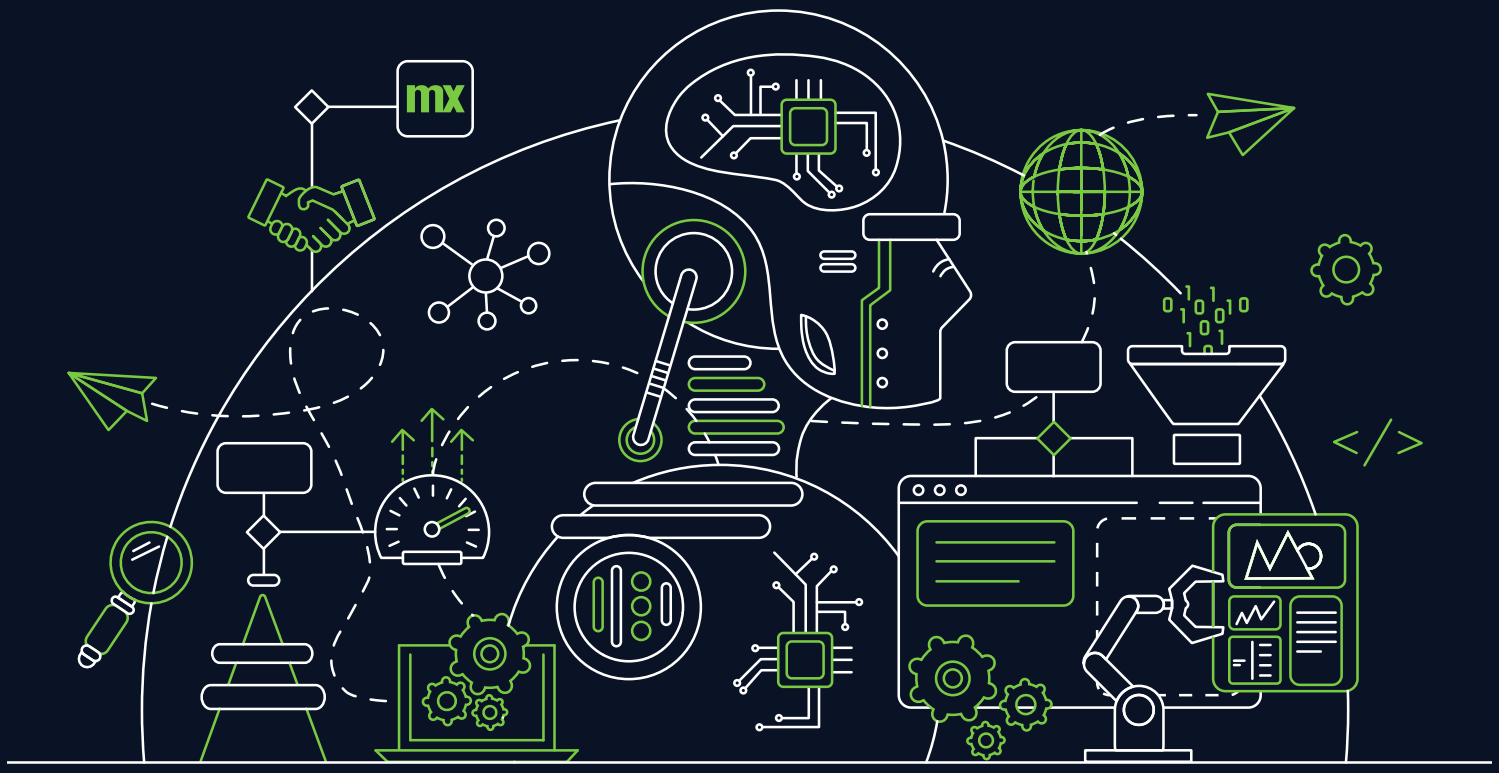
The CIO's Guide to Successful

Process Automation

How Do RPA, BPMS, and Low-Code Compare?



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Enterprise Processes Are Manual and Broken

Manual or broken processes exist in virtually every organization. In many cases, they are mission-critical but provide a poor user experience and waste valuable time on simple, repetitive tasks.

The brave organizations who attempt to automate these processes face complexities that can slow progress or grind it to a halt altogether. Problems stemming from shadow IT, challenges related to accessing necessary data, a disconnect between business and IT departments, and a desire to move quickly are just a few of the challenges that organizations face. Additionally, many enterprises have legacy systems that were built with previous generation programming languages, requiring specific technical skills.

Processes can include a multitude of disconnected systems, counter-intuitive steps, and even paper-based tasks that delay work and cause mistakes.

Business processes, even if they have the luxury of being digital, are in many cases managed across a network of disparate systems, from spreadsheets to email to over-the-phone conversations. In fact, Gartner states that

> "70% of organizations still rely on paper-based activities for critical business processes."[1]

There are many different tools that IT leaders have adopted to help with digitization, but many of these technologies do not automate their processes completely. Rather, they provide point-solutions that fall short of fully digitized, end-to-end processes. As McKinsey states, "organizations in every region and industry are automating at least some business processes, yet only a slight majority have succeeded at meeting their targets."[2]

Choosing the right tools to automate and digitize processes can prove challenging for any organization. With each software comes unique features, pitfalls, and trade-offs. So how do you make sure you're selecting the right software that lets you create the best user experience, optimize your processes, and ensure a future-safe solution? Read on.

1 Forrester. COVID - 19 Remote Work Just Broke Your Processes: Here's What To Do About It, Rob Koplowitz, John R. Rymer, Margo Visitacion, 23 April 2020

2 https://www.mckinsey.com/business-functions/operations/our-insights/the-automation-imperative

RPA and BPMS Tools Just Won't Cut It: A Quick Guide

Delivering a successful process automation project is challenging, and you need to make sure that the technology you choose meets the needs of a modern organization. Between integrating disparate systems, collaborating with a variety of stakeholders, and making sure you invest in a long-term strategy for automation, finding the right tool for the job seems impossible.

The increasing pressure to move manual or paper business processes online has become more significant, pushing business leaders to look to standard automation tools, including Business Process Management Software (BPMS) or Robotic Process Automation (RPA). Let's take a closer look at each.

Business Process Management Software (BPMS)

BPMS is recognized as the de facto standard for long-lived processes that span multiple core systems (e.g., financial approval workflows). BPMS has been the go-to solution for IT professionals looking to recreate a business process using a visual interface with simple logic-modeling capabilities, as well as a process execution engine to carry out specific tasks. While this technology is great for intricate case management, its complexity makes it difficult to implement, prevents intuitive user experiences, and usually requires the intervention of traditional programming languages, making it inaccessible to a wider audience.

Robotic Process Automation (RPA)

RPA excels in automating tasks that humans would otherwise have to do manually from UIs, web pages, and terminal applications. What's unique about RPA tools is the interaction with graphical systems — not just APIs or code — making it an ideal solution for routine, repetitive, and predictable tasks. However, the capabilities that RPA offers do not meet the needs that come with projects tackling enterprise-wide automation. RPA's main disadvantage is that it is confined to individual tasks, rather than being capable of end-to-end processes automation.

Development Process

Successful automation projects require a tool that is accessible to a wide audience of domain experts who know the process intimately well and members of IT who will help build the solution. By integrating domain experts into the development process, IT can deliver a solution that actually meets the needs of its users.

Business process automation solutions that don't provide a collaborative experience across departments or require specific technical skills to implement are preventing IT from delivering a solution that solves automation problems.

Let's see how well RPA and BPMS deliver on the development process.

Development Processes		
Category	**Business Process Management Software (BPMS)**	**Robotic Process Automation (RPA)**
Citizen Development	X Orchestrating business processes with BPMS can be accessible for non-professional developers, but developing specific tasks requires traditional programming skills.	✓ RPA solutions are built to enable non-traditional programmers with development of task automation.
Collaboration	✓ BPMS solutions take the business process into consideration as a starting point, making it understandable for IT. However, development with BPMS requires traditional programming, making it difficult for business users to collaborate during development.	X Within RPA, the hand over between IT and business users is not capable of driving impactful collaboration.
Rapid Development	X Despite leveraging agile, BPMS requires specific technical skills and takes considerable time to implement, slowing down time to market.	✓ RPA bots are quick to implement due to their simplicity: automating individual tasks performed by a single employee within a process, driving impactful collaboration.

An executive perspective:

“We were able to develop Kermit in its first iteration with one developer, a very low budget, and in only nine months”

RICH PALAREA
CEO and co-founder, Kermit PPI

Read their story →

Technical Capabilities

Platform capabilities are just as important as making sure that the right people are engaged when automating business processes. Without consideration for critical features that will ensure a successful automation project, IT will be spending more time managing the solution than it saved. Business processes are typically complex, requiring the ability to deliver a scalable solution capable of change at a moment's notice.

Let's take a look at the technical capabilities you should consider for both BPMS and RPA solutions.

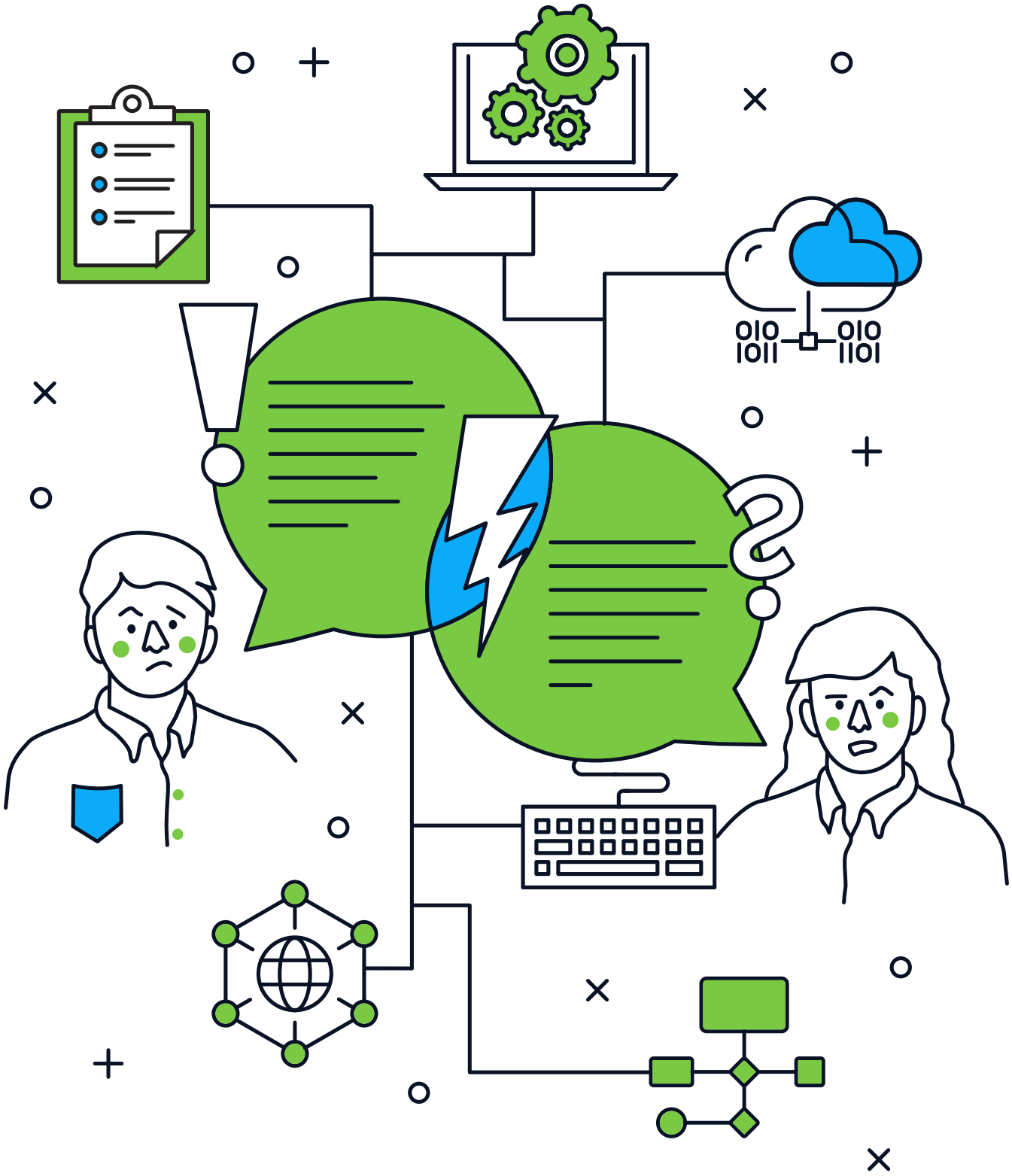
Technical Capabilities		
Category	**Business Process Management Software (BPMS)**	**Robotic Process Automation (RPA)**
Cloud Portability	X Many BPMS vendors require use of their private cloud offering, and in many cases require the solution to be on-premises.	X RPA vendors do not typically offer cloud-native capabilities, requiring a complete rebuild of every individual bot when redeploying.
Integrations	✓ BPMS solutions are capable of orchestrating processes with complex integration needs.	X RPA offers integrations for simple tasks, falling short of the capabilities needed for automating end-to-end processes.
Model-Driven Development (MDD) for End-to-End Processes	X Similar to RPA, BPMS will leverage model-driven development, but typically requires traditional programming skills to manage other aspects of end-to-end process automation, which can include establishing critical integrations.	X Typical RPA solutions use model-driven development (MDD), but not for all components of a complete process automation solution. These missing components can include data structure definition.
Multi-Channel Experiences	X BPMS is used as a separate engine that is configured to orchestrate processes. It is not meant to build user experiences on mobile devices.	X RPA creates a bot that runs in the background of individual tasks. It does not provide the ability to create portals or mobile experiences with offline capabilities.
Scalability	✓ BPMS can be scaled to meet an organization's needs, but due to their complexity it can be challenging and time-consuming to manage.	X RPA is not intended to scale. Its purpose is to automate individual tasks rather than full processes, requiring the recreation of bots for new processes.

Low-Code for Process Automation

Realizing the benefits of digitization requires thinking past the simple conversion of turning manual processes into automated ones or paper into digital. A successful digitization effort should examine the processes that run your business, and see how technology can be applied to simplify, accelerate, or enhance.

Digitization requires two seemingly disparate sets of people: those who understand the business process, and those who understand how to implement the technology. Such a need is exactly why so many businesses are turning to low-code for their digitization or automation needs. In fact, Gartner states that "through 2022, the needs of business-driven (hyper)automation will be one of the top three drivers for low-code adoption."[1]

1 Gartner. Forecast Analysis: Low-Code Development Technologies, By Analysts Fabrizio Biscotti, Paul Vincent, Jason Wong, Laurie Wurster, 22 January 2021



Without a tool like low-code for process automation, there remains a number of barriers between the business and IT for effective collaboration.

Why Low-Code?

The reason for the surge in usage is because low-code application development platforms abstract the technical complexities associated with process automation and enable organizations to rapidly deliver apps to automate end-to-end business processes.

BPMS and RPA are often difficult to implement enterprise-wide, and they're not ideal for building future-proof solutions. As outlined previously, BPMS and RPA have high technical complexity and limited functionality and high technical complexity, respectively, for process automation projects. You need to look for a tool that doesn't require specific technical skills but still offers capabilities that support end-to-end process automation.

You need low-code.

Low-code is the best way to deliver automated process solutions:

- It makes the development process accessible for business stakeholders
- It allows for faster iterations of technical solutions
- It allows for developers with a general skillset to work with specialized technologies

Low-code makes the development process accessible, enabling those closest to the actual process to build automation solutions.

4 Examples of Automation Using Low-Code

McKinsey states “workplace automation is expected to provide a significant opportunity for improvements in performance and efficiency.”[1] Opportunities where automation is ideal for business processes are not always immediately obvious. Consider for a moment how many enterprise processes that can be improved with process automation:

Customer-Facing Processes

New customers who need to submit information to setup their accounts or receive a tour to understand your product.

Saga Healthcare, the UK’s leading elder advocate, increased scheduling efficiency by building a tool that automatically schedules caregivers to patients.

Knowsley Council, a UK borough of 148,000 residents, digitized multiple resident services, shifting their online transactions from 2% to 50% of all service transactions through the council.

See a live-build of an automated onboarding process →

Complex Approval Workflows

Processing documents and requests that were previously handled via email, over the phone, or in-person interactions.

BAM Infra, the Netherlands’ largest construction company, won a tender for 1.2 million Smart Meter installations by building an automated solution to manage the tender, from an end customer requesting a smart meter, to scheduling and logistics, to field service enablement for installers.

Kermit, an industry-first solution that creates evidence-based financial controls for implantable medical device spend, digitized and automated their consulting services for physician-preferred item spend.

See a live-build of an end-to-end approval portal →

1 https://www.mckinsey.com/business-functions/operations/our-insights/the-automation-imperative

Incidents and Services Management

Employees who need to plan, report on, and track activities based on the field work they are completing.

The Municipality of Dubai, a global crossroads with over 3.3 million residents, digitized their services portal, a one-stop-shop for government services, visited by 1.5 million people per month.

Schiphol Airport, one of the busiest airports in Europe, digitized services for their floor managers, enabling them to use mobile devices to streamline airport operations.

See a live-build of a self-service customer portal →

e-Commerce Solutions

Building solutions that provide an online portal for customers to experience.

Secrid, a premier wallet brand from the Netherlands, expanded their online portal to include functionality to order customized wallets, one of their most popular corporate gifts.

Suez, one of the largest water, electricity, and waste management companies on earth, established the U.K.'s first fully transparent, self-service e-Commerce portal for waste management, driving £500,000 in single-quarter new business at 20% of their previous customer acquisition costs.

The benefits of automation and digitization are clear. A common thread through all of these use cases, is the speed and ease with which they enhanced these business processes with low-code. For instance, it only took Suez 3 months to deliver their fully functional e-Commerce portal. The Municipality of Dubai digitized over 250 paper-based services in just 3 months' time. Saga Healthcare built their caregiver-to-patient scheduling tool in just 6 months, after being quoted by a development firm that it would take 3 years. All built, in-house, on a low-code platform.

Development Process

As Forrester acknowledges, in their recent report, "Intelligent Automation Will Push Organizations Flat, Wide, And Anxious," the creativity and innovation of people is what drives successful automation projects. By using low-code to empower people to automate processes, IT leaders deliver solutions that not only prove successful, but also find new opportunities for driving new value. It is critical to leverage domain experts in the development of any business process automation project to ensure success.

> "The true source of business success has always been the creativity and innovation of people."[1]

1 Forrester, Intelligent Automation Will Push Organizations Flat, Wide, And Anxious, Craig le Clair, 1 September 2020

Citizen Development

Citizen development, while not a new concept, is essential to successful process automation. Low-code makes the connecting of systems and services more accessible to a broader population of people, domain experts who may not have the necessary technical knowledge to develop the solutions themselves. Empowering those people accelerates development that would otherwise be bottlenecked to specialists. The three key enablers of this are:

_Development environments for different levels of programming experience

_Re-usable components built by professional developers that can be leveraged by less experienced users

_Collaboration tools that professional and citizen developers can communicate with

Read more about Citizen Development →

Collaboration

When domain and process experts can better collaborate with professional developers during the development process, it removes common obstacles that face most process automation projects, including incorrect assumptions about the details of the process. Low-code fosters the inclusion of domain experts in the development process in a few ways:

_Enabling a collaborative process across blended teams of domain experts and professional developers to accelerate delivery and iteration

_Providing domain experts with integrated visual editors created for their skillset so their contributions can go past prototyping to development

Read more about Collaboration →

Rapid Development

Rapid development cycles enable business and IT users to collaborate and quickly scope out a project, which enforces focusing on key objectives of an automation project, but also allows for flexibility during development. Low-code platforms facilitate business and IT communication by getting a working model in front of the eyes of end-users early and often. Rapid development benefits process automation by:

_Reducing risk with an iterative approach, uncovering bugs and logic issues earlier in the development process

_Increasing quality through frequent feedback taken from business stakeholders and end-users, helping to refine the automated process so that it meets everyone's needs

_Delivering solutions faster, allowing IT teams to focus less on process and documentation

Read more about Rapid Development→

An executive perspective:

“So, the biggest transformational impact that [low-code] allows us within BDC is to match the language of business, essentially removing the effort that we need to apply to focus on the technology. Instead, **we focus on the language aspect**, speaking the same, using the same terms, having a ubiquitous language with the business people. **So, we want to get on the same wavelength as them**.”

HERMAN GELDENHUYS
Mendix Technical Expert

Read their story →

Technical Capabilities

Business process automation is so ingrained within low-code that Gartner cites a critical component of a low-code platform is its ability to help enterprises automate complex business processes. Finding the right platform to automate complex business processes, workflows, and case management means finding a platform that offers sophisticated business logic, can integrate with external services, and serves multiple end-user roles.[1]

The technical capabilities of a process automation solution are just as important as how the development process enables domain experts to take part in process automation. When considering low-code for business process automation, there are a number of features to be on the lookout for to drive a successful automation project.

1 Gartner, Critical Capabilities for Enterprise Low-Code Application Platforms, 30 September 2020, Paul Vincent, Yefim Natis, Kimihiko Iijima, Jason Wong, Saikat Ray, Akash Jain, Adrian Leow

Cloud Portability

By building automated processes in the cloud, IT can spend less time on tedious, repeatable operations. Cloud-native architecture means flexible deployment options, and the ability to scale to any size without redesign. When digitizing and automating processes, it's important to minimize operational risk and maximize delivery speed to ensure a successful automation project. Ideal cloud portability functionality includes:

_Cloud-native portability through open standards and open source to maximize extensibility and flexibility

_Flexible deployment, run in any environment, any OS, cloud or on-premises

_Scale without redesign, leveraging stateless architecture that ensures portability out of the box

Read more about Cloud Portability →

Integrations

Robust data capabilities are necessary for process automation. Low-code solutions can provide a unique and open, standards-based metadata repository that enables multiple types of users to discover and explore data resources to help with process automation. By making it easier to find and understand data, IT departments can spend less time worrying about complex and inconsistent integrations, hand-holding developers, and answering the same questions about data over and over again. The right integration capabilities will enable:

- _Anyone to discover data sources by simplifying the discovery process
- _Easy understanding of the complete data landscape
- _Instant connection with secure data to be used for automating processes

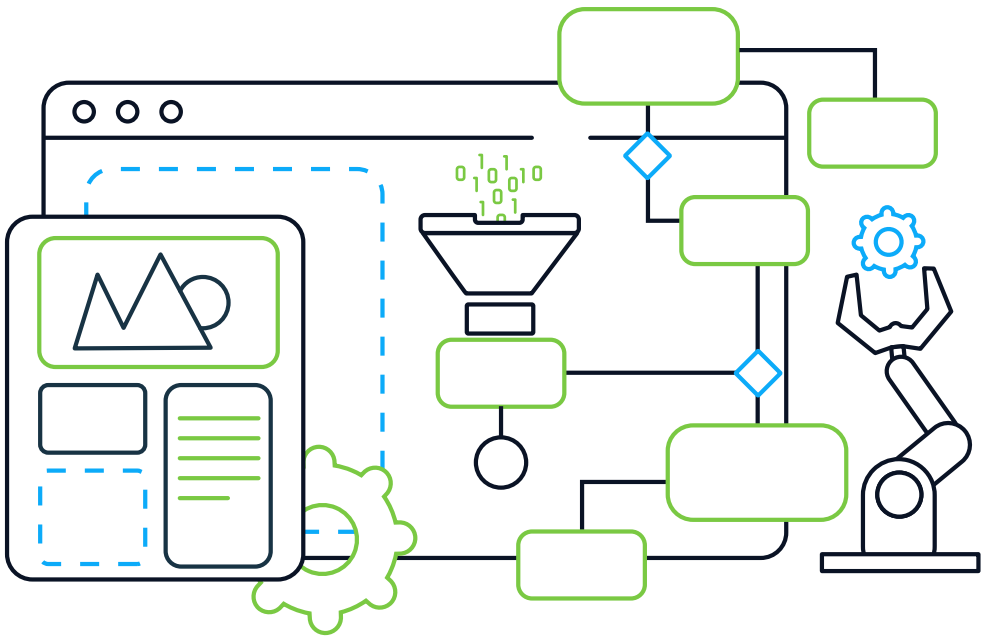
Read more about Integrations →

Model-Driven Development (MDD) for End-to-end Processes

Model-driven development (MDD) leverages graphical models and pre-built application components so that users can visually construct complex applications. MDD makes process automation easier and faster for both technical and business users to orchestrate and deploy business applications to solve process problems. Each process at an organization includes a mix of disparate technologies. Connecting these technologies usually requires specific technical skills, but low-code helps make it easy for the business and IT to visually express a shared understanding of the process. MDD enables:

- The Business and IT to visually express a shared understanding of the process
- Developers to quickly iterate to meet business expectations
- Solutions to grow and change as needed

Read more about Model-Driven Development →



Multi-Channel Experiences

Multi-channel experiences are increasingly important given the continued proliferation of devices and the tendency of users to switch between them. Multi-channel application design is relevant to all enterprise processes, whether B2E, B2B, or B2C. Few companies possess the resources to deliver cohesive multiexperience solutions, despite its importance to many processes. Low-code makes multiexperience development achievable for all developers in an enterprise using a single skillset, on a single platform. Low-code can provide:

_Abstraction and automation of creating fit-for-purpose applications based on different device types

_Assurance that users have a consistent experience across web, mobile, and other unique device types

Read more about Multi-Channel Experiences →

Scalability

As processes are automated, IT leaders will inevitably face the need to continue automation efforts more broadly, whether scaling vertically or horizontally. By adopting a technology that can be scaled easily, IT leaders will be building process automation solutions that will not become obsolete, but rather, be capable of change that matches business expectations. When thinking about scalability, look for a low-code platform that offers the following:

_On-demand scaling (vertically and horizontally)

_The ability to leverage any best of breed CI/CD pipeline tools for seamless automation

_The ability to migrate apps across clouds in the event you need to change directions

_Automatic failover for continuous operation of critical apps or portals

Read more about Scalability →

With low-code you can build end-to-end, process automation solutions that can address the necessary system or data integrations to make it all work. RPA, BPMS, and other commercial-off-the-shelf solutions – along with custom apps – only address specific parts of specific processes. The most effective automation projects leverage a wider range of users and developers. Low-code prevents departmental silos by using a common visual model to foster seamless business-IT collaboration throughout the development process, leading to automated processes that solve more problems than they create.

The Mendix Low-Code Platform→

Future-Proofing Your Investment

Low-code does more than just solve processes; it makes it easy for development teams to iterate on. By using low-code, you have the ability to not only digitize a business process, but also imbue it with intelligent automation, future-proofing your solution.

What is “intelligent automation”?

The low-code approach to addressing process use cases is intelligent automation. At the simplest level, process automation seeks to remove repetitive, rote, and error-prone tasks that keep employees from higher-value activities.

What separates intelligent automation from mere process automation is the inclusion of services in solutions that extend automation not just to repetitive tasks, but to recognizing patterns, surfacing insights, and even decisioning. Ultimately, intelligent automation allows for processes themselves to be adaptable, based on AI, whether this be for a more advanced approach to previously static workflows, or dynamic case management.

intelligent automation

noun [in`teləjənt ˌôdə`māSH(ə)n]

the use of technology for business process automation that enables the inclusion of cutting-edge technology, and is capable of evolution based on changing business needs

Intelligent automation is crucial. Digitizing processes shouldn’t be done just for today’s needs, because tomorrow’s needs must be anticipated as well. Gartner suggests selecting integrated systems infrastructure solutions based on their ability to meet the current business requirements yet still offer the flexibility to exploit the intelligent infrastructure innovations being delivered in the next 7-10 years[1].

With more systems and devices participating in critical business processes, a comprehensive solution is required that can address needs now, and in the future.

1 Gartner, Hype Cycle for I&O Automation, 2019, Manjunath Bhat, 18 July 2019

An executive perspective:

“We are talking about billions of dirhams worth of fees paid to Dubai Municipality, all automated using Mendix. This is the kind of transformation we are talking about.”

PRAKASH INBASEKARAN
Principal Enterprise Architect

Read their story →

Whether it's **digitization, automation, or intelligent automation**, enhancing your business processes puts you on the cusp of a massive, organizational change. **Make the right choice**. Choose the technology that best supports your processes, your developers, your domain experts, your customers, and your organization's **future**.

Time to see what a low-code platform can do for you

ON-DEMAND WEBINAR

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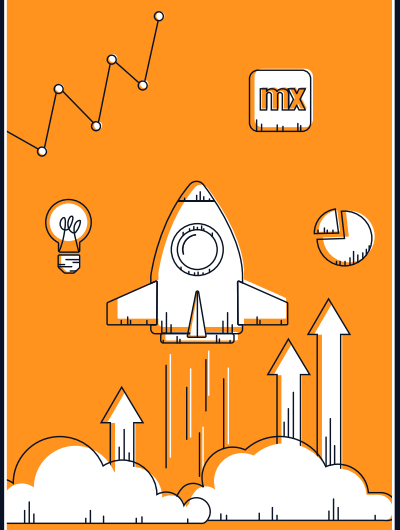

Find out how to drive revenue growth with a better customer onboarding experience

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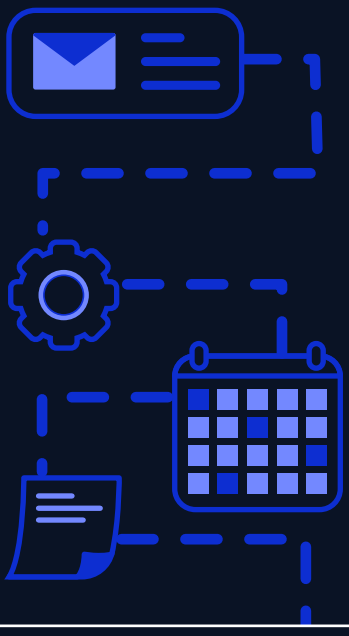
Digitize Complex Approval Workflows



See how to automate approval processes with low-code

Learn more→

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Build an Intelligent Customer Portal for Incident Management

Learn how to leverage mobile, AI, and low-code for best-in-class customer experiences

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