, strong-typed, declarative and functional programming language. App makers or developers can work with it directly in an Excel-like formula bar or Visual Studio Code text window to express logic across Power Platform.

Extending Power Platform Teams apps and workflows with Azure API Management

Developers can create API services as custom connectors to process data and connect to almost any enterprise service, including a Microsoft cloud-hosted data source. These custom connectors are published in Azure API Management for app makers to consume those custom connectors in Power Apps or the Power Automate environment. App makers can use these API management-backed connectors in Power Apps hosted in Teams through the existing Teams licensing.

Support for rich application life cycle management

The Power Platform command-line interface (CLI) empowers developers and independent software vendors to perform various operations in Power Platform related to environment life cycle features. They can also use it to authenticate and work with Dataverse environments, solution packages, portals, code components and more. It facilitates continuous integration/continuous deployment (CI/CD) and enables developers to create, build, debug and publish their extensions and customisations quickly.

Build custom reusable components with the Power Apps component framework (PCF)

Developers can build responsive, reusable user interface components with PCF. They can use their current skills since this framework is based on standard web technologies (such as TypeScript/JS, CSS and HTML5).

Manage security and compliance with Teams

The Teams admin centre provides full audit logs, usage analytics, data loss prevention, security and data management. It also allows admins to set up and manage any apps available to the organisation through permissions policies.

Power Apps Developer Plans to build and test Power Apps, Power Automate and Dataverse

The Power Apps Developer Plan gives developers a free development environment to build and test with Power Apps, Power Automate and Dataverse. This plan offers the ability to share apps with team members for development and testing purposes. The Developer Plan creates a new Power Platform environment, separate from the environments created within Teams.

Manage governance control in Power Platform

Power Platform includes a pre-built set of constructs for developers that allow configuration of an application security model. There are granular and fine-tunable data loss prevention (DLP) controls in Power Platform that provide the ability to block specific connector actions or connection endpoints. This helps developers strike a balance between productivity and protection. For more information, visit Data loss prevention policies. Out-of-the-box analytics allow you to quickly discover and monitor flows and apps and how they're being used. You can track adoption usage and health monitoring across Dataverse, Power Automate and Power Apps and see which apps are being used across your environments to quickly spot the best-performing ones.

Section 7

Teams and Power Platform integration use cases

The following use cases show how the Teams and Power Platform integration can help drive a real business impact.

CenturyLink™

As part of Lumen Technologies, a technology network company, CenturyLink uses integrated Teams and Power Platform to enhance customer service. Frontline Workers use three specific apps built on this integrated platform. First, the Damages app helps document damage and triggers an automated email to the manager for approval. It takes technicians about five minutes to upload everything, saving the supervisor many hours of driving every week. Another Power Apps app within Teams helps simplify test equipment inventory and allows field technicians to report real-time updates. Finally, Power Apps with Power Automate simplifies how supervisors submit expense approvals.

Read the CenturyLink case study >

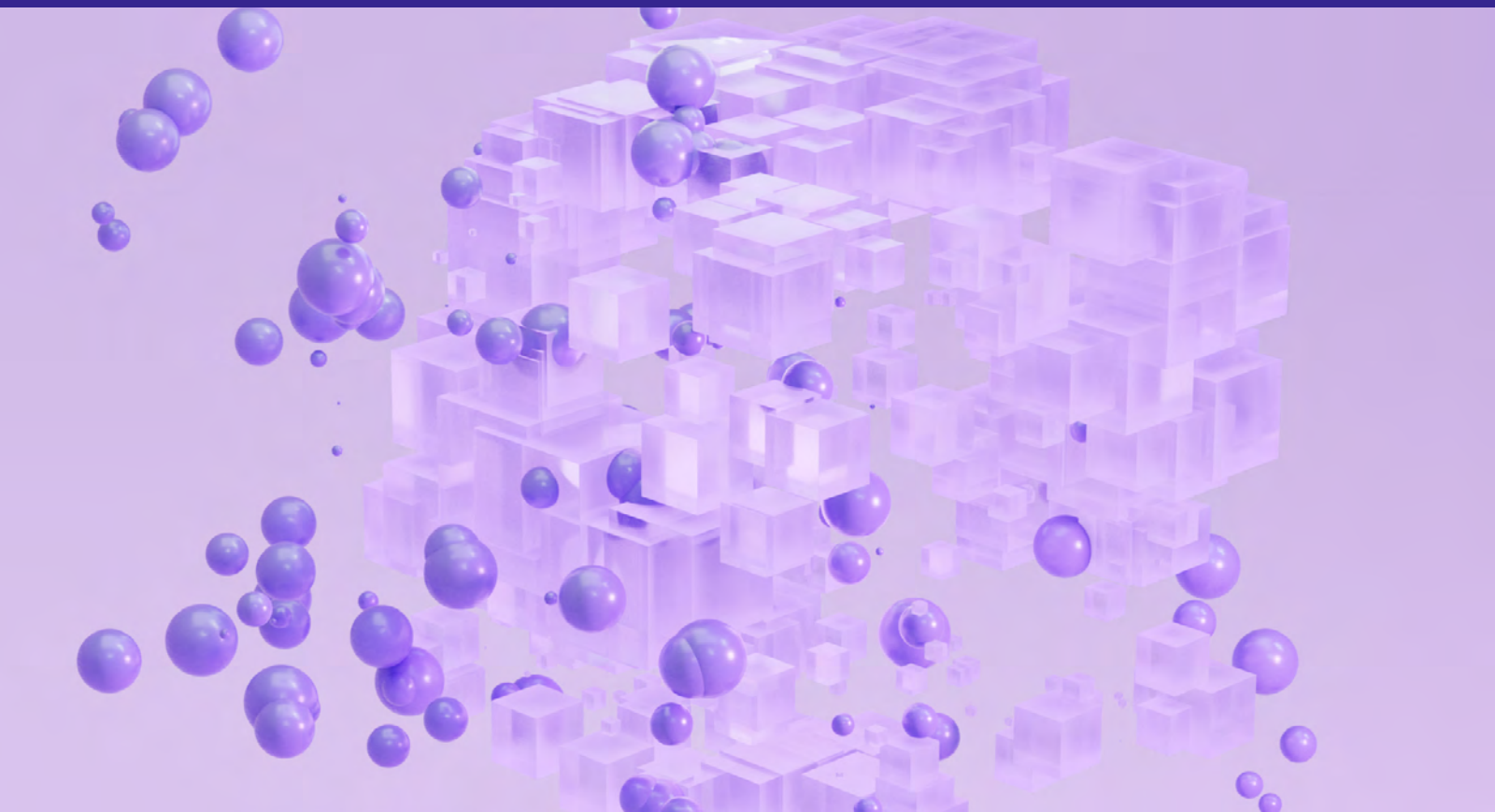
A leading Australian telecommunications company, Telstra, developed a solution on Teams with Power Platform to streamline its field services ticketing process. It developed low-code apps and workflows to address the crucial needs of employees. Telstra embedded the ticketing apps in Teams and provided field technicians with a single hub to service customers and stay connected with each other, even while working in remote locations.

Read the Telstra case study >

Hundreds of app makers at ZF Group are digitising Microsoft Excel and paper-based processes with Power Apps, Power Automate, Power BI and Dataverse for Teams. They developed solutions for automating employee onboarding processes that reduce onboarding from a 360-hour paper and email-based marathon to a 10-hour automated workflow. The HR analyst at ZF developed a performance review app to streamline the HR review process and save time. He also developed an app in Teams using Power Apps called Turnover Tracking and Corrective Counselling to automate the manual tracking and counselling processes. It saves 50% more time on these processes and gets 100% accurate data from the systems for their reports.

Read the ZG Group case study >

Next steps

Learn more about how developers can enable the Microsoft Teams and Microsoft Power Platform integration in your environment.

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