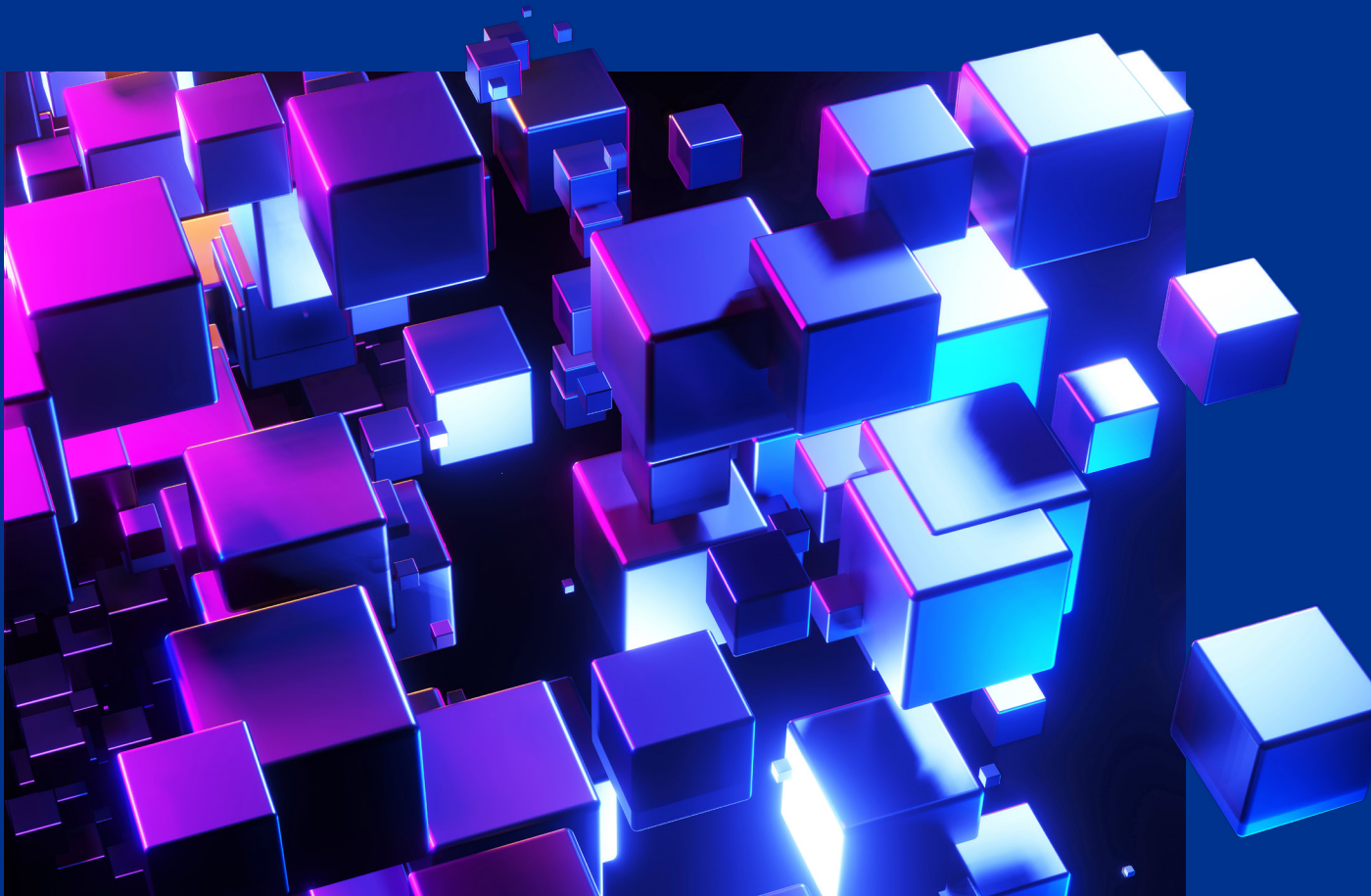




# App Innovations Using Azure & Power Platform



April 2023

# Introduction

This article is intended for IT leadership, business users & IT professionals aiming to utilize the modern business application (App) development, utilizing the available Azure resources and the low-code Microsoft Power Platform. Our key takeaway in this article is how to be in control over App innovations – using the available Microsoft resources – in such a way that sustainable advantages can be achieved for several business functions throughout the organization.

A decade ago, businesses were struggling with code-intensive programming being required to achieve simple process automation tasks. The functional business users were strongly dependent on scarcely available technical developers and IT infrastructure specialists. The communication between these technical and functional professionals was difficult as they ‘spoke’ a different language and their understanding of business processes was significantly different.

Moreover, hard-coded programs, especially those written in languages like C, C++, C#, .NET Framework and Java, put a severe pressure on the throughput time of developments and the total cost of the final programming assets. Also, integrating these hard-code programs into a common data integration architecture was difficult as there was no cloud-driven ecosystem to integrate these programs.

Since the cloud paradigm has risen, the way of rapid application development has significantly changed due to the connected nature of the resources being available in the cloud. Applications can now fully communicate with each other, also including communications with legacy applications using common data connectors and languages.

The rise of Artificial Intelligence (AI), low-code platforms, code generation and maximum connectivity to the cloud is a driver for businesses to innovate and accelerate in their strive for automation and low total cost of ownership.

App innovation has been on the strategic agenda for quite some time as it can yield differentiating business advantages in the areas of process automation and speed of business & process innovation. Besides the business advantages, the IT functions are striving to be more in control over their IT development costs, scalability of IT resources and rapid application development. Moreover, businesses strive to shift to operational expenditures (OpEx) as opposed to capital expenditures (CapEx) for their IT expenditures. The cloud and low-code platforms enable organizations to shift the fixed IT costs more to variable costs, as activating IT assets on the balance sheet impacts the finance functions in terms of tight-up capital and depreciation requirements. Also the pay-as-you-go paradigm provides more flexibility and cost dynamics for leadership.



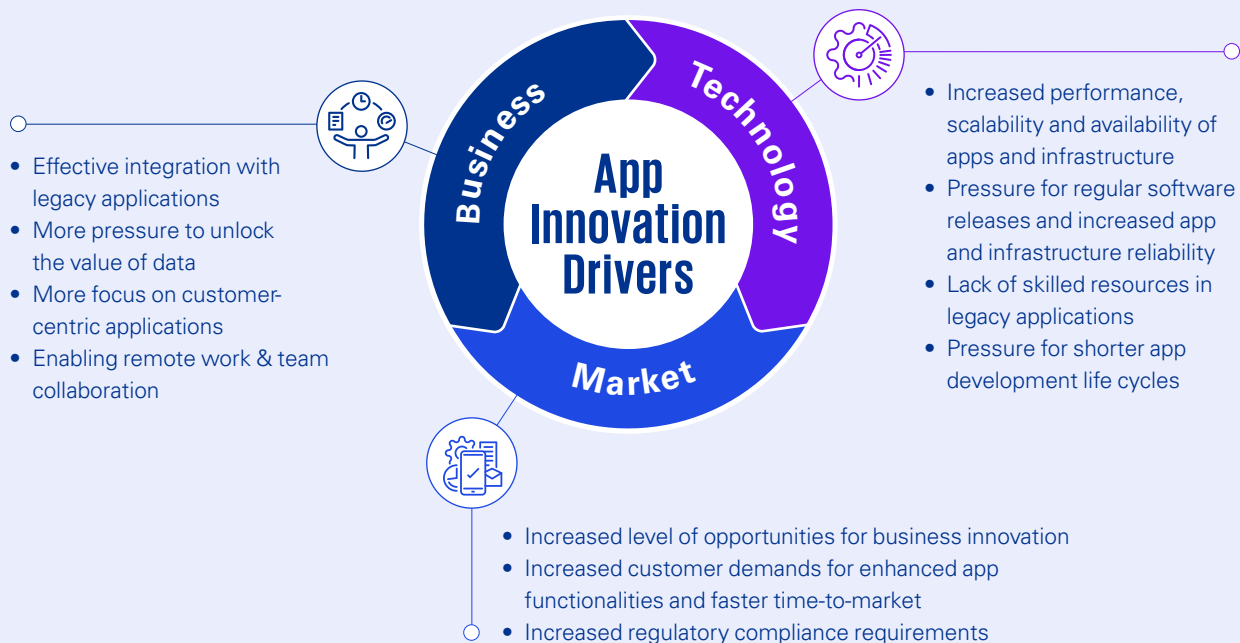
## App innovation drivers

The pressure for increased (technological) App innovations originates from increased levels of competition in the market place. Businesses can differentiate themselves by using emerging technologies in a faster pace. There is no longer a requirement to separate business from a technology strategy. There is just strategy, and technology is driving it – at market speed.

Using the latest Cloud Platform (CP) & Cloud Native Architecture (CNA), organizations are no longer constrained by time spent on the maintenance of propriety applications and on-premise infrastructures. Organizations can now focus more on the speed of innovations – powered by enabling technologies.

As shown in the picture below, the Market drivers are leading in our App innovation drivers model. Examples of Market innovation drivers include new products for additional market segments. Secondly, the Market innovation drivers feed the business drivers in such a way that it provides insights into tangible business demands. Finally, the Technology drivers are then formulated by using the latest Cloud Platform (CP) & Cloud Native Architecture (CNA) technological capabilities.

### App Innovation Drivers Model



## The shift to modern App architecture

Historically, business application development was performed by professional software developers who were specialized in a specific area like rapid application development, process automation and data integration. Examples of custom business applications are: specialized employee expense management with integration to HR & Accounts Payable, field service application for smart metering and navigation software for maritime applications.

A typical custom business application that was developed ten years ago, used to be programmed in a third or fourth generating programming language like C, C++, C#, .NET Framework and Java. Usually, on-premise database management systems like SQL Server and Oracle Database, were used as a data platform. These big applications siloed in one box (aka 'monolithic applications') were mainly developed using the client-server architecture, as opposed to small software as a service (SAAS) applications (aka 'microservices').

## The shift towards low-code & no-code

First of all, it is key to understand the fundamental difference between low-code and no-code application development. In this article, we focus on the Microsoft Power Platform on top of standard Azure resources, which enables organizations to use both the low-code and no-code application development frameworks.

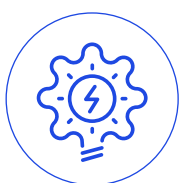
Examples of no-code application development available in the Microsoft Power Platform include, amongst others, visual interfaces, drag-and-drop functionality of graphical user interface controls, data-interfacing, workflows, single sign-on (AD) authentication and application connectivity. The low-code programming functionality includes the simple scripting languages Power FX which is based on Microsoft Excel, and JavaScript which can be extended by means of Azure functions in which you can include e.g. Python, Java and C# programming code.

On a business level, low-code Apps enable both business users (citizen developers) and IT professionals to use application development in an IT-abstracted, orchestrated and automated manner, enabling organizations to rapidly develop business Apps. Using such a development approach will reduce time-to-market, improve the level of innovations and lower development costs.



## The shift towards using emerging technologies for App innovation

App innovation, deployment and the actual usage follow each other in an increasingly more rapid pace. Focussing on Apps for business applications, the following overview contains our top 5 emerging technologies which can contribute to lower cost of development/ownership and enhanced user productivity.



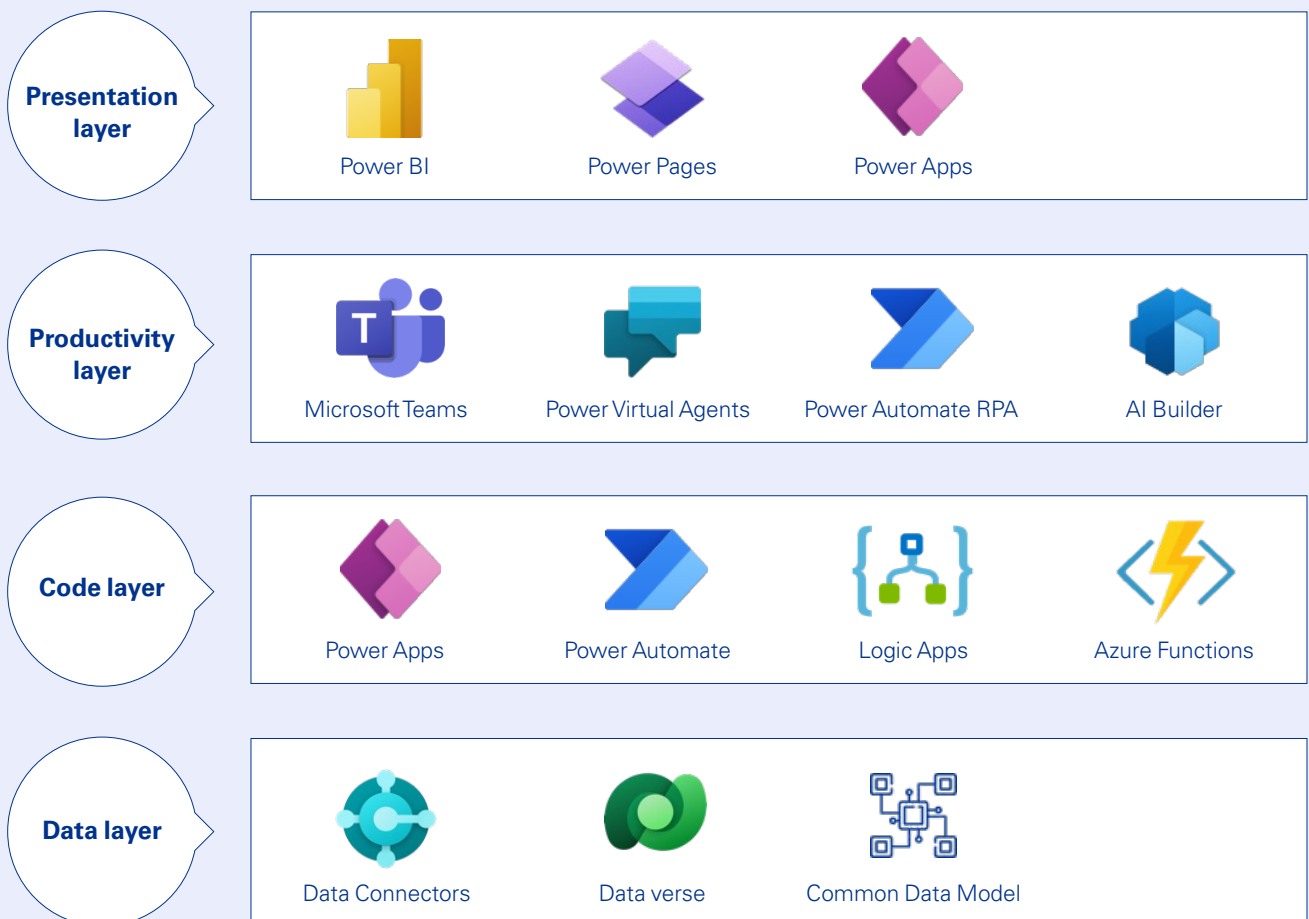
Emerging technology	Potential value
<b>Microservices</b>	Microservices enable you to isolate or decouple the components of one App into manageable smaller parts that can be deployed, updated and operated independently. The microservices can then be utilized by several Apps and can be maintained and upgraded with a limited development complexity.
<b>Containers &amp; Kubernetes</b>	Containers enable you to partition or divide the standard virtual machines (VMs) into virtualized environments using dedicated writable file systems and resource quotas. Kubernetes is a container platform that eliminates manual processes involved in deploying, scaling and orchestration of containerized Apps.
<b>Serverless Apps</b>	Serverless Apps enable you to include advanced, custom logic called in your Apps. Examples include specific data transformation tasks, integration with ERP systems, data mining using Python code and advanced data processing tasks.
<b>AI &amp; Data Mining</b>	Artificial Intelligence and Data Mining enable you to make your Apps intelligent and provide decision support to the workforce and management. Examples of AI & Data Mining include anomaly detection of sales prices and prediction of revenues per customer segment.
<b>Modern Workspaces</b>	Modern Workspaces enable you to integrate your Apps into standard Microsoft solutions including Microsoft Teams, Portals & SharePoint. Also the integration of the information originating from Apps can be integrated into the Azure portal.

## Common Azure resources for App innovation

In the process of designing an App, a thorough analysis of the available Azure resources (standard components) is of key importance. A wrong decision regarding the integration of data, the design of workflows, and the extent to which code and automation are applied – and in which layers – will determine the quality, maintainability, cost and user friendliness of the App.

To provide you with more insights in available – better practice – Azure resources for application development, our four-layered model for App design can be used. The model comprises layers for Data, Code, Productivity and, finally, the top layer Presentation.

### Azure resources for apps – Our four-layered model

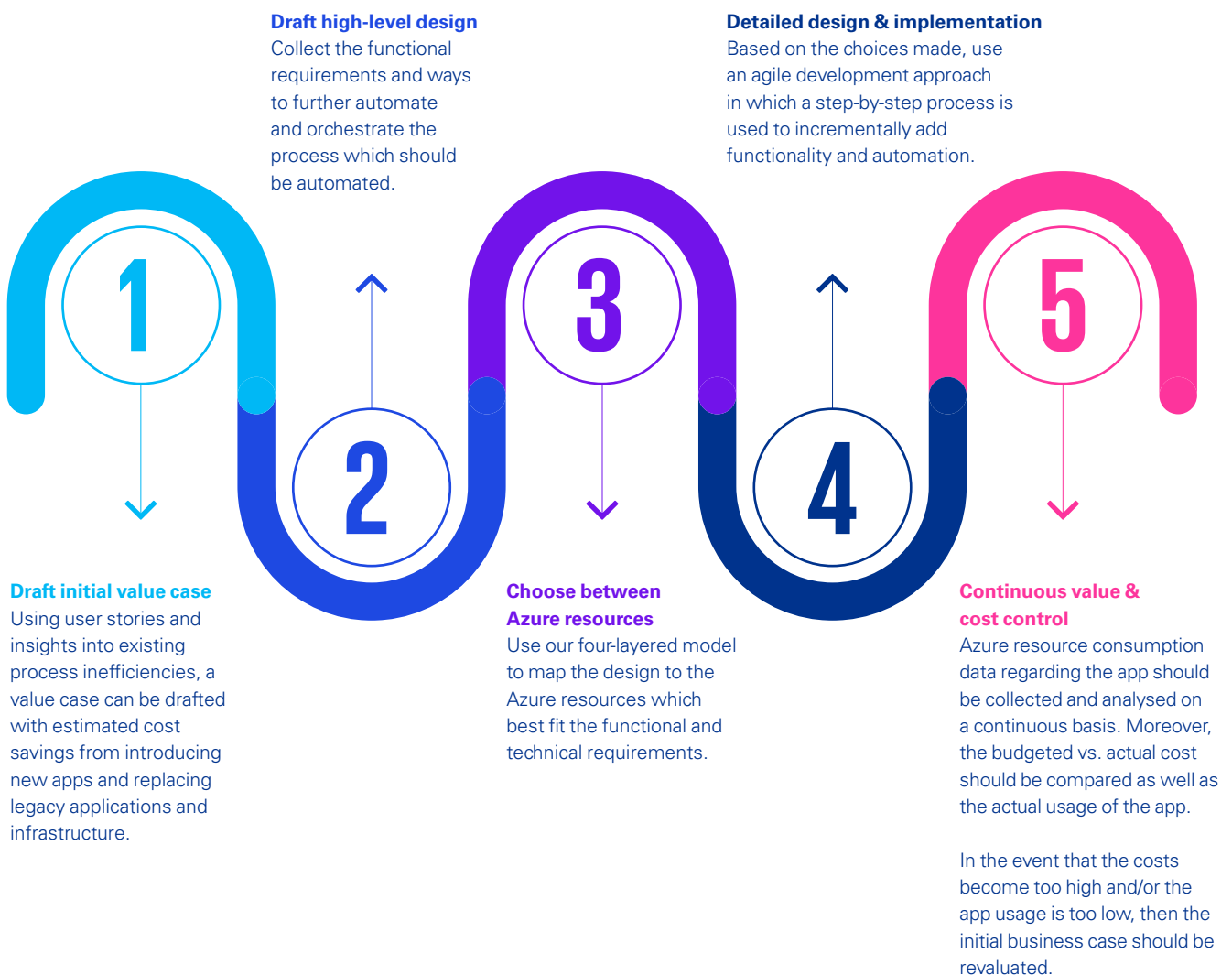


# A better practice end-to-end approach on managing App innovations

Combining all the above-mentioned information on App innovations, we can present our end-to-end approach on managing App innovations. Our approach is derived from the Deming management cycle (Plan-Do-Act-Check), and is inspired by a multitude of our App implementations throughout several industries and business processes.

The key to managing App innovations is to stay in control throughout the entire lifecycle of an App, from initial value case to being continuous in control of its value and costs as shown in the figure below.

## End-to-end approach to managing app innovations



# Contact

## **Ad van Dijke**

Senior Manager, KPMG  
E: VanDijke.Ad@kpmg.nl  
LinkedIn

## **Sheetal Arya**

Senior Manager, KPMG  
E: Arya.Sheetal@kpmg.nl  
LinkedIn

## **KPMG.nl**



The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

© 2023 KPMG Advisory N.V., a Dutch limited liability company and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee.  
All rights reserved