

Choosing the Right
**Mobile Application
Development
Platform (MADP)**

A comprehensive e-book

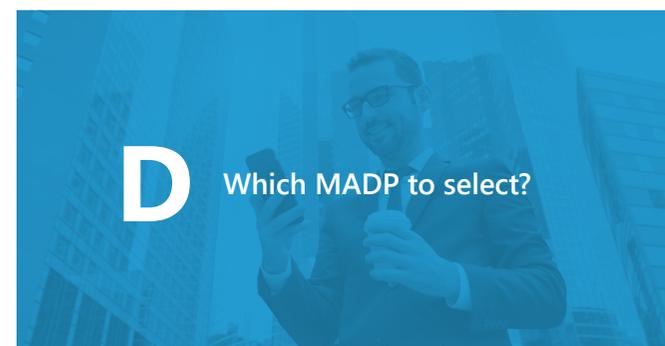
Introduction

Business leaders are struggling to keep up with the rapid pace of innovation and disruption. Mobile apps are now at the forefront of innovation and are expected to enable organizations to outperform competition. In mobile app development, the challenge is to build and support a large number of apps with constant innovation. Right tools and latest processes are the only ways to address this challenge.

Mobile app development platforms (MADPs) enable you to quickly and conveniently develop and maintain next generation mobile apps. MADPs equip you with right tools to innovate and constantly roll out the updates.

There are various MADPs available with different capabilities. This e-book will underline the process of selecting the mobile app development platform as per your requirements.

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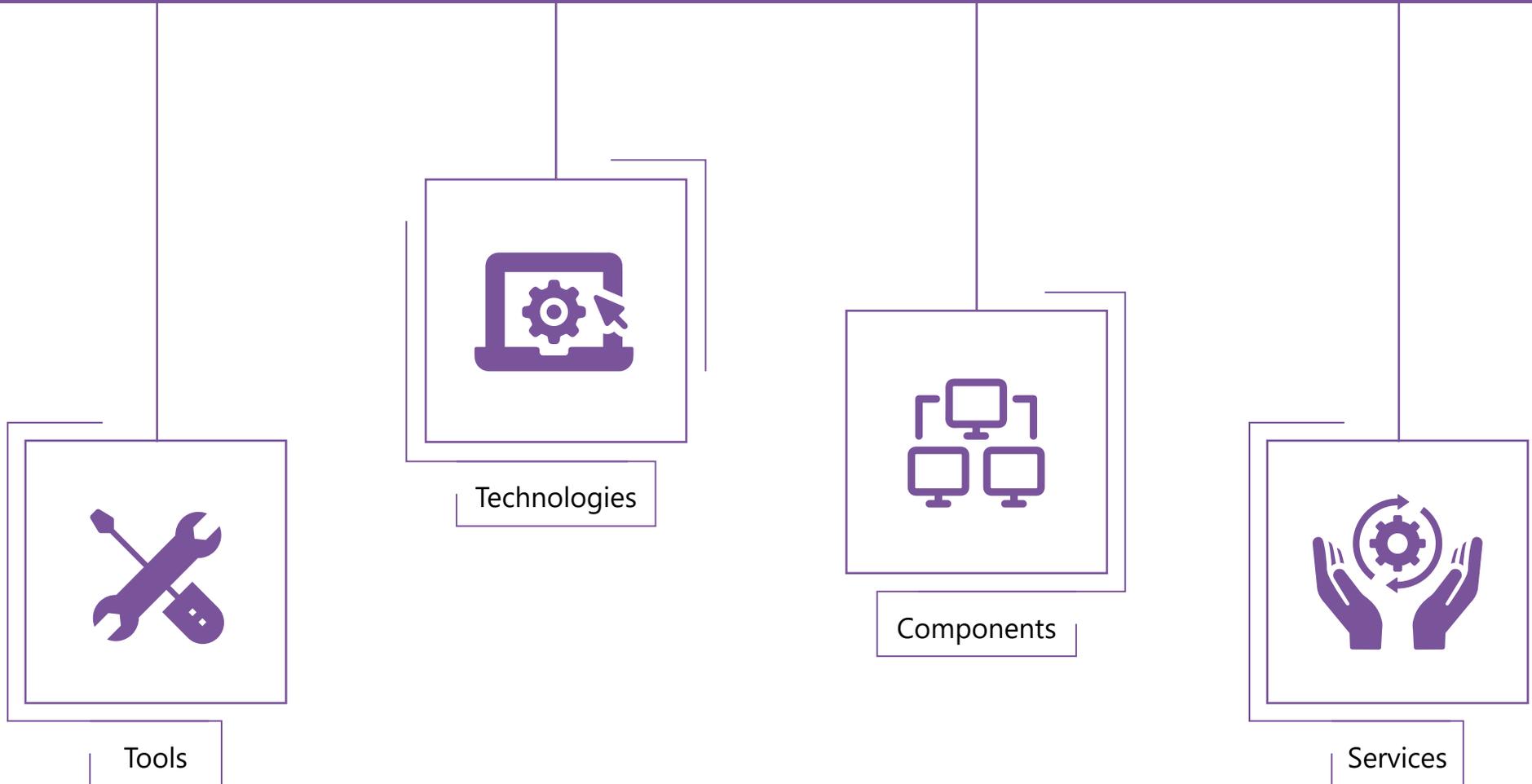
What is an MADP?

MADP is a set of tools, technologies, components, and services for creating mobile apps. It provides a complete platform for developing high quality apps. An MADP includes a cross-platform development tool that lets you create mobile apps across different operating systems with a single codebase.

An MADP easily enables integration of external and internal enterprise systems that may run on-premises or in the Cloud. Being the cornerstone of an enterprise mobile strategy, MADP addresses both frontend and backend development needs.



MADP



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Why use MADP?

MADP makes mobile app development easier and more convenient. It properly equips your organization to create high quality next generation apps at a rapid pace in a cost-effective way.

MADP helps you streamline the development process as well as maintain only a single codebase (instead of multiple ones), due to which the compatibility with emerging devices and platforms becomes easier.



Benefits of having MADP as part of your mobile strategy

1

Single codebase for multiple platforms

The mobile ecosystem is fragmented, with Android and iOS being the most popular operating systems. MADP provides tools that let you create mobile apps across different operating systems with a single codebase, eliminating the need to go through the expensive way of creating separate native apps per platform.

2

Familiar skill set

From an architecture standpoint, these platforms provide an abstraction layer on top of native platforms. Skills required to build apps with MADP are JavaScript, HTML, CSS, or C#. These skills are highly popular among the developer community and hence resources with these skills are easier to find.

3

End-to-end app lifecycle support

A typical mobile app development lifecycle comprises the following stages—design, develop, test, distribute, manage, and analyze. These platforms provide tools required to support lifecycle activities, and the need to procure tools separately is eliminated. Most of these are cloud-based, hence there is no need to manage the tools in on-premise environment. This helps reduce the total cost of ownership.



Develop



Test



Distribute



Manage



Analyze

4

High quality at rapid pace

Another challenge while building mobile apps is maintaining the high quality of products. Continuous Integration & Continuous Delivery (CI/CD) can be a key enabler to build high quality apps at a rapid pace.

Some mobile app development platforms offer advanced services like 'Build on Cloud' and 'Device Cloud'.

- 'Build on Cloud' enables you to develop without having a local build server.
- 'Device Cloud' enables you to increase the device test coverage by testing on a large number of actual devices before releasing, hence minimizing the need to own the devices.

By choosing these services, you can focus on essential activities rather than on the infrastructure required for CI/CD, which can reduce total cost of ownership and time to market. If you are a start-up or just don't want to invest in IT to produce quality apps, MADPs are the enablers to start building mobile apps.

Also, a few MADPs provide readymade components like UI controls, data access libraries, and built-in templates to accelerate the development. These components help expedite your development without compromising on quality.

5

Mobile backend

Integration with external systems, especially in enterprise apps, is a common requirement. While building apps, everyone wants to create a beautiful UI rather than spend time in backend development. Cloud-based solutions known as Mobile Backend as a Service (MBaaS) can be leveraged to address this need.

Few MADPs have MBaaS offering as well, to further enable the app creator to focus on presentation more than backend enablement.

6

Next generation features in apps

Intelligent quotient is something everyone is looking for in apps currently. Though it depends on the requirement, facial recognition, speech recognition, and language understanding have become the most sought after features in the apps. Cognitive services to enable such features are something every provider is working on with full swing.

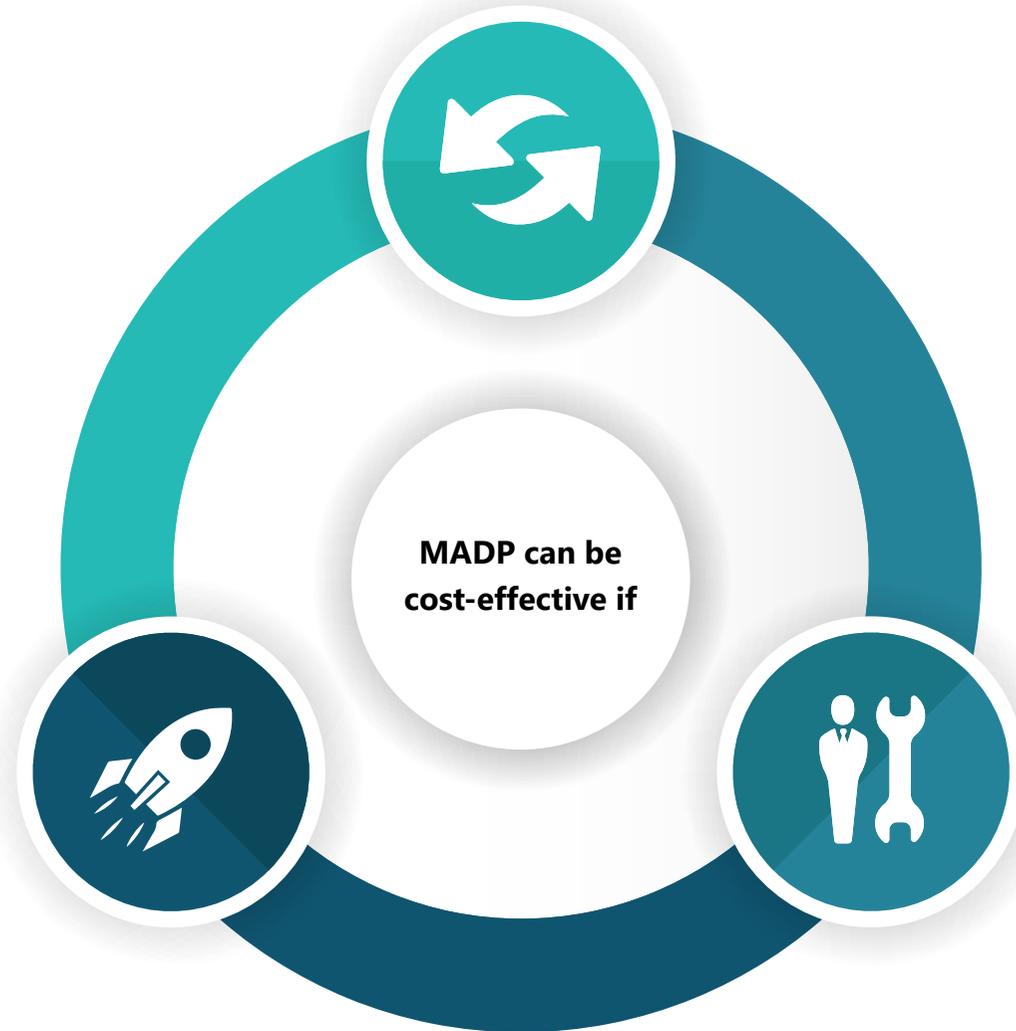
MADPs provide a set of cognitive services such as APIs, SDKs, to make next generation apps which are adaptive as well as intelligent.



Should you invest in an MADP?

MADP is a great tool for building and managing mobile apps. But investing in such an infrastructure is a strategic decision that depends on your company's vision on mobile apps and the kind of mobility solutions to be offered.

You need to make at least a few updates in your existing products every year.



You have a vision to create more than two apps.

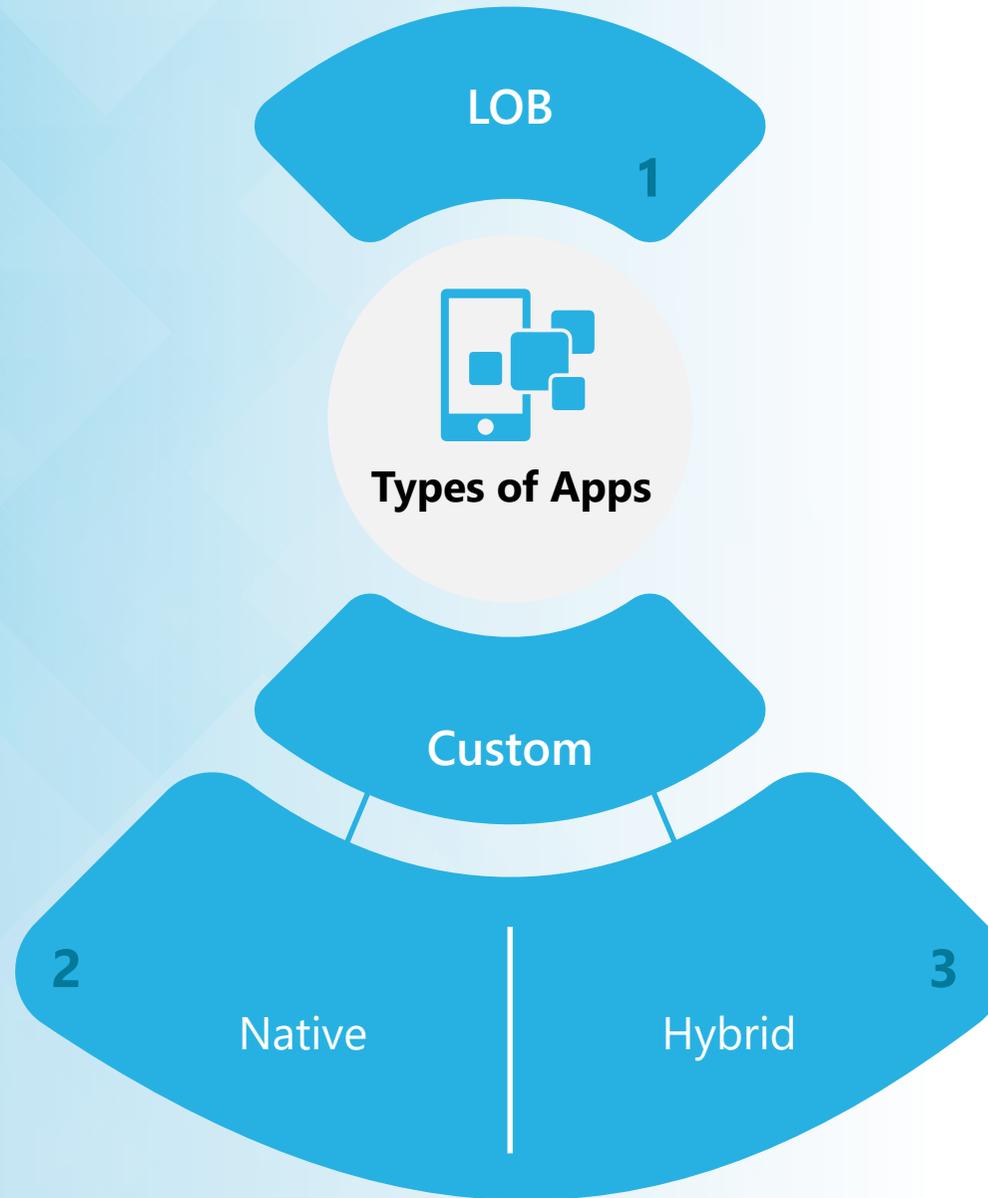
You want to support multiple mobile operating systems like iOS, Android, and Windows.



Which MADP to select?

After you decide to invest in an MADP, the next dilemma comes while choosing the best platform as multiple vendors offer MADPs with different capabilities.

Start with identifying the type of app you require, and then choose the appropriate platform by keeping a few parameters in mind.





LOB apps

For building LOB apps, you can choose low-code/no-code platforms that allow rapid mobile app development with little or no code. These platforms use model-driven development and enable business professionals to develop a mobile app.

LOB apps represent common existing business processes and have a simple user interface/presentation. These apps interact with other systems that manage the data.

LOB apps are specific to domains such as finance, insurance, healthcare, telecom, and e-commerce.

Key considerations for selecting a low-code platform



Installation and setup

You need to check whether the low-code platform in consideration is matching your set up capabilities such as the availability of an IT team, tech-savviness of business professionals, etc.

Low-code platforms like OutSystems may require minor manual installation. A few low-code platforms, such as Mendix, are cloud-based, so you can start building right away without bothering about installation hassles.



Ease of development

Low-code platforms are model-driven and enable easy, faster development. However, factors such as user experience and how descriptive is the wizard (while developing the app) do make a difference. For example, OutSystems provide very smooth app creation experience by helping you in every step of the way.



Pre-built templates and integrations

Low-code platforms provide readymade templates, UI components, and widgets including several connectors to integrate third-party services. You need to analyze and pick one that matches your requirements.



Developer and enterprise features

Building mobile apps also require testing, distribution, and lifecycle management. Low-code platforms provide services for developer and enterprise activities. Different tools provide different services and you need to choose one that suits you best. For example, if you require sprint-based project management, Mendix's build-in Scrum for sprint-based project management can be a great option.

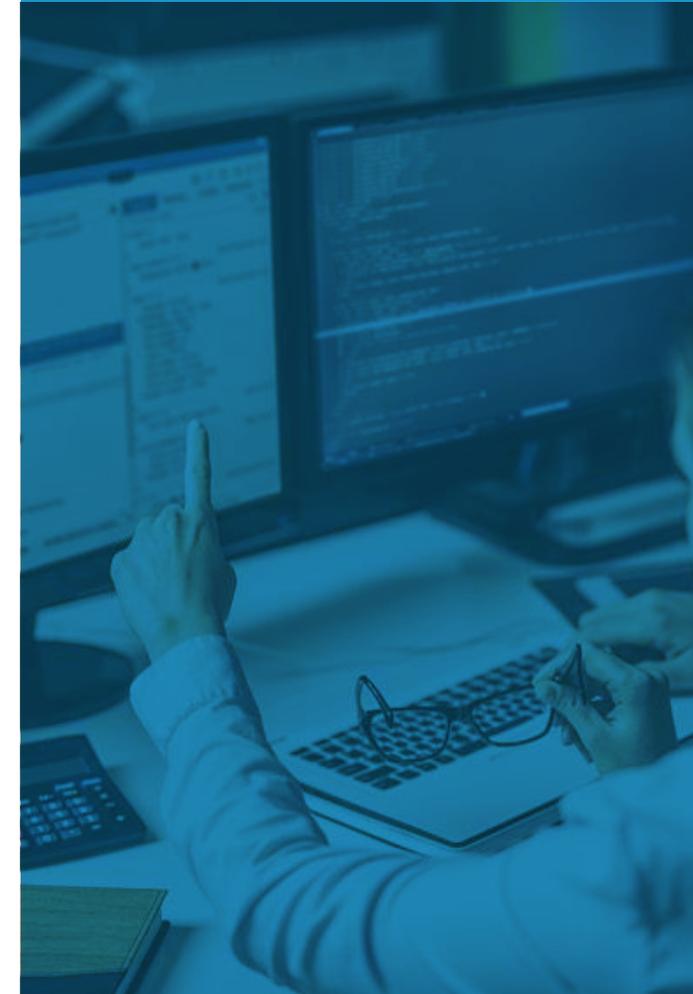
Major players for building LOB apps

OutSystems: A low-code platform that helps you develop your application visually, get your app integrated with existing systems and also add your own code whenever required.

<https://www.outsystems.com/>

Mendix: Another low-code software platform that provides an integrated and comprehensive set of tools to build, test, deploy, and iterate mobile applications.

<https://www.mendix.com/>





Native Apps

Native apps belong to the category of custom apps that require custom functionality and cannot be built using pre-built templates. Platforms for building these apps allow the development of cross-platform native mobile apps with a single codebase.

Native apps run on device natively instead of running in a WebView and use native controls for UI rendering. These apps have full access to all native APIs and are best in UI and native feature performance.

Key considerations for selecting a Native app platform



Strong Market Presence

Both Microsoft and Progress are strong players in this category. Xamarin is now an established name. Though Telerik platform is also quite an old player, it has upgraded itself with the Native Script for frontend development and Kinvey as backend. Native Script can still be called an emerging technology. Hence, Microsoft clearly wins in this category.



Advance Tooling

Both Microsoft and Progress provide advanced tools that are time-saving. This allows developers to focus on essential activities which can decrease time to market effectively and reduce the total cost of ownership. For example, a start-up can start producing quality apps without investing in IT.



Productivity

Though these tools come under manual coding category but still if there are some readymade components or templates or accelerators then it would add a great value to reduce the development time and effort. For example, Telerik from Progress has brought its rich experience in UI controls to Native Script. Progress would be a choice if it provides ready-made controls to fit in the various requirements.



Skill set

Finding and training the resources can be a tedious job to do. For few skill sets, it is easy to find the resources as compared to others. Also, there may be chances that you already have resources of that skill set. Xamarin supports development in C# which is already a widely used language. Native script is JavaScript based framework which allows to develop using JavaScript, Angular, or TypeScript.

Major players for building Native Apps

Microsoft

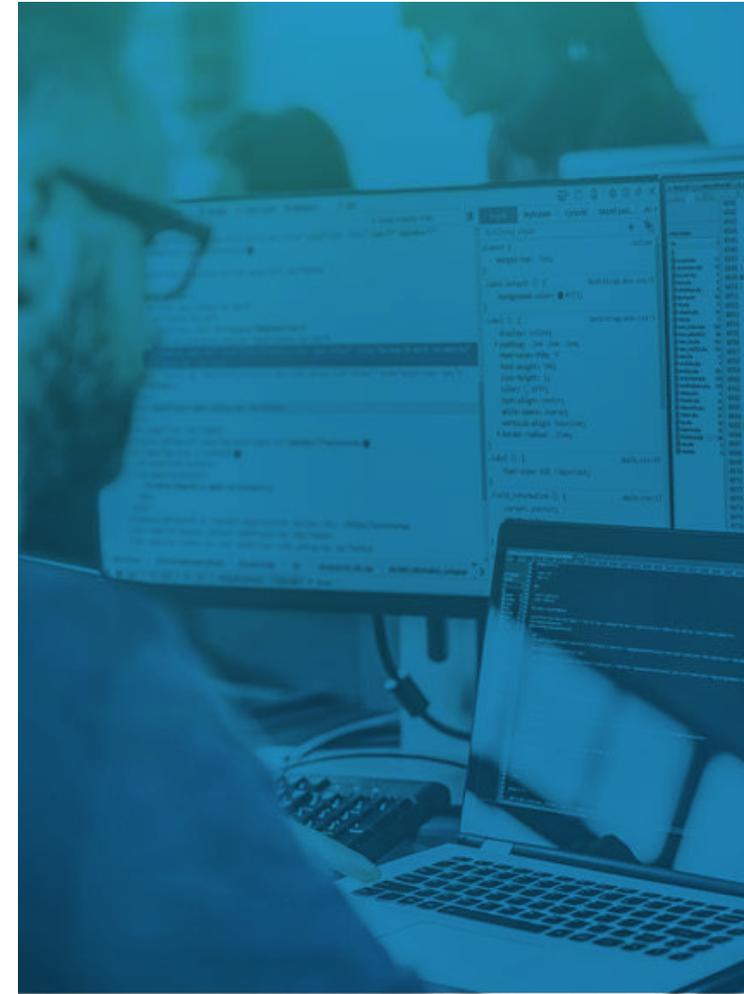
Microsoft is one of the leaders in mobile app development platforms. It provides Xamarin for developing mobile apps, App Center for supporting lifecycle activities, and Azure for backend services.

<https://visualstudio.microsoft.com/xamarin/>

Progress

Progress has come up with NativeScript for developing cross-platform apps and Kinvey for supporting the backend needs.

<https://www.progress.com/kinvey/resources>



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Hybrid Apps

Hybrid apps also belong to the category of custom apps. There are many development platforms for building hybrid apps and they use web-based technologies like HTML, CSS, and JavaScript. Device features can be accessed using Cordova APIs. These platforms build apps very fast; the only downside is the fact that they are not native apps.

As the name suggests, Hybrid apps are a mix of native and web apps. These apps run in native control called WebView (WebView renders HTML, CSS-based UI like browser).

Key considerations for selecting an MADP for Hybrid apps



Same vendor

Mobile development platforms are either the offerings of big vendors or are acquired by big vendors who are into providing enterprise systems. IBM, Oracle, Salesforce, etc. are few names which provide app development platforms as well. If you are already using systems of these vendors, then they can provide seamless integration, training, and sometimes a good deal in pricing as well.



Skill set

Though all hybrid app platforms use web-based technologies, a few use Java Script and Angular framework. This can be an important consideration based on the factors such as the availability of existing resources with same skill, or the need of a learning curve before starting the development. For example, Ionic uses Angular which can be a learning curve for your existing resources.



UI

Maturity level of the app's UI creation is different in different platforms. Some platforms offer very good UI controls whereas others do not. UI requirement of the app is also a factor while choosing a platform. For example, if native UI is required, then a platform like Ionic can be considered. Ionic inherently provides such controls whereas in other platforms this can be a substantial task. Platforms like IBM do not provide much possibilities on UI though IBM is open to use any frontend development tool for UI creation.



Integrations and backend

If your app's strong need is to integrate with enterprise systems and multiple data sources, then platforms providing strong backend would be a great choice. Platforms like Kony's Mobile Fabric and IBM Mobile Foundation are very strong in integrations.



V

Next generation features

Few platforms provide readymade solutions to meet your requirements of creating next generation apps. For example, Oracle provides build-in chatbot support and IBM offers a mature cognitive service, Watson. However, all platforms already provide cognitive APIs or are in the process of launching the same. You can choose a platform according to your needs or select one with a more mature API.



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Community support

Community support is also an important parameter while choosing a mobile app development platform. A well-supported platform is a great help for issue resolution. For example, Ionic and IBM have respectable developer footprint, but Oracle and Kony do not have much community support.

Major players for building Hybrid Apps

Kony: A development platform that comes with a variety of mobile app development tools to help you with your cross-platform app requirements.

<https://www.kony.com/>

Oracle: An engaging mobile platform that provides out-of-the-box services, defines and implements new enterprise-ready APIs quickly, and creates a cohesive environment.

<https://www.oracle.com/solutions/mobile/index.html>

Salesforce: A platform that comes with in-built tools and solutions helps you build, run, and manage intelligent mobile applications conveniently.

<https://www.salesforce.com/in/products/platform/solutions/mobile/>

IBM: A platform that comes with the reliability of IBM cloud, and helps you create faster, smarter, and effective apps which can be easily integrated with your data.

<https://www.ibm.com/mobile/madp>

Ionic: A cross-platform, open-sourced framework that comes with many benefits including a strong ecosystem of tools and services, and a strong community support.

<https://ionicframework.com/>





End note

If none of the MADPs satisfies your requirements, you can **choose services of MADPs separately** as per your needs rather than going for one all-inclusive platform.

For example, one can opt for frontend development framework of one vendor, crash monitoring from second, push notification from third vendor, and so on to create a custom MADP.

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Abhay is an experienced software professional with over 15 years of experience in designing, developing, & managing software projects. Abhay has extensively worked with in the field of mobility for last 7 years, focusing on defining Mobile Strategy, Enterprise Mobility, UX, Architecture, and Analytics for start-ups as well as big enterprises.



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Neeraj Kumar is a software professional having extensive experience in software architecture, development and deployment. Currently, he is focusing on cross-platform mobile app development. He is working as a consultant for mobile projects and assisting teams for selecting the tools and technology required for mobile app development.

About Nagarro

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