

Mendix Service Definition

1 What Is Mendix?

Mendix is a high productivity app platform that enables you to build and continuously improve mobile and web applications at scale. The Mendix Platform is designed to accelerate enterprise app delivery across your entire application development lifecycle, from ideation to deployment and operations.

Mendix enables you to implement both Agile and DevOps best practices. It even goes beyond that by involving business stakeholders in the actual development of the applications.

Mendix offers both no-code and low-code tooling and the ability to utilise code in one single fully integrated platform:

No code – Mendix provides a web-based visual app-modeling studio that is tailored toward business domain experts

Low code – an extensive and powerful desktop-based visual app-modeling studio is also provided, which is tailored towards professional developers and can be integrated with coding IDEs to extend capabilities

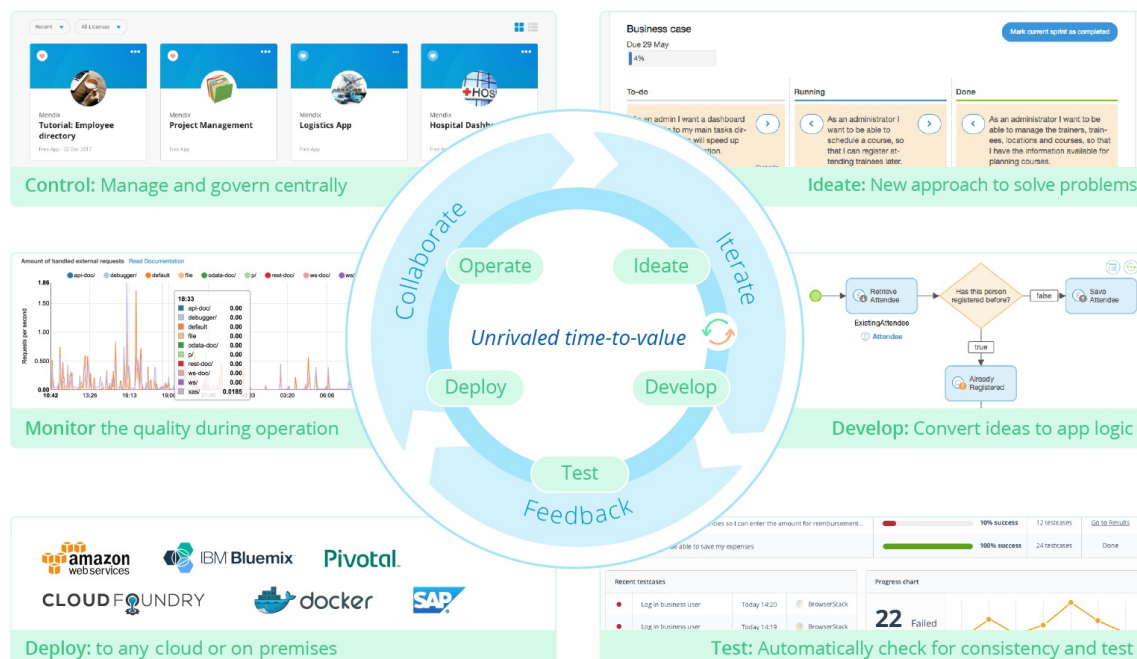
The result of this no-code and low-code combination is that business domain experts (like analysts and citizen developers) can work alongside expert developers to achieve much greater levels of alignment and accelerated delivery. Moreover, the Mendix Platform's cloud-native architecture and automation tools support the deployment, management, and monitoring of highly available enterprise-grade applications.

Based on our three core principles of **speed**, **collaboration**, and **control**, Mendix offers a complete platform for your enterprise application delivery needs.

2 How Does Mendix Support Each App Lifecycle Step?

This section explains all the components of the Mendix Platform that enable you to accelerate every step of your app life cycle, from ideation to development, deployment, testing, and the ongoing management of your application portfolio in the cloud or on premises.

Accelerate every step of your app journey



2.1 Ideation & Requirements Management

The first step of the application lifecycle management process is ideation. The Mendix Developer Portal enables a new approach to solving problems and facilitates the [requirements management](#) of your app development project. The Developer Portal provides capabilities such as Sprint and user story management as well as integrated feedback management via embedded widgets that empower end-users to provide feedback directly within an application. This closed feedback loop enables the development team to quickly resolve queries from the business, facilitating rapid iteration.

The value of collaboration is strengthened through the Mendix Platform's support for Agile requirements management. Learn about the Agile tools built into Mendix that will help you manage your projects and teams effectively from day one in the video below.

2.2 Development & Testing

The next step is to develop your application and convert ideas into apps. Mendix uses visual modeling languages for all the aspects of an application, and the platform is designed for a variety of users, even as it provides powerful capabilities to developers for their day-to-day work.

Business Analysts & Business Developers can directly use Mendix Studio to build, review, and collaborate on an app.

Developers with a technical programming background can use Mendix Studio Pro along with Java and JavaScript to build and extend an app.

Product Owners & Scrum Masters can use the Mendix Developer Portal to govern user requirements, end-user feedback, and Sprint backlogs.

End-users involved in running acceptance tests can use the app in combination with the Mendix Feedback Widget. This feedback is directly connected to the Mendix Developer Portal, so the Product Owner can review and validate the user feedback.

With Mendix, development is visual from start till finish, which ensures that the customer is engaged and requirements are aligned throughout the development cycle.

To make sure developers do not get stuck, Mendix makes sure that any model is extensible. In this way, highly specific application features and low-level optimizations can be built without sacrificing the benefits of model-driven development.

The Mendix Platform provides development teams with an extensive toolset to set up effective quality assurance with efficient test automation, such as an integrated automated quality governance tool called Application Quality Monitor (AQM). AQM monitors app quality during operation, offers a dashboard that provides instant insight into the quality of the app models you are building, and provides insight on the right granularity of apps and microservices.

2.3 Deployment & Operations

Mendix provides all the cloud deployment options you need and is fully optimized for compatibility with the latest cloud platforms and technologies. Running and deploying your Mendix app in the Mendix Cloud is easy, fast, and flexible. The Mendix Cloud is a PaaS-based cloud offering based on Cloud Foundry technology. A Mendix app runs in a container provided by Cloud Foundry and has standard support for horizontal and vertical scaling (without any downtime) as well as auto-healing.

The ability to deploy with one click to any cloud environment or on premises directly from Mendix's modeling environment enables developers with any background to bring applications to their users. In short, the Mendix Platform enables development teams to embrace the DevOps way of working, which means that a single team can develop, maintain, and support apps in production while adhering to enterprise requirements.

What Can I Build?

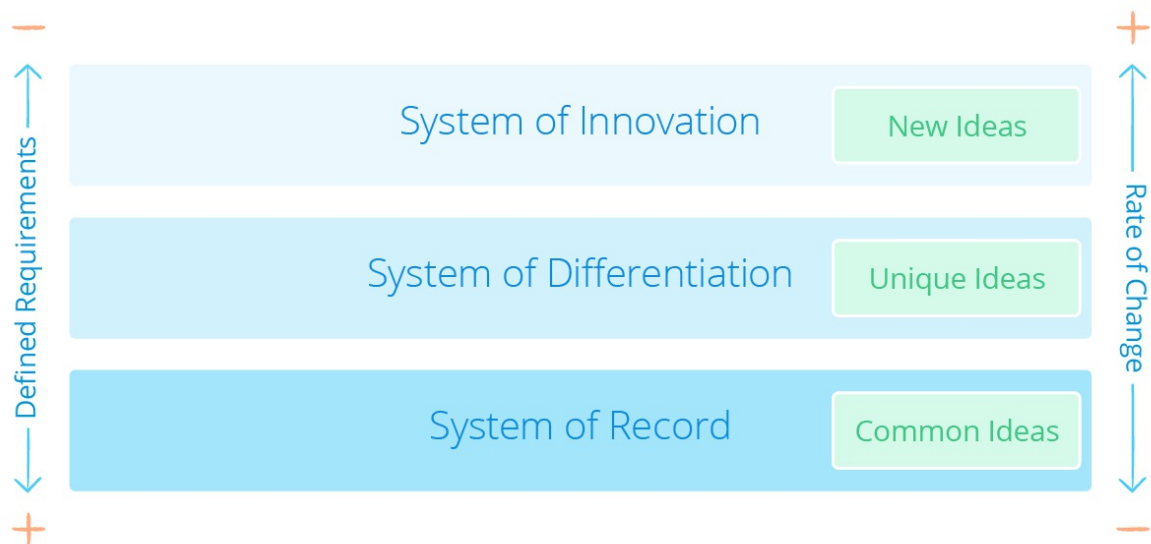
1 In General, What Can I Build with Mendix?

With Mendix, you can build a wide range of transactional, event-driven, and adjacent applications for all kinds of industries, regardless of complexity, performance, or scale.

The Mendix App Gallery showcases all kinds of applications built using the Mendix Platform. These applications are there to present you with the art of the possible.

2 What Types of Projects Are a Good Fit for Mendix?

A good way to explain what types of projects are a good fit with Mendix is to segment the type projects by using the Gartner's *Pace-Layered Model*. Based on this model, an organization's application landscape is made up of three distinct layers, each with a corresponding rate of change. This rate of change is dictated by the uniqueness of the solutions and how concrete the requirements are.



At the bottom of the model is the system of record, which is the foundation of the business. This is a structurally solid system with a slow rate of change and well-defined requirements. In the middle is the system of differentiation, which focuses on fostering outside-in and customer-centric thinking, accelerating the rate of change, and developing unique approaches to sustain differentiation. And at the top is the system of innovation, which represents brand new ideas for the organization and thus has fuzzy requirements and a high rate of change.

Mendix helps most in projects where the requirements are not completely defined up front and in projects that have a high rate of change. In line with Gartner's Pace-Layered Application Strategy, a system of differentiation or innovation matches these criteria. For a system of record, Mendix is a good fit if one of the following points is applicable:

- The application is not available off the shelf
- The off-the-shelf solution is too complex and/or too expensive
- The customer needs more than 20% customization
- The system of record is also a system of differentiation for the customer
- The customer wants more control over future capabilities

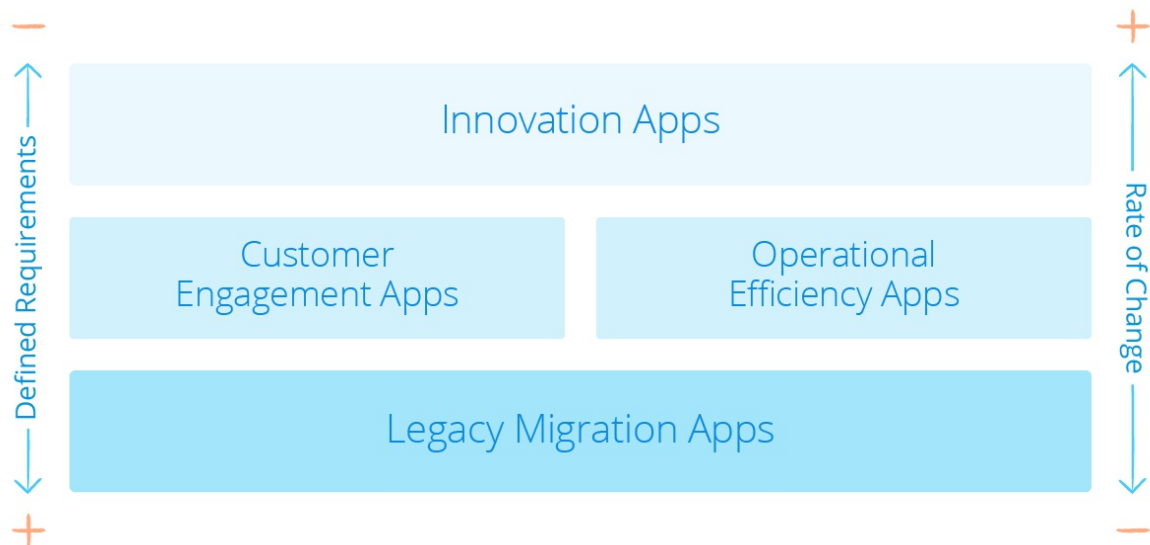
3 What Are Common Use Cases for Mendix Applications?

Based on the experience of Mendix's hundreds of enterprise customers, there are four common use cases that are perfect fits for low-code development with Mendix:

- Innovation apps
- Customer engagement apps
- Operational efficiency apps

- Legacy migration apps

These four use cases are mapped to Gartner's Pace-Layered Model:



The sections below describe these use cases in detail.

4 How Does Mendix Support Innovation Apps?

Innovation applications stem from ideas for new digital business models, products, and channels to help grow and differentiate an organization. Often, they leverage emerging technologies like IoT, AI, and machine learning to unlock new sources of value. Because innovation apps start as ideas (with loose and fuzzy requirements and a high rate of change), they require a high degree of business involvement throughout the entire development process.

These key platform features enable you to build innovation apps in Mendix:

Mendix Studio empowers business users to build prototypes that development teams can continue to enhance via Mendix Studio Pro.

Out-of-the-box connectors simplify integration with third-party databases and applications by handling complex XML messages and utilizing IoT and cognitive services. In turn, developers can leverage emerging technologies and legacy systems with minimal dependencies on IT.

Requirements management via the easy-to-use Developer Portal allows business users to create and track their own user stories, enables the development team to adopt a Scrum-based development approach, and shortens the feedback loop between the development team and the business.

Some great examples of innovation apps built with Mendix are AntTail's medicine tracking app, Solomon Group's RFID wristband event access app, KLM's IoT equipment tracking app, and Heijman's IoT-based smart building management app.

5 How Does Mendix Support Customer Engagement Apps?

Customer engagement applications enable customers and partners to better interact and transact with the business, which helps to improve satisfaction, retention, and revenue. With these apps, the business has a fairly well-defined idea of the app, but the development team must adapt to issues revealed during the application lifecycle. Customer-facing apps often encounter high expectations from unforgiving usage in terms of both usability and seamless, multi-channel access. There are often underlying operational improvements required to support customer-facing processes, and integration with a system of record is required to support the experience layer and existing processes.

These key platform features enable you to build customer engagement apps in Mendix:

Multi-channel apps can be built once for all channels via Mendix Studio's and Mendix Studio Pro's WYSIWYG page editor, which allows users without front-end development or UI design skills to create beautiful, engaging, and highly usable multi-channel apps.

The Atlas UI framework enables you to build pixel-perfect apps. In addition, your company's UI/UX team can create a package containing the organization's design language for use across development teams, ensuring consistency while broadly leveraging the skills of what could be a small UI/UX team.

Horizontal scalability allows additional resources to be added easily as required to support increasing user or processing loads.

Some examples of customer engagement app built with Mendix are agent/broker portals, customer portals, self-service policy administration apps, claims management apps, and student service applications for universities.

6 How Does Mendix Support Operational Efficiency Apps?

Operational efficiency applications are employee- or partner-facing apps designed to lower costs by reducing or automating manual or paper-based processes. These apps may support departmental, cross-departmental, or company-wide processes, and they are often driven by compliance needs, particularly in regulated industries. This type of app almost always integrates with core systems. The closer the app is to the core systems of the business, the more critical the operational robustness becomes.

These key platform features enable you to build operational efficiency apps in Mendix:

Mendix Studio empowers business users to build prototypes that development teams can continue to enhance via Mendix Studio Pro.

Integration options are on offer via an extensive array of Mendix tools for integrating with other systems. The Mendix Cloud enables you to deploy your apps easily and cost-effectively to the cloud.

7 How Does Mendix Support Legacy Migration Apps?

Most legacy-migration Mendix application projects are business-driven transformation initiatives. That is, rather than a pure lift-and-shift of existing functionality, these new apps are meant to replace legacy apps that cannot support new processes or provide the right user experience. As such, they require new functionality, but they should also support current processes.

These key platform features enable you to build legacy migration apps in Mendix:

High Availability is an option for all app environments running under an enterprise license on the Mendix Cloud. It ensures zero downtime in the case of a Mendix Runtime outage.

The Mendix Application Quality Monitor provides benchmarks in the maintainability of apps based on the ISO 25010 standard, which ensures you are not just building tomorrow's legacy.

Integration options are on offer via an extensive array of Mendix tools for integrating with other systems.

Data migration tooling is integrated in the Mendix Platform. For example, visual data mapping allows you to create the optimal data model for a new solution (with traceability back to a system of record), rather than simply recreating the legacy system's model.

Some examples of legacy migration apps built with Mendix include apps for transferring legacy Lotus Notes, Microsoft Access, SharePoint, or Excel applications to an updated system.

8 What Should I *Not* Build in Mendix?

While there are endless possibilities for what apps can be built with the platform, we do have some advice on what you should not build in Mendix.

If your application can already be bought off the shelf and provides 100% of the requirements you need, then buying that off-the-shelf product is advised. Buying such a solution is often more cost-effective (based on best practices) and faster to implement. Typically, these off-the-shelf solutions are available for traditional system-of-record applications (which have a low rate of change), because the processes are well established, common to most organizations, and often subject to regulatory requirements.

However, there are situations when the Mendix platform is a good fit even if the app to be built is a traditional system of record.

The Mendix Difference

1 How Is Mendix Different?

Mendix is the fastest and easiest platform for building and continuously improving mobile and web apps that enable innovation at web scale. It is the only low-code rapid application platform for development and delivery that provides a comprehensive, integrated set of tools for the entire app lifecycle – from ideation and development through deployment and operation.

Mendix is unique in offering both no-code (visual-modeling) and low-code (highly extensible, integrated tooling to support cross-functional teams working collaboratively) tooling in one single platform.

The Mendix development process is architected for the demands of enterprise-ready applications. These apps are maintainable, highly performant, and scalable, and they can cope with the complex nature of enterprise systems and integration.

Through the platform's collaboration and visual development capabilities, Mendix enables a whole range of people with different backgrounds to be successful in building apps that deliver business value in a sustainable way.

This section zooms in on the main aspects of why Mendix is different compared to others in the low-code market.

2 What Is Mendix's History of Delivering Innovation?

Innovation happens when people with ideas and technology come together. The culture of innovation has lived within Mendix from the day the company was started, resulting in a long list of industry-first innovations. Here is just a glimpse of the innovations our customers have been able to leverage:

- The first low-code platform to support AI-assisted development (2018)
- Low-code and no-code collaboration via Mendix Studio (2017)
- Model API & SDK (2015)
- Model sharing (2015)
- Cloud Foundry support (2014)
- One-click cloud deployment (2013)
- Full application lifecycle management support (2012) Integrated app store (2010)
- Web-based applications, AJAX (2005)

We are committed to keeping the Mendix Platform up to date with the latest technologies so our customers can deliver differentiated applications in record time.

3 How Does Mendix Focus on Adding Business Value?

Delivering applications quickly is a key reason for adopting a low-code platform. However, to achieve true agility and scale with application development, Mendix marries speed with collaboration and control. It does this by bringing business and IT together and providing a common language between both worlds.

Mendix involves business users across the application lifecycle, from requirements management during the ideation and continuous feedback process, to direct participation in the development with visual models. The Mendix Platform enables development teams to embrace the DevOps way of working, with a high focus on involving business users. The next section zooms in on how business users—without any coding experience—can build apps with Mendix.

4 How Does Mendix Provide Both Low Code & No Code in a Single Platform?

Both no-code and low-code tools use visual and model-driven development concepts to speed up and transform application development. In a way, the "low-code" and "no-code" labels can be misleading. At Mendix, we think the main distinction is found in the types of people using these tools.

No-code tools (as the name suggests) enable users to build apps without writing any code. The target audience for this capability consists of business analysts, business developers, and citizen developers – users with no or very little experience in software development.

Low-code tools enable a wide range of developers with any level of software development experience.

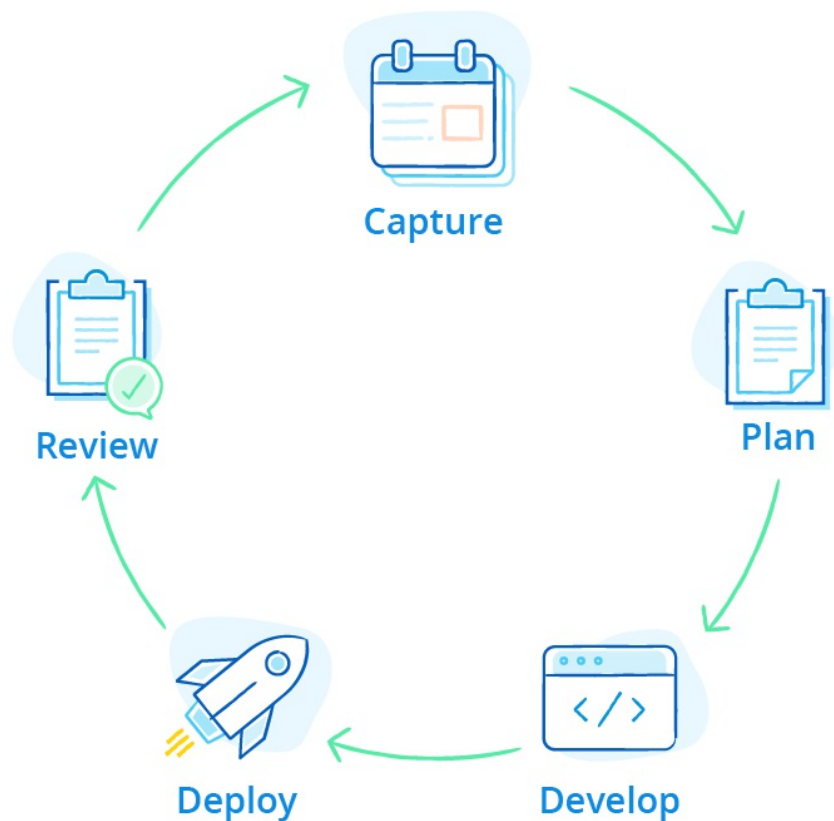
Organizations that want to harness the power of both groups should look for a rapid application development platform that appeals to both business developers and professional developers. Every user should feel comfortable and empowered to build apps

themselves. But the real value is contained in enabling teams of developers from both business and IT with mixed experience levels to collaborate on a single platform and be focused on achieving the same goal – building apps that solve real business problems with unprecedented speed and out-of-the box control.

The Mendix Platform provides Mendix Studio and Mendix Studio Pro visual modelling environments that combine to deliver an integrated and model-driven app development experience across the full continuum of users. What is more, these modelling environments are integrated with the Mendix Development Portal as the backbone for collaborative modelling.

5 How Does Mendix Support Full Application Lifecycle Management?

The Mendix Platform supports the rapid delivery of applications through an integrated set of tools designed to cover the full application lifecycle. Starting with business requirements management, teams can create a backlog of user stories, Sprints, and release plans. Developers can then use Mendix Studio and Mendix Studio Pro to rapidly build these user stories, continuously merge models, ship revisions for automated testing, refactor feedback from the built-in feedback mechanism and collaboration features of the platform, and deploy using the Mendix Developer Portal. The Mendix Application Test Suite (ATS) can be used for automated testing. Finally, end-users can use the app's built-in feedback mechanism.



6 What Does the Mendix Cloud-Native Architecture Look Like?

The Mendix Cloud-native architecture enables you to scale your applications and nodes while supporting the speed and flexibility required to deliver new functionality. Built-in Agile and DevOps features combine with our Cloud-Foundry (platform-as-a-service [PaaS]) support to allow small cross-functional teams to deploy highly-portable microservices- based apps in containers.

The Mendix Runtime executes your applications within the context of a cloud-native architecture by using the Twelve- Factor Principles. The Mendix Cloud is a PaaS-based cloud architecture using Cloud Foundry running on top of AWS.

7 What Strategic Partnerships Has Mendix Developed?

Mendix strives to become the standard in low-code development, and therefore actively pursues and integrates the platform with strategic partners. SAP and IBM are the first two strategic partners to adopt Mendix.

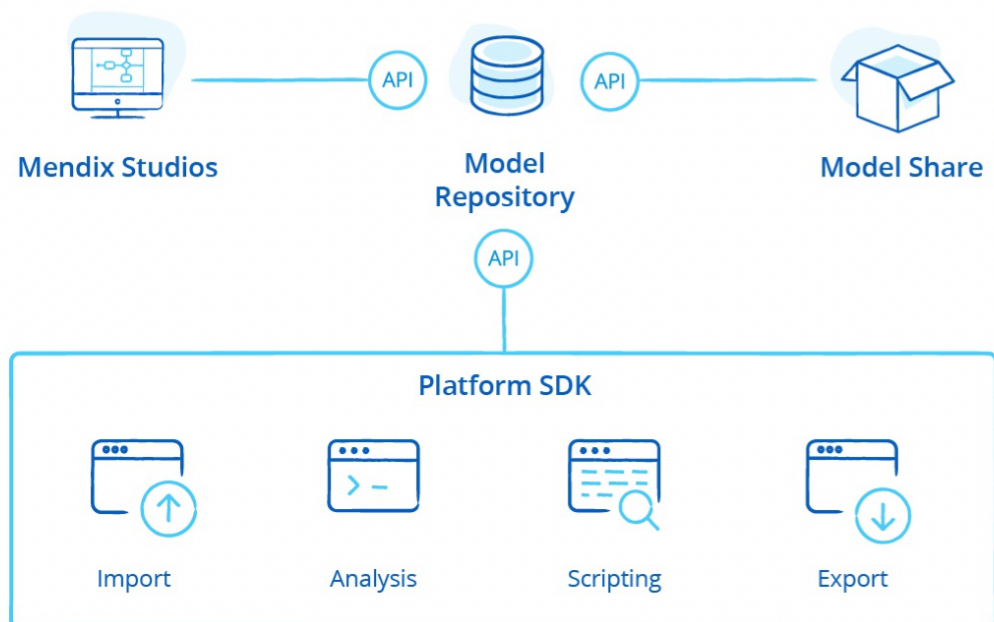
SAP has adopted the Mendix Platform as their own rapid application development platform for extending their solutions. The SAP Solution Extension partnership means that you can not only purchase Mendix from SAP directly, but you can quickly and easily integrate Mendix with SAP in a variety of ways while taking advantage of a single point of contact for support and building Mendix apps on top of SAP.

Mendix is also the standard low-code development platform to be used on top of IBM Cloud. This means you can utilize IBM as a single contact for using Mendix on IBM Cloud.

Because of this cloud-native architecture, Mendix apps are portable over different clouds.

Openness & Extensibility

The Mendix Platform is open and extensible at every level, with an open model specification and tools provided for platform and app extensibility. Mendix apps are extensible with reusable components and custom code. And Mendix Platform APIs allow you to integrate with your existing requirements management tools, test automation suites, and CI/CD pipelines.



No Vendor Lock-In

1 How Can I Avoid Being Locked In to the Mendix Platform?

At Mendix, we have put a lot of effort into opening up our platform in every way possible. We want to prevent you from being locked in, so that you have continued access to your data and models.

You own (via IP rights) all of your data and models, and you are free to do with them as you wish. Mendix helps you in the ways described below.

1.1 Exporting Your App Models

By using the Mendix SDK, you can programmatically access your application models. Of course, the SDK comes with full documentation of the models used to define your app. This enables you to automate a migration to alternative low-code platforms as well as to 3GL languages and platforms like Java and Hibernate.

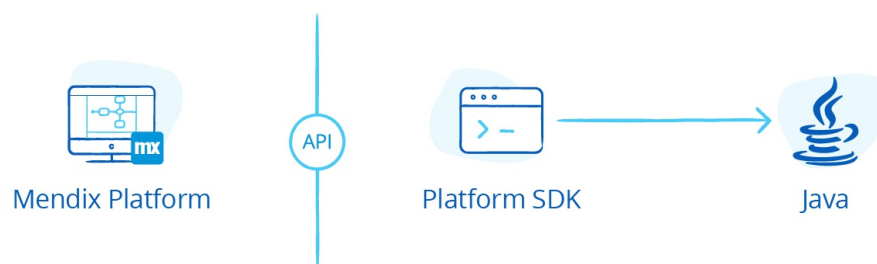
By using the Mendix SDK, you can generate Java classes or SQL DDL statements from your domain models or Java code from your microflows. This means you can convert your models to any technology stack you wish.

1.2 Exporting Your Data

The data is the most valuable part of your application projects. You can always export your data, and there are different ways to do this. In the Mendix Cloud, you can download a backup of all the data in your app, including all the files that form the app. This means you can store the files somewhere else, or you can create a new database with your data. You can then convert the data to other databases or file formats.

2 What Other Project Resources Can I Reuse?

In addition to the application model, Mendix app projects consist of a number of other resources. These resources use technologies like HTML5, CSS, Sass, Bootstrap, and Java. The main goal of using these resources is to allow you to extend the platform as required (for example, by implementing custom microflow activities). Because these resources are based on commonly accepted modern technologies, they can be used by most developers.



Where Can I Use the Openness & Extensibility the Mendix Platform Offers?

There are many occasions for using the openness and extensibility provided by the Mendix Platform. For example, you may have a specific need for a new UI widget or component, or you want to build a connector using the SDK for an external service or API. Perhaps your software engineers want to ensure that the quality of the models developed by business developers is of a high standard by building external scripts using the Model SDK to analyze them and automate updates. Or, you may need to leverage your existing investments in tools and technology, such as CI/CD pipelines and external requirements and project management tools.

How Can I Extend the Functionality of the Mendix Platform?

The Mendix Runtime can be extended using Java Actions that enable you to build reusable microflow activities, which are packaged as native actions and consumed by less technical developers from the Mendix Toolbox or App Store. For the front-end client, you can create custom JavaScript extensions for both web and mobile, including Cordova plugins.

SAP Partnership

Mendix has joined forces with SAP, the world leader in enterprise applications. This partnership has the goal of helping enterprises shorten time-to-value for web and mobile apps by leveraging their investments in SAP software.

What Type of Partnership Does Mendix Have with SAP?

Mendix is an **SAP Solution Extension** partner, which means SAP has fully adopted the Mendix Platform as their platform to extend SAP solutions like SAP Business Suite, SAP S/4HANA, SuccessFactors, and more. The product name that SAP uses for Mendix is SAP Cloud Platform Rapid Application Development by Mendix.

SAP and Mendix offer you the ability to extend the digital core of SAP with low-code rapid application development, enabling you to

Mendix provides specific integration capabilities to any SAP service exposed via OData, either via API Hub, Service Catalog, a specific endpoint, or a manual upload. There is an automated discovery solution to build the necessary scaffolding and local domain from any SAP service. Mendix apps come automatically configured with SAP single sign-on as well as secure access to on-premises data via the SAP Cloud Connector gateway.

IBM Partnership

IBM — the leader in enterprise cloud — and Mendix — the leader in low code development — have partnered to help enterprises shorten time-to-value when building applications. IBM Cloud is built for the enterprise, and it is the only cloud that integrates public, private, multi-cloud, and an on-premises data center through a single architecture. Furthermore, it is designed for cognitive workloads. IBM has selected Mendix as the preferred low-code development platform for use on top of IBM Cloud.

What Type of Partnership Does Mendix Have with IBM?

The strong business partnership between Mendix and IBM allows us to support our joint customers in the best possible way. This partnership ensures applications built on Mendix run on IBM Cloud and integrate with IBM Services as smoothly as possible.

The easiest way to build an app on IBM Cloud is to use the pre-built Starter App within Mendix, which is automatically targeted to run on the IBM Cloud.

Any IBM Cloud services can be consumed by Mendix applications. To accelerate your development, there are out-of-the-box connectors for many popular services.