# TRADITIONAL APP DELIVERY IS BROKEN

## And How You Can Fix It Now

**The Innovator's Guide**

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# Introduction

> *"Software is eating the world."*
>
> - Internet pioneer Marc Andreessen

We are in the midst of a profound technological shift in which software is disrupting virtually every industry. Organizations are fundamentally transforming how they operate, interact with customers and go to market—thanks to business apps. We officially live in an app-driven economy.

But to truly ride this app wave and become the change agents they have always had the potential to be, IT teams need to break the shackles that have held them—and their projects—down.

This guide outlines a new mindset and approach to help IT teams deliver game-changing apps faster, easier and cheaper than ever imagined. By accelerating time to market and innovation, they'll, in turn, position their companies to lead this new app economy.

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## The Dynamic Enterprise:
A New Imperative for Business and IT

Our world is being radically transformed by digital technologies and mobile devices. While this applies to our personal lives, the implications are perhaps most profound for the enterprise. There's tremendous potential to harness these forces to unlock new efficiencies and sources of growth and differentiation. But business and IT must first come to terms with the realities of this new world—and how they have radically redefined expectations for business apps.

Let's explore the defining characteristics of today's dynamic enterprise.

# The Pace of Change is Accelerating

Across the board, the pace of change is accelerating rapidly. New products and technologies are being introduced at mind-boggling speeds. Moreover, these innovations reach main-stream adoption in a fraction of the time it took just a few decades ago.

This rapid change is forcing businesses to constantly gener-ate new sources of growth, innovation, and differentiation. While opportunities are abun-dant, the window to capitalize on them is smaller than ever.

Consequently, IT teams are under immense pressure to find faster ways of developing and deploying applications to support new business initiatives.

### From No Telephone to Smart Phones
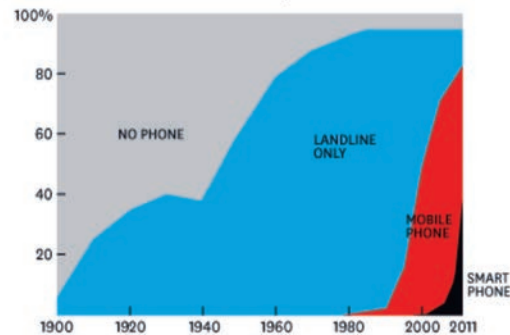


**Source:** Michael Degusta at the MIT Technology Review using data from Forrester, Knowledge Networks, New York Times, PEW, U.S. Census

Equally important, they're being tasked with building frequent change into their process, delivering new software on a weekly or even daily basis to react to evolving needs or market conditions.
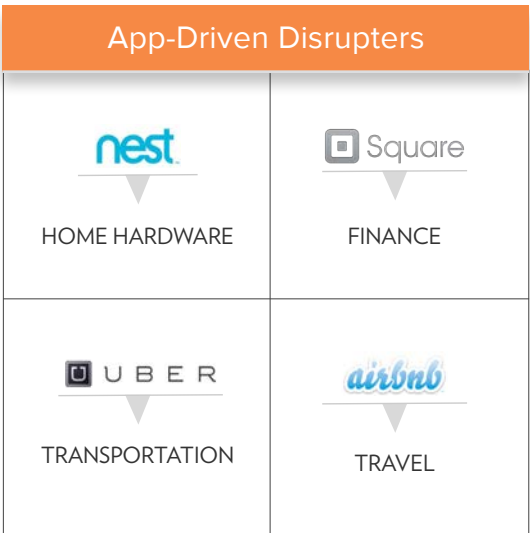
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# Software is Disrupting Industries

**Disrupt or be disrupted.** That is the harsh reality businesses face today. Thanks to the speed of innovation—and lower barriers to entry—new players are disrupting even the most mature industries. For proof, look no farther than Uber in transportation, Nest in home hardware, Square in finance, and so on.

What these innovative companies have in common is the following:

- New players disrupting the status quo
- App-driven approach
- Continuously releasing new versions

Whether you're a young upstart or an established enterprise, custom apps—both customer-facing and

| App-Driven Disrupters | |
|---|---|
| **nest** | **Square** |
| HOME HARDWARE | FINANCE |
| **UBER** | **airbnb** |
| TRANSPORTATION | TRAVEL |

internal—have become a primary driver for growth and differentiation. IT can become a true change agent and business enabler—but this requires closer collaboration with the business, and a shift in mindset from simply keeping the lights on to driving application-fueled innovation.

# Everything is Open and HyperConnected

The convergence of cloud, mobile, social and big data has fundamentally changed the way we do business. These technologies have created the "always-on" economy, requiring a high degree of connectedness across people, companies and processes and producing an explosion of data which, in turn, requires even greater access and connectedness.

Consequently, the expectations of business executives and users across industries have risen, demanding almost immediate IT support for their business needs. Companies can't afford, and are no longer willing to wait for, long and cumbersome IT projects with uncertain outcomes.

While the business is clamoring to use technology in new ways, pulling this off in the enterprise is no small feat. IT landscapes are complex, with major investments in legacy systems. Consequently, delivering new apps requires an openness and connectedness to ensure that



**Changing Dynamics**
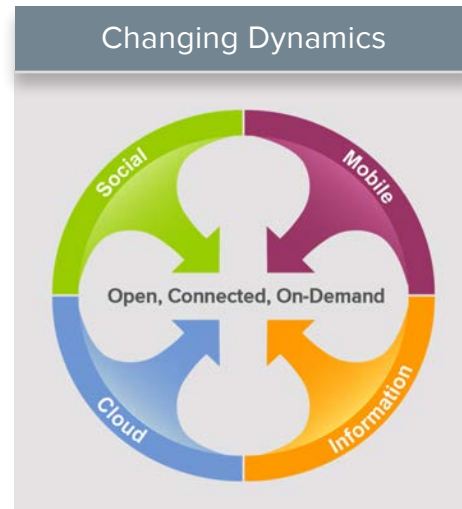
they're easily and seamlessly integrated with existing systems, processes, and data to deliver what the business needs.

At the same time, enterprise apps should provide the ubiquitous access and reliability users have grown accustomed to, while working seamlessly across a growing number of devices.
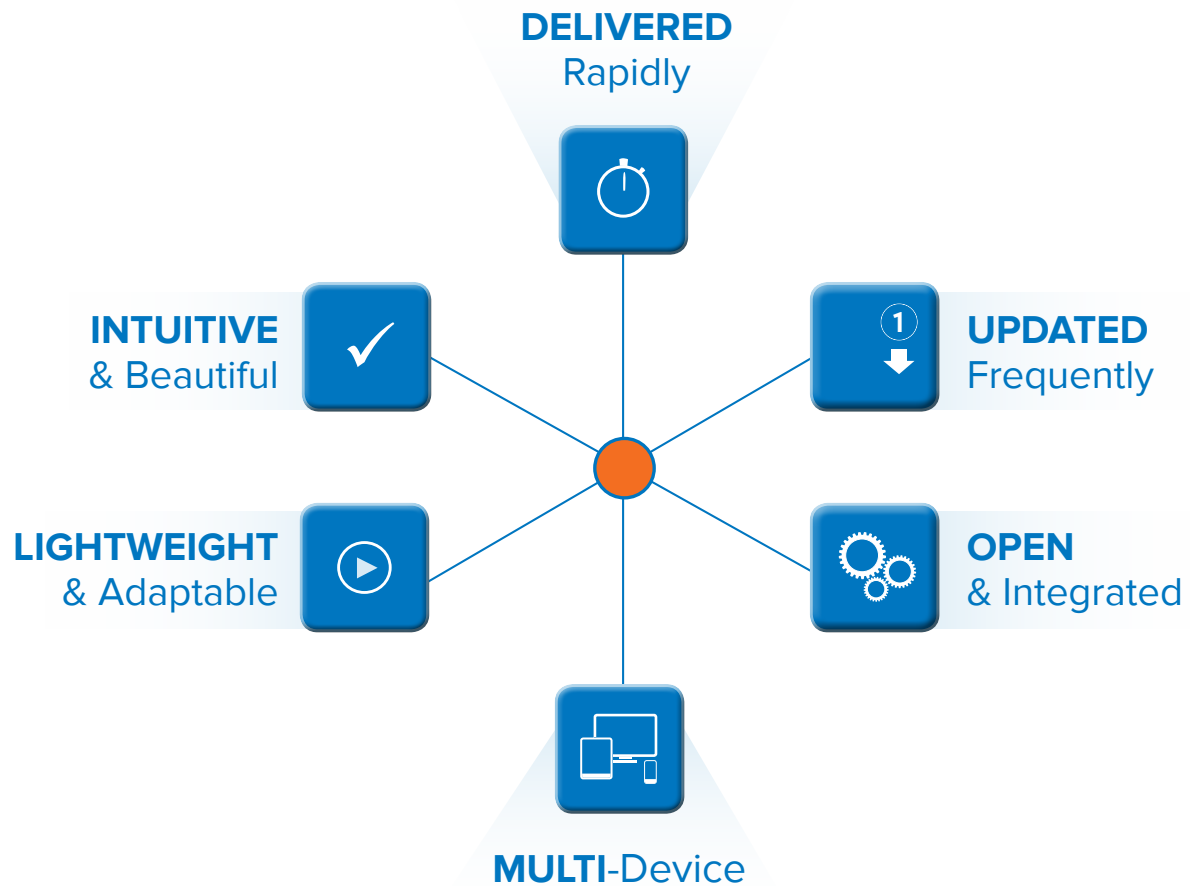
# Consumerization Changes Expectations

It's easy to cast the "consumerization of IT" as just another overhyped buzzword. In reality, our personal experiences are radically transforming expectations for apps in the enterprise.

Business users are demanding that IT deliver the same kinds of intuitive and intelligent apps they use every day. Having finally experienced how simple yet powerful software can be, they now expect:

- Multiple lightweight apps focused on specific needs, not a single monolithic suite

- Apps that are so simple and intuitive that extensive training isn't required

- Apps that leverage the cloud to enable them to work wherever and whenever they need

- Apps that are available on-demand, from a central App Store

- Multi-channel apps that work seamlessly on any device (PC, tablet, or smartphone)

- Apps that are developed rapidly, and updated constantly

These expectations are placing enormous pressure on IT teams to fundamentally transform the way they design, build, deploy, and maintain the business application portfolio.

# **REDEFINING** Enterprise Apps

**DELIVERED**
Rapidly

**INTUITIVE**
& Beautiful

**UPDATED**
Frequently

**LIGHTWEIGHT**
& Adaptable

**OPEN**
& Integrated

**MULTI**-Device

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## **IT is Ill-Equipped to Meet**
## the Demands of this New World

....................................................................

While the world around them has changed dramatically, many enterprise IT teams remain stuck in the past, bogged down in a quagmire of legacy systems and one-size-fits-all development methods. To truly enable today's dynamic enterprise, IT teams must identify the obstacles holding them back, resulting in failed projects, growing backlogs and unhappy business sponsors.

# Bogged Down with Keeping the Lights On

According to Gartner, Inc., worldwide IT spending is projected to total $3.8 trillion in 2014. Unfortunately, 80% or more of that total will be spent on maintaining existing systems also known as "keeping the lights on" (KTLO).

This leaves little budget left for those innovation projects aimed at leveraging emerging technologies to capitalize on new opportunities and propel the enterprise forward. Yet, demands from the business for precisely those initiatives continue to grow rapidly. Balancing those competing needs is a delicate balance.

Author and *CIO* magazine contributing editor Martha Heller sums up this challenge in her book *The CIO Paradox*. She calls it the Cost vs. Innovation Paradox:
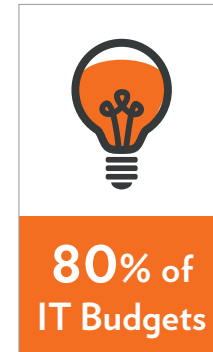
**80**% of
**IT Budgets**

*"As CIO, you are the steward of cost containment, yet you must also innovate... The new dimension for IT contribution is business model innovation."*

**Martha Heller**
Author, *The CIO Paradox*

VIEW
on-demand Webinar

Despite being bogged down with legacy systems, IT teams are searching for ways to support the projects essential to the business.

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# One-Size-Fits-All App Delivery Approach

Not all applications are the same. On one hand, you have large complex systems for managing highly-standardized processes that change little from one company to the next. On the other, you have smaller, easy-to-use apps that support unique (often changing) business models, processes, or market needs.

Despite the wide range of applications within today's enterprise, IT teams often attempt to address these needs with a single monolithic approach that's more geared towards the large, complex, and slow-to-change systems of years past. Ron Tolido, CTO at Capgemini, makes a perfect analogy:

*"Too many enterprises are using 'bus and train tools' to build and maintain their 'car and scooter' applications."*

**Ron Tolido**
CTO, Capgemini

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The results, of course, are lackluster. The business can't get what it needs fast enough. Changes can't be introduced easily or quickly enough. And the business isn't as involved as it needs to be throughout the process to help shape fluid requirements.

# Sole Reliance on Code-Based Development

Another obstacle that's closely related to the one-size-fits-all approach is an overreliance on code-based development. While there will always be a need for code within the enterprise, many IT teams are coming to the realization that it's simply not suited to delivering innovative apps at the speed required by the business.

In a recent webinar, Forrester Research Vice President and Principal Analyst John Rymer touched upon why code alone isn't sufficient to meet growing demand in today's rapidly-changing world.

*"If we rely solely on coding, we're going to fail. It's too slow. It's too inflexible... We can't move fast enough."*

**John Rymer**
Principal Analyst,
Forrester Research

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With code-based development, developers and business stakeholders lack a common, 'language' which makes the process of translating changing requirements into software long, complicated and often risky. Moreover, business users can't easily review the app throughout the process; and when they finally do see it, changes can't be implemented easily.

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# False Starts

In light of these challenges, several new solutions have emerged, claiming to fix the app delivery process. In reality, these alternatives have proven to be false starts, offering very little, if any, improvement over existing methods.

Let's take a quick look at some of these tools and why they weren't the panacea IT hoped for.

### .NET and Java

While .NET and Java are widely used programming languages, they are incredibly complex. One CIO compared coding with .NET to building in concrete: the process is slow and time consuming—and decisions are virtually irrevocable.

### ERP Customization

To deliver new capabilities required by the business, IT often attempts to customize enterprise systems like SAP or Oracle. This requires a language like .NET or a proprietary language like SAP's ABAP. Either way, all of the classic challenges of code apply.



TRADITIONAL INTERNAL DEV

OFFSHORING

WARNING: These roads are one & the same -- fraught with the same peril.

OUTSOURCING

COMPLEXITY

RISK

COST

TIME

VIEW Infographic

### Outsourcing/Offshoring

One attempt to deal with these challenges has been to throw more bodies at the problem. When this became cost-prohibitive, IT turned next to low-cost offshore programmers in India, Eastern Europe, China and other countries. In addition to obvious logistical, managerial, cultural and linguistic challenges, offshoring again relies on traditional code-based approaches.

# False Starts

### Business Process Management (BPM)

BPM  tools offer capabilities for modeling and automating business processes across applications. Their fundamental shortcoming is that they operate on the assumption that the process or functionality already exists.  When it comes to developing new applications, they're OK for building basic forms and screens. However, when rich UIs or complex business logic is required, you quickly have to resort to custom coding, bringing you back to square one.

### Platform as a Service (PaaS)

PaaS vendors provide a computing platform and a solution stack as a service. At their heart, they address only the deployment piece of the equation, simplifying the deployment of code to the cloud. While this offers some improvement over traditional methods, the underlying development challenges stemming from having to write code are still painfully present.

*"The popular wisdom that cloud comes in three flavors (IaaS, PaaS, SaaS) does not provide a realistic picture of the current landscape. The lines between these categories are blurring."*

**Johan den Haan**
CTO, Mendix

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## The State of
## ENTERPRISE APP DELIVERY

| IT PROJECTS are failing | BACKLOGS are growing | The BUSINESS is unhappy |
|---|---|---|
| According to the Standish Group, 94% of large IT projects are either "challenged" (i.e., over budget, behind schedule or didn't meet user expectations) or fail together. Of those that fail, 71% do so because of poor requirements management, notes *CIO* magazine. | Gartner predicts that IT debt ("the cost of dealing with delayed and deferred maintenance of the application portfolio") threatens to reach one trillion dollars globally by 2015. The scale of the backlog has created a systemic risk that is impacting IT organizations. | A McKinsey study reveals that 74% of business executives are unhappy with IT's ability to drive innovation within their organizations. 70% of IT execs felt the same way—which means that even IT isn't happy with the job its doing supporting new business needs. |
| **94%** | **$1т** | **74%** |

# A **Transformative Approach** to Delivery

We know the world has changed and we understand that many IT teams have struggled to adapt. Now what are we going to do about it? In this section, we will outline how to implement a fundamentally new approach to delivering business applications. We'll offer insight into how IT can overcome all of those traditional challenges and finally deliver at the speed of the business.

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# Think in Pace Layers

IT teams often apply a one-size-fits-all approach to app delivery, when in reality, the makeup and needs of each application vary greatly.

A crucial first step towards breaking free from this mold is to think in pace layers. Gartner's **"Pace-Layered Application Strategy"** recognizes that applications are fundamentally different based on how they're used by the business, and distinguishes three "pace-layers." Within these layers, business applications are segmented by the problems they address, their rate of change and the distinctiveness of the business capabilities they facilitate. Specifically for systems of differentiation and innovation, it becomes clear that IT needs to focus on speed of development, their ability to adapt applications to new and ever-changing business requirements, and to enable greater (and continuous) business involvement to ensure project success.
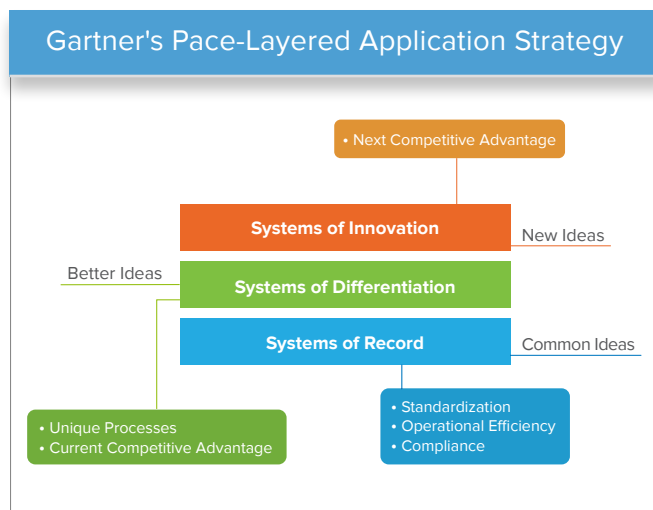
Implementing a Pace-Layered Application Strategy can help IT teams better categorize and prioritize their application landscape. Additionally, it may prompt them to rethink both their development method-ologies and tools in place to support those needs, as they may be quite different from how the organization is used to approaching development projects.

## Gartner's Pace-Layered Application Strategy

- Next Competitive Advantage

**Systems of Innovation** — New Ideas

Better Ideas — **Systems of Differentiation**

**Systems of Record** — Common Ideas

- Unique Processes
- Current Competitive Advantage

- Standardization
- Operational Efficiency
- Compliance

# Embrace Agile

As you move up the pace layers towards Systems of Innovation, agile development methodologies become increasingly crucial. With unclear or fluid requirements and tight timelines, these applications require rapid, iterative development cycles, with significant involvement from key business users.

Agile development addresses these needs by empowering teams to deliver software in frequent iterations, create shorter feedback cycles, and evolve and refine requirements evolve through close collaboration between key stakeholders.

In other words, agile helps provide IT with the speed and flexibility needed to enable business agility in today's fast-paced world.

But enabling rapid delivery of the initial release is just the first step; prompt and frequent updates to existing apps are also essential to accommodate evolving business needs.

According to Forrester Research, this goal remains elusive for most teams, with 40% needing more than 30 days to make changes. Businesses simply can't afford to wait that long! Opportunities will be missed, or the market will have changed.

**40%**
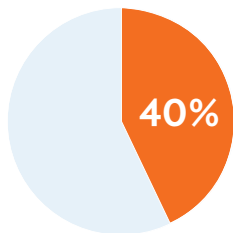
*"Need 30+ days to make changes."*

- Forrester Research, ALM Survey, Q1 2013"

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# Release Early, Release Often

Effectively accommodating constant change and delivering a steady stream of innovation requires a state of continuous delivery. The software development discipline is focused on delivering smaller, more frequent iterations that can be released to production at any time. In many ways, continuous delivery takes agile to its logical conclusion: getting real solutions into the hands of real customers faster.

"Business needs—not technical constraints—should drive the choice of when to release.

While there are many technical aspects to continuous delivery, an important strategic consideration is having a process and platform that supports a closed-loop delivery cycle. Each release should move seamlessly from design to development to production in order to eliminate any friction along the way.
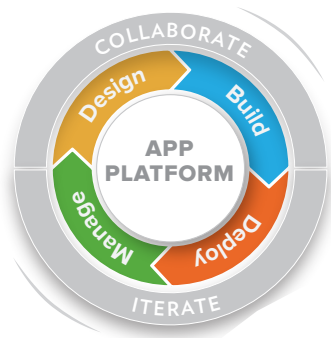
*"When our requirements changed – which isn't unusual with a project of this nature – Mendix enabled us to quickly adapt and adjust on-the-fly. This was extremely important for us."*

READ Case Study

# CONNECT THE DOTS   Across the Application Lifecycle

In order to effectively support agile and continuous delivery, IT teams need an enterprise app platform that not only aligns with these methodologies but seamlessly supports the entire application lifecycle.

**Design** – Capture, refine and prioritize user stories; estimate, plan and monitor sprints; manage releases; etc.

**Build** – Build applications with visual model-driven development to promote communication, productivity, quality and short iterations.

**Deploy** – Provision and manage apps in the cloud, including one-click deployment; manage test, acceptance and production environments.

**Manage** – Manage all applications from a single dashboard, ensuring availability, security, performance and scalability.

**Iterate** – Gather feedback, including end user input, and use in the next cycle of capture-develop-deploy-iterate.

**Collaborate** – Enable all stakeholders to communicate and collaborate throughout the lifecycle of the project.



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# **SOLVE**  App Dev's People Problem

History has shown that improving developer productivity alone has only marginal impact on the success of IT projects. To deliver better software faster—particularly those innovative apps dependent on knowledge residing in the business—organizations must finally make IT/business collaboration a reality.

### **Connect All Project Stakeholders**

For starters, the platform should connect and engage all stakeholders throughout the application lifecycle: IT leaders, professional developers, business analysts/citizen developers, end users, business owners, etc. This is done through capabilities such as real-time communication, direct access to the application, user feedback mechanisms, etc.

### **Democratize App Development**

Previously, the complexity of IT meant that only highly-skilled specialists could work in complicated programming languages. But faced with the need for greater speed and simplicity, companies are now looking to domain experts to take a leadership role in building apps. Consequently, the platform must leverage a visual development paradigm that provides a common language accessible to everyone.

This way, business users can be empowered to build apps themselves, as well as easily understand/review functionality developed by others. In the process, developers are freed up to focus on more technical details of applications, such as integration or performance.

### **Bring End Users into the Conversation**

Up until now, app platforms have been limited to IT, developers, business analysts and key business stakeholders. But there is tremendous value in bringing end users into the fold, creating a single connected universe for finding, building, sharing and using custom applications. This will not only improve IT administration but improve software quality.

# UNLOCK Business Value

Together, this combination of methodology (pace layer, agile) and platform results in the radically new approach needed to effectively deliver applications that move the needle for the business—with the speed, agility and connectedness required in today's world. Unlike traditional development methods, this approach helps IT teams to:

| **BUILD** Better Applications Faster | **RESPOND** to Change and Opportunity | **ENABLE** the Business |
|---|---|---|
| Reduce time to market up to five or even 10 times compared to traditional approach while significantly improving software quality | Capitalize on new business opportunities before they're gone, while accommodating constant change | Deliver what the business needs without being the bottleneck or refusing projects |

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# Modern **App Delivery** in Action

We've described what this radically new app delivery approach looks like in theory. Now let's see it in action, using the different steps in the application lifecycle to explore it in more depth.
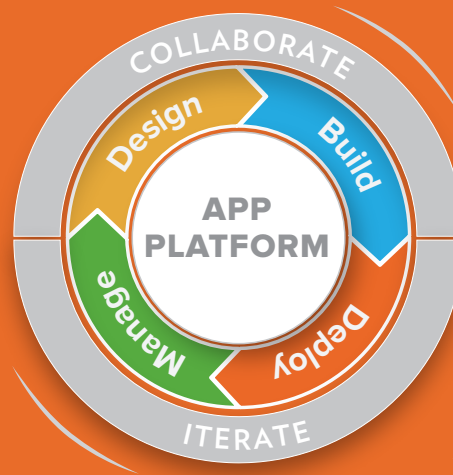
The Design phase of the application lifecycle is best summed up in two words: agile and collaborative. This can be achieved through a combination of project management tools and social activity streams, which offer a way to interact and collaborate with colleagues, project team members, and even external people involved in application delivery projects.
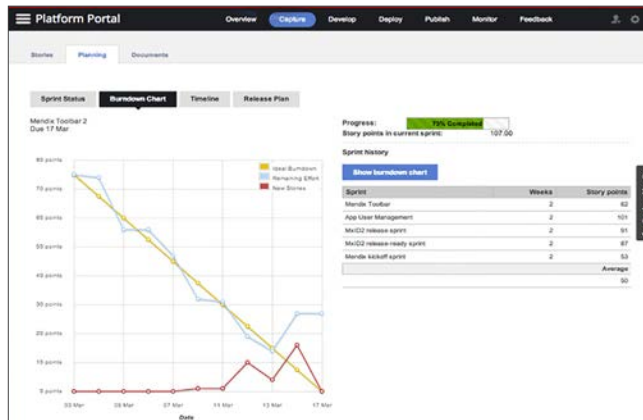


**Example:** The Mendix agile project management space, including a burn-down chart.



*"We had previously used Mendix and were impressed with the technology, the speed of development and their support for the agile methodology."*

**CASE STUDY** ›

### Agile Project Management

To facilitate the rapid, iterative and collaborative development cycles required by businesses today, the platform should be fully aligned with agile methodologies. This includes project management features for:

- Capturing, refining and prioritizing user stories, and managing the project backlog

- Estimating and planning sprints and future releases

- Monitoring sprint progress using scrum boards and burn-down charts


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# Design  Agile | Collaborative

## Social Collaboration

It's essential to break down walls between departments and roles with a central social collaboration space that's as fun and easy to use as Facebook. These private social networks are typically open for all employees to communicate and collaborate in real time, using activity streams, threads, polls, chat, and other features.

These capabilities help spark conversations that generate ideas that are converted into projects. In other words, they facilitate the process of capturing and refining requirements, and ultimately translating them into working software. They also help to keep stakeholders aligned and engaged throughout the lifecycle of the project.
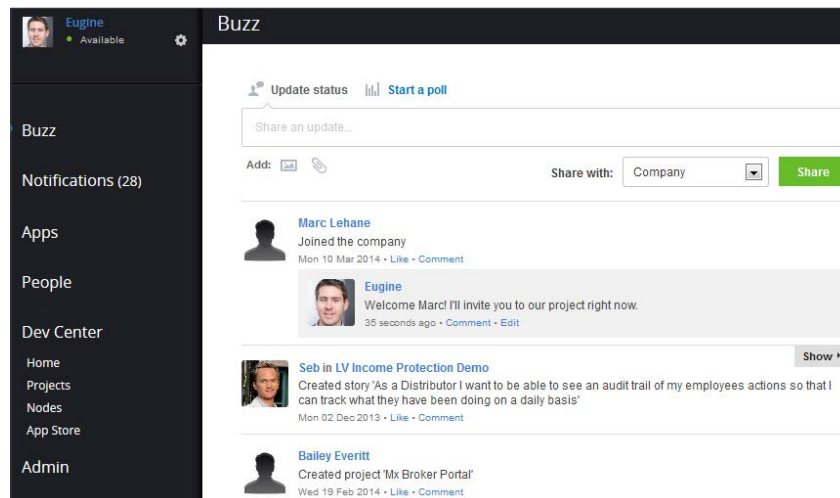


**Example:** The buzz feature of the Mendix App Platform is part of the central space for project members to communicate and collaborate.

In the Develop phase, it is important to leverage a development paradigm that fosters greater communication, productivity, quality and short iterations.

## Visual Model-Driven Development

Model-Driven Development (MDD) has emerged as one of the leading approaches for enabling rapid, collaborative development. Because it uses visual models for defining application logic, process flow, layouts, etc., MDD empowers both developers and business users to rapidly build applications, without the need for labor-intensive, low-level coding. Consequently, it's significantly faster than traditional programming languages like C# and Java.

In addition, MDD ensures short feedback cycles as changes to a model can directly be tested in the actual application. It also provides an excellent communication mechanism to align business and IT stakeholders, thereby ensuring greater quality and more successful outcomes.
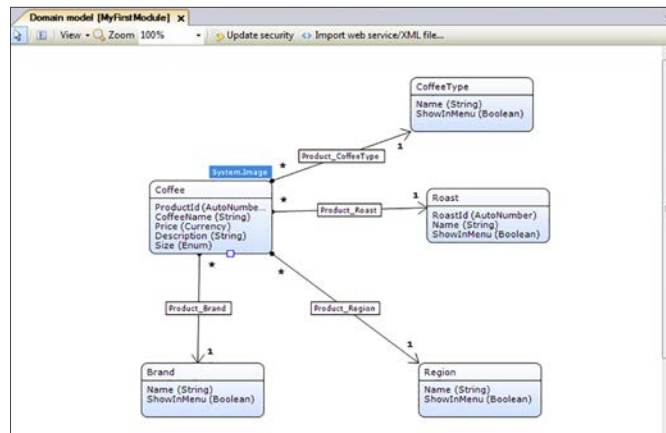


**Example:** The visual modeling environment of the Mendix App Platform. Even complex business logic can be built quickly using intuitive drag-and-drop features.

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### Accelerate Development with an App Store

Development productivity can can be further accelerated through the use of App Store populated with pre-built templates, widgets, plug-ins and even complete business components. In this sense, developing an app becomes more like "orchestrating" the necessary building blocks using an intuitive visual language. You're able to jumpstart the process by easily reusing common components versus reinventing the wheel each project.
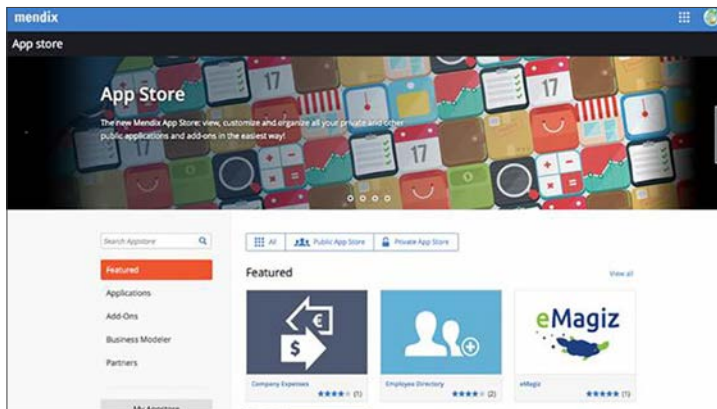


**Example:** The Mendix App Store is fully integrated with the development environment, enabling 1-click reuse of application components.

There are two main types of App Stores:

### Public App Store

A central place for community members to share reusable templates and components. Most are open source, but many App Stores also feature commercial templates and full applications

### Enterprise App Store

A secure app store for IT teams to manage, share and re-use all internal apps and components.

**"By 2017, 25% of enterprises will have an Enterprise App Store."**   - Gartner

### Extending Models with Custom Code

Standard model-driven development function is more than sufficient for most applications. However, there may be instances, albeit rare, where developers need to fall back on a general purpose language to extend a model.

Thus, integration with a 3rd-generation programming language (like Java) is an important part of an MDD approach. Rather than being limited by the reach of a specific DSL, developers can use custom Java functions, when needed.

### Integrated Development Environment

While most teams prefer one single platform, others might prefer specific tools that support different steps of the application lifecycle. That shouldn't keep them from having an integrated environment supporting a closed-loop process.

Many platforms include so-called Platform APIs for connecting tools in your development environment, enabling a seamless cycle.

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**Integrate Any System**

Whether you're building new apps or extending existing systems, ease of integration is crucial. The reality is that for most businesses, integration needs extend far beyond a single application.

The key is to have a flexible platform that not only helps you build applications, but allows you to quickly and seamlessly integrate apps with any existing process and system.

Capabilities like workflow integration, open APIs and prepackaged connectors are essential to easily building the required integration points.

Rather than "ripping and replacing" existing systems, you can use these capabilities to build new applications and functionality on top of existing systems. This way, you're able to renew value in past investments as well as create a more adaptable framework going forward.

*"We had initially estimated about 30 days of development time for each SAP interface. But with Mendix, we had working interfaces in two days."*

- Matthias Bartels, SAP SD/CRM Business Application Leader, KAO

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## One-Click Cloud Deployment

Having sufficiently improved speed of development, the last thing you want is for your team to get bogged down with deployment issues. Cloud deployment is therefore essential in enabling rapid application delivery—and its adoption within the enterprise continues to grow.

According to Forrester, "Adoption of public clouds by enterprises will cross over the 30% mark this year." Forrester's survey of cloud developers showed use of public clouds for all types of applications, including those managing sensitive information and transactions.

With platforms that use executable models, a single click is typically all that's required to run your app in the cloud. This makes  deployment as fast and easy as plugging an appliance into a power outlet.

**>30%**
Adoption of public clouds by enterprises

*"Deploying instantly in the secure Mendix cloud environment further helped us show results quickly and focus on the business need. The Mendix Cloud deployment eliminated significant cost, resource and maintenance effort which we did not want to burden our business with."*

**✦ Arch**

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### Scalability and Control

Cloud platforms typically provide a central dashboard for managing your applications, including availability, security, performance and scalability. These dashboards include graphs showing all kinds of monitoring information like the number of active users and resource utilization. Another key feature is the ability to easily configure alerts notifying you that some metric is approaching a critical level.

### Flexible Deployment Models

In addition to simplicity and control, flexibility is another important factor when it comes to deployment. While the public cloud is often sufficient, there are certain needs that may necessitate alternate deploy-ment options, whether private cloud, on-premise, or hybrid.

Thus, it's important that the platform can support multiple deployment models. Even if this is not an immediate need, requirements often change so having this flexibility can save you major headaches and hassle down the road.
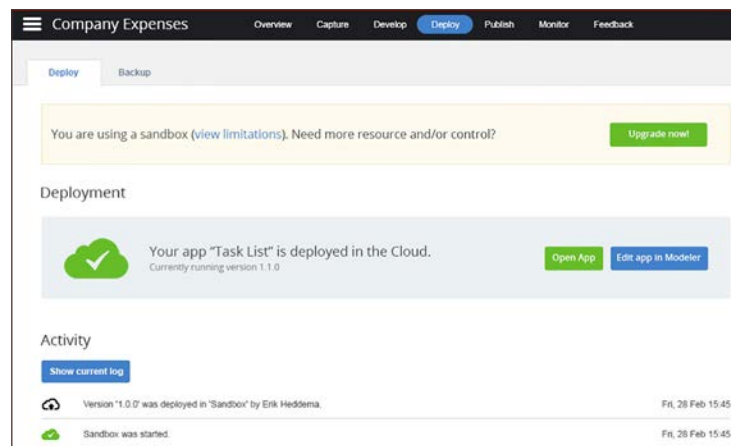


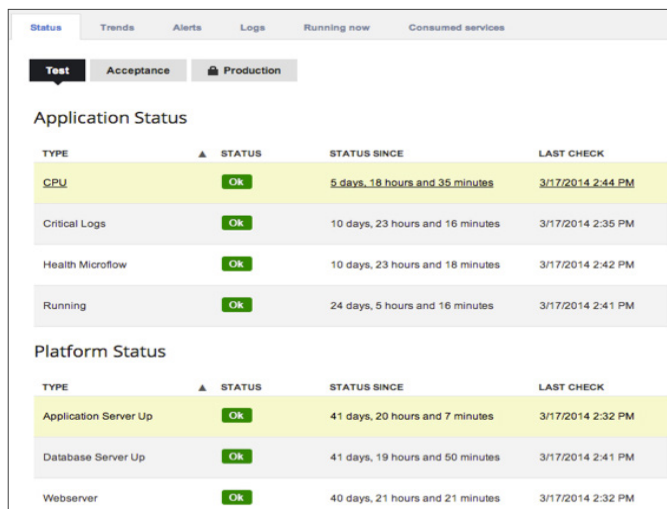**Example:** Instantly deploying an app to the Mendix Cloud.

Since the use of high-level, visual languages for developing applications enables domain experts to be part of the development process, there is an increase in so-called Business Unit Application Development. This should not be something to be afraid of. In fact, there is a great opportunity for IT to become more scalable and responsive, helping the business to take advantage of more opportunities.

The cloud platform running the applications ensures availability, security, performance and scalability. In addition it provides the IT department with tools to manage all the applications within an organization from a single dashboard. IT can enforce workflows around deployment, testing, and configuration. In short: IT can control the app-jungle!

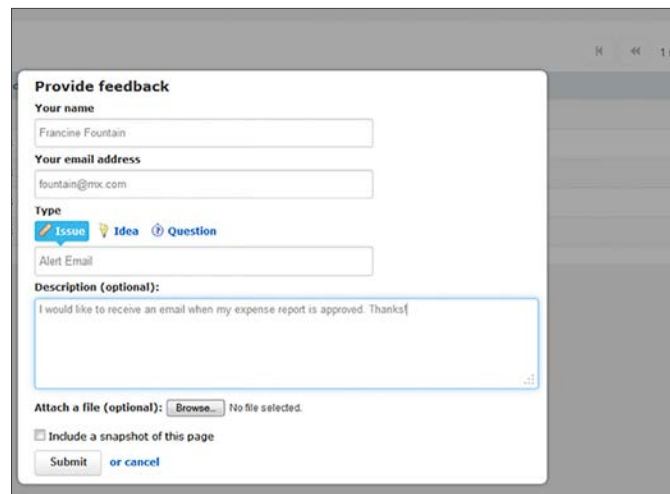In other words, you shouldn't have to sacrifice control and governance over your applications in exchange for greater speed, flexibility and innovation.

**Example:** a monitoring dashboard showing the status of applications in test, acceptance and production environments

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## Iterate  Rapid  |  Continuous  |  User-Friendly

Innovative or differentiating apps are often marked by unclear requirements, as well as frequent ongoing changes as needs evolve. Thus, the iterate process extends across the entire lifecycle, from the initial project phases to apps already in production.

New apps (or functionality) often start with an idea. Business and IT need an environment that facilitates collaboration, allowing them to work from ideas to apps through frequent iterations. Since key feedback comes from end users as they lay their hands on an app, the ability to provide frequent demos/prototypes and easily incorporate feedback are key.

### Closed-Loop Feedback

For apps in production, feedback mechanisms can capture end-user feedback and feed it directly to the development team, fueling ongoing enhancements. Ideally, these feedback buttons automatically capture additional context (user, browser, form, etc.) that allows developers to more easily understand and address needs.



**Example:** A feedback form within a Mendix application.

# Thriving in the **New World** of App Delivery

Implementing a new approach to deliver custom business applications in a dramatically faster, easier and more cost-effective manner is just the first step. In order to truly thrive in this new world, organizations must look to the next phase of application delivery: providing a single connected universe that fundamentally transforms how enterprises use, build, share and manage business apps.

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# Apps in a **Single Connected Universe**

The previous chapter outlines a clear path to build apps faster, easier and with better outcomes. But how do we bring this to life in today's world of customers, partners, suppliers and employees spread across a multitude of channels and devices? How do we make sure innovative ideas have a chance to grow and spread? How do we connect across teams, departments and organizational boundaries?

App delivery today encompasses not only developers, but also power users, end users, external content providers, business stakeholders and IT admins. Successful companies will take advantage of the power of their entire brain trust and foster innovation by ensuring that all are part of the same universe to create the business applications needed to compete in the marketplace.

This connected universe is what Mendix calls the App Cloud. It has the power to fundamentally transform the way companies build and deliver custom business apps.

The App Cloud adds to the rapid application development and delivery capabilities an App Platform a cloud universe where end users, developers and independent content providers can instantly find, share and run apps.



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**Better User Experience**

End users have one central place to access custom apps and shared services (e.g. search and notifications), creating a more unified user experience. They also have access to a growing portfolio of apps.

**Greater Developer Efficiency**

Development and maintenance time is further reduced, thanks to greater access to, and simple drag-and-drop reuse of, standard app components—whether built yourself or available from the community.

**Democratized Development**

With intuitive visual development capabilities literally at their fingertips, business power users or citizen developers can build what they need simply by orchestrating pre-built building blocks.

**Extended Ecosystem**

Developers of all types have an easier way to share (and be recognized for) their work and reuse components across multiple projects or clients, which ultimately leads to greater access to apps for end users.

**Simplified IT Admin**

IT can centrally manage all apps, users and security in one place. App access is completely automated, with new apps appearing instantly for the necessary users.

**Immediate Business Impact**

Business stakeholders benefit from faster time to market, greater efficiency and more immediate business impact of custom apps.

# USE APPS ANYWHERE, with Any Device

One key element of the App Cloud is a single location for end-users to access all their custom apps that help them run their unique business. It provides one consistent user experience across all apps and devices. Furthermore, it can encompass cross-application functionality such as unified search, single sign-on, social activity streams, workflow and notifications.

**Examples:**
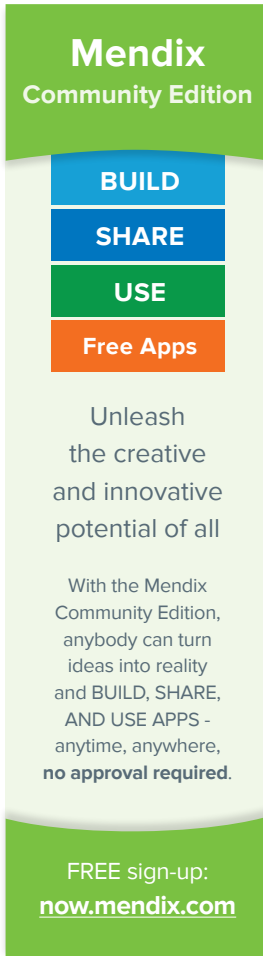
- An employee working in one app could instantly see and react to notifications from other apps without having to leave the app

- Information often locked up in a single application becomes easily searchable and accessible no matter which app the user is using

- Collaboration across teams is instantly available and seamlessly integrated
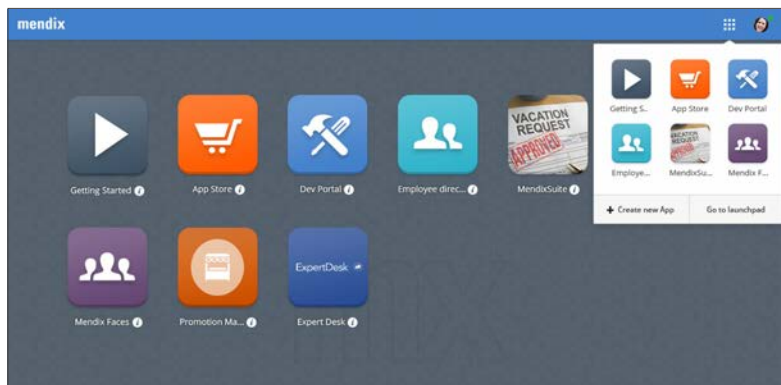


**Example:** The Mendix App Launchpad showing how an end user can access multiple apps from one central location.

# BUILD MORE APPS by More People

## Mendix
### Community Edition

| BUILD |
|:---:|
| SHARE |
| USE |
| Free Apps |

Unleash
the creative
and innovative
potential of all

With the Mendix
Community Edition,
anybody can turn
ideas into reality
and BUILD, SHARE,
AND USE APPS -
anytime, anywhere,
**no approval required**.

FREE sign-up:
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The App Cloud puts the power of building apps in the hands of all, from professional developers to business power users or citizen developers. Anyone can quickly and easily build new apps.

Apps are built in an intuitive visual way and become instantly available to all designated users. No complicated assembling of dev tools, infrastructure or deployment environments.

Moreover, you're able to jumpstart the development process by easily reusing common app services and components in multiple apps, versus reinventing the wheel each project.

As a result of this approach, development speed and capacity is vastly increased. More people within your organization can build more apps that solve more problems or meet more needs. At the same time, IT maintains centralized governance over the app landscape, controlling costs and minimizing risk. And because the business is more involved in every step of the process, projects are more successful.

# APPS BY THE COMMUNITY for the Community

By connecting developers across the broader ecosystem, the App Cloud enables "apps by the community for the community." It's easy and frictionless for developers to share apps and components with anyone, inside and outside the organization.

**THEY CAN SHARE**

- Components and apps with their team or the broader community—and "in turn" leverage community-driven content
- Working demos or prototypes with colleagues for quick review
- New production apps instantly with all necessary users

A marketplace of apps in a well-stocked App Store provides complete apps, templates, samples and app services and optimizes development resources. Developers can easily build, manage and share applications, components and app services and kick-start the development of new apps.

**SHARE**
With

TEAMS
Users
**DEVELOPERS**
Community
*Anyone*

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# APP CLOUD for the Enterprise

While the App Cloud spurs more people to create and share more apps, this shouldn't imply that IT is once again faced with a unregulated and impossible to manage app jungle.

To the contrary, by providing a single, central environment for using, building and sharing custom apps, IT can meet the growing needs of the business while maintaining control.

In fact, IT administration of multi-app landscapes is even easier. Just as users have one place to access apps, admins have one place to manage all apps, users and security. The entire process is much more automated, with new apps instantly appearing on users' launch pads. This eliminates the need to email links to apps and other manual processes.

| BUSINESS Enabled | | IT Controled |
|---|---|---|
| **Fast** | | **SECURE** |
| Flexible | **+** | Governed |
| **EMPOWERED** | | Compliant |
| *Innovative* | | *Scalable* |
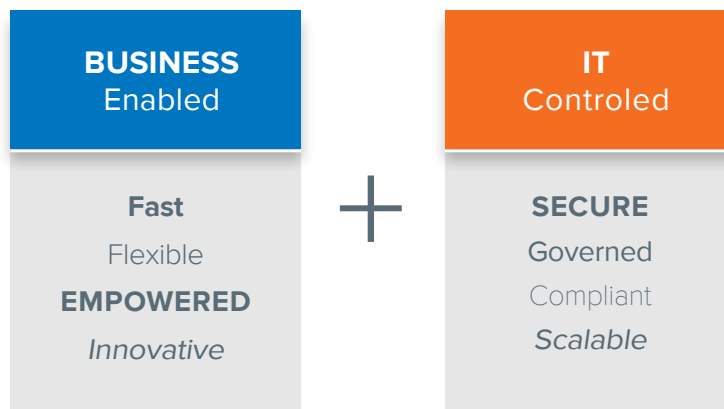
# The **Value & ROI** of this New Approach

By bringing IT and business users together to rapidly, iteratively and collaboratively build applications, this new app delivery approach can help you unlock significant business value and ROI. While each app or project offers advantages over traditional development approaches, delivering dozens of apps this new way can yield massive ROI, and fundamentally transform the way IT supports the business.

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# App Platforms **Unlock Significant Business Value**

| Resources | 👥 |
|---|---|

| Time | 🕐 |
|---|---|

| Cost | $$ |
|---|---|

X

**Number of Apps**

| Change | ◔ |
|---|---|

| Time to Market | ▬ |
|---|---|

| Opportunity | 📈 |
|---|---|

# Greater IT/Business Collaboration

At its heart, this app delivery approach brings IT and the business together, fostering greater collaboration and communication. In turn, this translates to numerous benefits, including:

**Better Applications** –Project members collaborate on solving the business problem, not long requirements gathering exercises. Moreover, greater business involvement and feedback loops lead to more and better input.

**Faster Time to Market** – A rapid, iterative development process leads to a focus on the solution that is easiest and fastest to implement, while still solving the problem. Moreover, validating assumptions early and often saves time on rework, shortening project cycles.

**Less Risk** – By working closely with the business, developers make less assumptions and fewer things are lost in translation. Moreover, it's easier to identify functional gaps, preventing unexpected issues late in the project.

The 7 Keys to Deliver Better Applications Faster through Effective IT/Business Collaboration

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# Small, High-Productivity Teams

Because productivity is so much higher with this new approach, you're able to have much smaller teams: 2-5 people versus dozens or more using traditional development methods.

Arch Re Fac, TNT Express, Agis Health-care, Achmea Healthcare and LV= insurance all built large or complex apps with only two team members. An even more telling example is a North American bank, where the team is now one-tenth the size as a result of switching from .NET to this visual, collaborative approach.

In addition to keeping teams small, you can further optimize efficiency by:

**Balancing Business
and Technical Engineer**
Deliver results quickly, while ensuring the solution is sound from a functional and technical perspective

**Optimizing Fly-in Experts**
Use them when needed, versus keeping them idle for long periods of the project

**Getting More Out of Junior Members**
Balance cost and quality and minimize risk

*Two Capgemini business engineers built an incident registration system for NS Hispeed in just 8 weeks.*

READ
Case Study

Capgemini
CONSULTING.TECHNOLOGY.OUTSOURCING

*"With just two developers and a business analyst, we had our first version in about two weeks."*
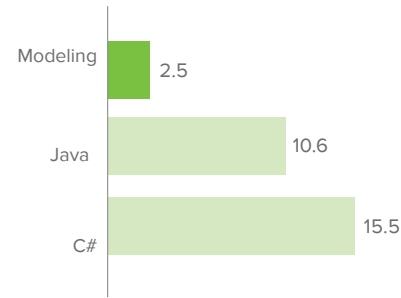
READ
Case Study

ISS

# Faster Delivery & Time to Market

Hands down, this approach offers the fastest way to deliver custom business applications.

When you replace traditional coding with model-driven development, building applications becomes orders of magnitude faster.  An analysis by Capgemini found that found that MDD took only 2.5 hours per function point compared to 10.6 hours for Java and 15.5 hours for C#. Coupled with instant cloud deployment, these massive productivity gains can shrink what would have been a 6-month project literally down to 6 weeks.

When it comes to delivering innovative and differentiating applications, faster time to market is crucial. This approach enables enterprises to effectively capitalize on new opportunities—before the window is lost. Moreover, it facilitates a continuous delivery approach that makes constant change the norm.

## HOURS PER FUNCTION POINT

Modeling — 2.5
Java — 10.6
C# — 15.5

**Source:** Capgemini

*LV rapidly delivered apps to support the market testing of new insurance products.*

READ Case Study ›

LV= LIVERPOOL VICTORIA

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# Significant Cost Savings

This new approach to application delivery generates significant cost savings over traditional methods. Here are a few different ways how:

**Fewer People** – Smaller teams mean less human resources. And because business analysts are able to do 80% of the work, you need fewer highly-skilled, expensive developers.

**Shorter Projects** – Higher productivity results in shorter projects and lower overhead. In addition, getting the application months sooner means additional time or money saved.

**Better Software** – Because the approach is collaborative and iterative, there is less rework required. It also virtually eliminates project failures, a significant waste of money.

**No Infrastructure** – Instant cloud deployment eliminates significant upfront hardware and infrastructure investments, as well as time-consuming ongoing maintenance.

*Maintenance costs reduced by more than $1 million per year.*

READ Case Study ❯   Protestantse Kerk

*App saves more than $1.7 million within the first three years, in addition to accelerated top-line revenue growth.*

READ Case Study ❯   First Nonprofit Insurance Company

# Ease and Frequency of Change

As Forrester Research Vice President and Principal Analyst John Rymer noted in a recent webinar, time to market means two things:

- Fast delivery of the initial release
- Prompt updates and changes "designed in"

The latter, though often overlooked, is equally as important as the former in today's world. Given the rapid pace of change, frequent updates are required, even demanded by the business.

Fortunately, this approach makes frequent updates as fast and as easy as the initial release. In fact, many companies are able to dedicate a single resource from the business to the task of making basic changes, freeing up IT resources for more strategic projects.

On a more strategic level, IT is able to move at the speed of the business and finally start to clear out those massive maintenance backlogs.

*Model-driven development is so intuitive that key business users have taken over basic app maintenance.*

READ MORE  >  The Boston Globe

*Tweaks required after deployment were handled within a day—instead of the two weeks it previously took.*

–Multinational Retailer

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# Massive Opportunity Costs

Lastly, it's important not to overlook opportunity costs. By accelerating project timelines, this approach unlocks greater efficiencies and revenues, resulting in a cascading effect.

Think about it. If you finished a project in 6 weeks versus 6 months:

- How much additional time or money would you save—or revenue gain—by having that app in production that much earlier?

- What other projects could you tackle with that additional time? In turn, what efficiencies would they unlock?

- What would be the advantage gained by being first to market with a new app?

The true value becomes staggering when you multiply these benefits over dozens of apps. Suddenly, IT is in the position of being ahead of—not behind—the business. And it becomes a true strategic partner that drives the business forward.

**Nederlandse Energie Maatschappij**

*"We're fundamentally transforming the way IT enables the business. We're just getting started in terms of how we can leverage the platform to drive our innovation and growth."*

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# CONCLUSION

*"You could not step twice into the same river, for other waters are ever flowing on to you."* A Greek philosopher said that thousands of years ago, but it rings even truer today.

Thanks to a groundswell of technological innovation, the pace of change is accelerating rapidly. Custom apps have become the primary driver for growth and differentiation today—but they must be delivered in a more rapid, agile and collaborative manner than ever thought possible.

With the world around them moving at warp speed, IT teams need to ask themselves: Are they (and their organizations) trendsetters or trend watchers?

History has shown repeatedly that the companies that don't adapt to changing dynamics simply will not survive. It's time to embrace a new approach to application delivery in order to help your organization not only thrive but dominate in this new app economy.

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