Pega 7 offers Pega customers a broad range of new and improved features intended to enhance the capabilities of deployed systems, reduce their on-going cost of operations, and reduce the time to deploy new projects.
Executive Summary

THE BUSINESS ISSUE

Many existing Pega® applications are running on older versions of the Pega platform. While running well, these applications are not keeping pace with changes in the industry. They may lack a mobile or social user experience, be without the updated technology to reflect more efficient work styles, or could otherwise benefit from underlying architectural changes to simplify and speed development of new capabilities.

THE SOLUTION

Upgrading to Pega 7 provides an opportunity to automatically enhance existing Pega applications by taking advantage of underlying capabilities available in the newest version of the platform. Pega 7 delivers the following distinct capabilities and advantages:

- Applications can easily be adapted to engage more users through more channels and harness the power of big data analytics to make them more intelligent.
- Application enhancements and maintenance are easier.
- Pega 7 improves business agility by enhancing system development speed and accuracy in the three most critical and generally time-consuming areas: getting the requirements right, getting the user experience right and getting the data right.
- Pega 7 helps IT organizations that want to reduce their on-going application operating costs with tools to proactively manage their applications and robust infrastructure to eliminate unplanned downtime. With Pega, these organizations can build applications in a way that avoids future issues that can affect upgrades with easy-to-use tools.
- Pega 7 delivers a high-performance platform that is better suited to multitenant environments, helping to reduce costs.
Enhance The Business Value of Existing Pega Applications with New Capabilities

Pega 7 offers Pega customers a broad range of new and improved features intended to enhance the capabilities of deployed systems, reduce their on-going cost of operations, and reduce the time to deploy new projects. This paper explores these capabilities and their benefits for customers deployed on Pega 5.x and 6.x releases.

Many existing Pega applications were created when smart mobile devices and social computing did not yet exist or were in their infancy. Today, these technologies and the data they produce create opportunities to enhance the value of these Pega applications by engaging more users through more channels and harnessing the power of big data analytics to make them more intelligent.

**ENGAGE MORE USERS THROUGH MORE CHANNELS**

The rapid proliferation of mobile devices and social channels creates opportunities for companies to better serve customers and empower employees wherever they go. More and more, consumers take mobile access as a given. And with social networking technology, they are empowered to complain publicly if they don't get what they want. This empowered customer is changing the marketing and service landscape for all consumer-facing organizations. Even the world’s top brands have been challenged to keep up with the fast pace of change. More than one billion customers engage with the Global 500 on social media, but Maritz Research shows that 70 percent of customer queries and complaints through this channel go unanswered.

Serving users on mobile devices compounds this challenge. Current industry practice requires that companies serve customers across a host of different platforms, including web apps, mobile web apps, iPhone, iPad, Android, and Windows Phone. These channel-specific applications limit reuse and create a fragmented experience for customers and users. They also make it hard for your organization to interact with customers to understand their needs and solve their problems.

Recognizing these challenges, Pega 7 introduced Multi-Channel UX™ to open applications to mobile and social channels. Multi-Channel UX “design-once, access anywhere” user experience delivers consistent, attractive and intuitive user experiences across all channels of interaction.
In Pega 7, you create your UI design once, deploy on any device, in any locale, in any browser. There is no coding required: Pega automatically generates the details—the semantics specific to browser and device environments, such as mouse-oriented or touch-oriented features which are automatically selected depending on the device. This means you and your customers will get projects done faster, at lower cost, and with greater agility to respond to changes in the future, including the addition of new interfaces and channels.

User Interfaces in Pega 7 are based on latest web standards, HTML5 and CSS3. The model-driven user interface conforms to these standards. The HTML5 readiness landing page guides customers with Pre-Pega 7 based applications to adopt to these new standards. Any new applications created in Pega 7 automatically adhere to these standards. Key updates to Pega 7 Platform's user interface features include:

- Modern layouts that generate semantic markup and offer a wide range of flexibility. This includes the ability for these layouts to ‘respond to’ changes in browser width, device size and orientation. There are different purpose specific layouts available – Screen layouts to organize the application UI shell, Column layouts to display primary information alongside supporting information, and Layout Groups to organize the UI using Tabs, Accordion panels or as a Menu.

- Flexibility in displaying lists using traditional grids, or using repeating dynamic layouts that offer the ability to display items in a list or as tiles or any other layout. Grids also offer many new configurations.

- Many new model-driven controls available out-of-the-box that supports standard control configuration including full set of events and actions.

- Comprehensive styling and branding capabilities through the Skin. Skin inheritance provides the ability to create multiple layers of styling based on your organizational styling needs.

- Live UI, a major productivity improvement, allows business stakeholders and developers to collaborate on the user experience interactively from within a running application. With Live UI, the team can adjust layouts (e.g., 3-column to 2-column), UI controls (e.g., change a link to a button with text), styling (e.g., button color), mandatory/ non-mandatory field behavior, and field labeling. You can even add more content to the UI using Live UI.

- Pega 7 is accessibility capable and provides many configuration options to make your applications assessable for those using assistive technologies such as screen readers.

- Pega 7 is also internationalization and localization ready. The localization wizard has been updated for more efficient localization of your application to different languages. Right to left languages such as Arabic and Hebrew are also supported and the UI automatically rearranges for right to left languages. There are comprehensive configuration capabilities provided in Date, Number and Currency controls to support different locales and currencies.

- HTML post message based Pega Web Mashup that enables you to easily embed Your Pega based application UI into your website or other third party application.
Advanced Mobile Capabilities

Pega 7 supports the following three types of mobile solutions:

- Pega Mobile Web uses responsive web technology to provide users with an optimized web browser experience regardless of device and screen size. This allows for existing applications to be easily mobile-enabled with no need to use separate tools for additional development.

- Pega Mobile Client enables organizations to create a branded Pega-based mobile application that is distributed via an app store. This approach provides offline operations for use in places without network connectivity as well as access to mobile device specific features, such as the camera and signature capture.

- Pega Mobile Mashup offers organizations a simple way to use Pega application components and embed them in an existing, native mobile application. This creates a fully company-branded experience for a user.

Key updates to the Pega 7 Platform's set of mobility capabilities include the following:

- The ability to build an app that can be distributed to Windows 10 devices, including tablets and laptops, equipped with offline support.

- A mobile apps landing page within Designer Studio. This is essentially a control panel for all mobile applications, services, and settings. It includes a clear interface for configuring mobile applications regardless of their type.

- The ability to incorporate Pega's mobile SDK into a 3rd-party mobile app and send push notifications to any number of apps directly from Pega 7.

- The inclusion of push notification testing, thus allowing customers to immediately receive feedback for administrators regarding all push notification components.

- Geolocation recording for Mobile Client, enabling the management and accounting of a customer's mobile workforce by accessing their location history. Metrics recorded include device position, speed, and direction.

- Improvements to the native Mobile Client UI, including new flip and cube transitions.

- iOS improvements, including a new rendering engine (WKWebview), support for iOS 10 and Xcode 8, and mashup SDK improvements.

- Android improvements, including Android 7 Nougat support and mashup SDK improvements.

- User supportability improvements, including remote user troubleshooting. Also includes a client clipboard for troubleshooting local storage of offline apps on Android devices.

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<th>Capability</th>
<th>Pega 5.x</th>
<th>Pega 6.3</th>
<th>Pega 7</th>
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<td>Pega Mobile Mashup</td>
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</tr>
<tr>
<td>Pega Mobile Device Management</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
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*RABOBANK UPGRADED FROM PEGA 6.3 TO PEGA 7, AND NOW CAN TAKE SELF-SERVICE LOAN APPLICATIONS THROUGH A DESKTOP WEB BROWSER OR FROM A MOBILE DEVICE FOR ANY OF ITS 129 MEMBER BANKS IN 47 COUNTRIES.*
MOBILE OFFLINE SUPPORT

The Pega 7 Platform features strong mobile offline capabilities, enabling customers to extend the use of the applications they have built even in situations where end-users do not have internet connectivity.

Some key capabilities that have been added to Pega’s mobile offline support since its inception include:

- Ability to create and complete work while disconnected.
- Support for adding photo attachments while offline.
- Support for subflows and paragraph rules, as well as the ability to ‘go back’ in a flow within an offline application.
- Support for multi-language localization, which provides the ability to localize an offline app for a specific language. This support enables the storage of multiple languages and the ability to switch languages mid-session while offline.
- Support for PegaSurvey while offline, thus enabling customers to run surveys in poor or no-network areas while maintaining the advantages of designing surveys within the model.
- Support for data transforms, eliminating the need to write custom code to enable a data transform to work offline.
- Support for parameterized data page querying and filtering.
- Support for large data page efficiency and performance in offline mode as a result of a more efficient packaging process resulting in optimal memory use and a reduced number of requests to the data source.
- The ability to cache common rules when packaging.
- A more optimized login process due to an increased reporting reliability of all login process phases.
- Support for data synchronization intervals configuration, meaning application developers have more control over the data synchronization process.

ENABLE SOCIAL COLLABORATION IN THE WORKPLACE

Half of all information workers today use social collaboration tools to share documents. They also use these tools to communicate with customers and find experts or information inside their companies. It makes sense, because these are the incredibly intuitive tools that they use in their personal lives. It’s natural, then, that your employees will use them to help them get their work done in the office, too.

The problem is that this all goes on without the security, control or audit of managed business processes. You can’t simply stop people from using social tools. But, social tools—disconnected from the work being managed—can’t be trusted to get the job done. And, it can’t be audited later to examine what happened if something goes wrong.

Pega Pulse social collaboration delivers the social experience within the workplace with security and control.
Pega 7’s Pega Pulse is a social collaboration facility that integrates the online conversations of employees, partners and customers into the work being done. Fully integrated in the Pega environment, Pega Pulse gives users the tools to chat easily with colleagues. In addition, they can advance a process or resolve a case directly from their conversation feeds, and even incorporate conversations from external social media networks. And, since they are doing this in the context of a Pega application, all of their discussions become part of the case history so that everything is in one place for later review or audit.

As of the 7.1.9 release of the Pega Platform, Pega Pulse has been completely rewritten to be more scalable and meet market demands. Now, users can user-reference other users of Pega Pulse. Additionally, users can integrate hashtagging into their conversations. Furthermore, the updated version of Pega Pulse includes more robust capabilities that allow any type of collaboration to take place: business-to-business, business-to-IT, and IT-to-IT.

**PROVIDE SECURE, INTERACTIVE ONLINE SUPPORT**

A key part of servicing customer requests over the web is guiding them to the products they need or assisting them with submitting necessary information online. Web page co-browsing is an excellent way to provide this level of service, but the proliferation of devices, form-factors and browsers appear to be a daunting hurdle to cross. Pega Co-Browse provides a way to offer live, interactive, and secure support on your website without stumbling on any of these hurdles. Pega Co-browse supports both desktop and mobile devices—regardless of form-factor—without the customer needing to download any software. With Pega Co-Browse, your customer service representatives can provide the guided assistance your customers need in a highly secure way as Pega prevents even your employees from seeing your customers’ confidential information.

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<th>Pega 5.x</th>
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<tr>
<td>Pega Co-Browse</td>
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**IMPROVE THE SERVICE EXPERIENCE WITH CUSTOMER PROCESS MANAGER ENHANCEMENTS**

With CPM, you get all of these new capabilities, plus some additional ones. In Customer Process Manager (CPM) 6.3, Pega introduced new end-user experience improvements to help CSRs save steps and operate more efficiently, reducing average handle time and training costs. In addition, CPM 6.3 introduced new CPM Composites, an improved screen layout for CSRs that provides pertinent customer information. The Interaction Display Option gives two options for displaying the CSR’s interaction panel. It can be displayed as an overlay or as a modal window. This means multiple actions can be completed at once. CPM 6.3 also added an Express History feature. When selected, this icon creates a tracking note to log an auditable interaction with the customer, such as sharing payment amount due or account balance information. The new Unified CPM Dashboard now has a standardized dashboard across CSR and supervisor portals. The dashboard displays distinct graphs based on the user type. The dashboard includes a work-centric view that has improved sorting and filtering of as well as search for work items.

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<tr>
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</tr>
<tr>
<td>Express History</td>
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<tr>
<td>Unified CPM Dashboard</td>
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“FOR A EUROPEAN REVENUE COLLECTION FIRM, THE NEW CPM USER INTERFACE CAPABILITIES HAVE MET WITH GREAT RESPONSE FROM THE END USER COMMUNITY. ACCORDING TO ONE BUSINESS LEAD ON THE PROJECT, “THE REACTION HAS BEEN VERY POSITIVE. PEOPLE LIKE THE NEW SYSTEM PARTICULARLY THE LOOK AND FEEL.”
ENHANCE APPLICATIONS WITH BIG DATA ANALYTICS THAT BUSINESS PEOPLE CAN USE

Today’s big data resources and advanced analytics create tremendous opportunity to more meaningfully engage customers with personalized service and offers that anticipate their needs. However, the fast growth of data and shortage of data scientists to make sense of big data makes it difficult and expensive to harness its power. Simply put, companies struggle because they can’t access the data, they don’t have the data scientists they need to make sense of it, and they can’t make use of it when they need it most—at the point of customer interaction.

Inhibitors to improving sales, customer satisfaction and retention:
- 54% inability to integrate and manage data from a variety of sources
- 38% unable to interpret analytics
- 37% can’t find the data scientists they need
- 31% no analytical insight at the point of customer interaction

[Source: Forrester]

In Pega 7, Pega has integrated its powerful predictive and adaptive analytics capabilities directly into Pega Designer Studio. As a result, business people now have the ability to use sophisticated analytics without lengthy training and specialized expertise. Furthermore, these capabilities come with lifecycle governance capabilities that make it easy for business users to set up, create trial simulations, deploy and roll back changes in a way that is appropriately authorized and controlled. This means business users can test and deploy strategies in a controlled manner without disrupting any on-going business or IT operations.

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<td>Predictive and Adaptive Analytics</td>
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<tr>
<td>Decision Manager Portal</td>
<td>No</td>
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A LARGE TELECOMMUNICATIONS COMPANY HAS IMPLEMENTED PEGA 7 FOR ITS CALL CENTER–AND RETAIL-STORE–GUIDED INTERACTIONS TO HELP RETAIN CUSTOMERS THAT WANT TO CANCEL A LINE OR ACCOUNT. THE CUSTOMER SERVICE REPRESENTATIVES WILL BE DELIVERING THE RIGHT RETENTION OFFERS TO CUSTOMERS CONSISTENTLY AND CONFIDENTLY.
ENHANCED REAL-TIME DECISION MANAGEMENT WITH CUSTOMER DECISION HUB

The Pega 7 Platform features a number of key decisioning capabilities that are much improved over those available in Pega 5 or 6. The Customer Decision Hub (CDH) facilitates better decisioning via optimized, realtime predictive analytics. By leveraging the CDH, customers can test, learn, and act in real-time, thereby generating contextual data and self-learning models to make inflight decisions that improve results and make faster decisions. Key updates and capabilities for the Pega 7 Platform include:

- An eliminated need to deploy external applications to support the full spectrum of decisioning capabilities. Data Nodes (D-Nodes) provide the infrastructure for decisioning services, including adaptive learning (ADM) and business monitoring (VBD). D-Nodes are also the repositories for analytical data.

- Significantly augmented data processing capabilities for decisioning of data flows and data sets. Data flows allow for combining different data sources in a single pipeline, applying logic and filtering in the form of text analytics and strategies, and writing the results to a variety of destinations.

- Through the Decision Manager portal, the enablement of business users to make controlled changes in the business sandbox and perform monitoring in production within the boundaries defined by system administrators. The default business sandbox cycle workflows support the work of revision managers and strategy designers, and can be customized to reflect business needs.

- New rule types (decision data) that support the definition of propositions at the group level, as well as the definition of control parameters that can be used as flexible inputs to strategies. Proposition filtering is supported by yet another rule type (propositions filter), allowing you to centralize all proposition eligibility and validity criteria using when rules and strategies. To sum up, propositions are no longer unversioned data instances.

- Text analytics that provides the capability to analyze units of text, extract quality information, and translate data into business intelligence. By analyzing textual data, it is possible to reveal customer intentions and emotions, drive enterprise decisions, and provide strategic insights. The text analytics functionality of the Pega 7 Platform can analyze text-based content such as news feeds, emails, and postings on social media streams.

GAIN VISIBILITY WITH FEDERATED CASE MANAGEMENT

Federated case management in Pega 7 provides organizations with a way to manage cases and processes across multiple, independent Pega applications, while preserving their autonomy, governance and security. For example, customer service organizations can have a complete view into all of a customer’s outstanding issues across multiple Pega applications, gaining complete process visibility and reporting. Customer service representatives answer all of the customer’s questions and provide higher quality service.

HSBC UPGRADED TO PEGA 7 TO GAIN THE BENEFITS OF FEDERATED CASE MANAGEMENT, WHICH ENABLES AN ORCHESTRATION LAYER THAT SPANS MULTIPLE APPLICATIONS THAT MAKE UP HSBC’S GLOBAL BANKING AND MARKETS CLIENT LIFECYCLE MANAGEMENT SOLUTION.

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<th>Pega 5.x</th>
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<tbody>
<tr>
<td>Federated Case Management</td>
<td>No</td>
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</table>
Deliver New Capabilities Faster

Pega customers know well the business agility benefits to be gained with the unified Pega platform in today’s rapidly changing business environment. Pega 7 further improves business agility by enhancing system development speed and accuracy in the three most critical and generally time-consuming areas: getting the requirements right, getting the user experience right, and getting the data right.

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<tbody>
<tr>
<td>Pega Express</td>
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FROM IDEA TO APP IN MINUTES

New to Pega 7 is Pega Express, the fastest and easiest way to get started with the Pega 7 Platform. Pega Express enables users of all backgrounds and skillsets to be able to quickly create business applications while experiencing the power of the Pega 7 platform. Users of Pega Express can access an application environment they have created using the tool in Designer Studio as well, thereby expanding the functionality of any application built using Pega Express.

Pega Express helps customers rapidly develop applications in several ways: it accelerates onboarding to the Pega technology, it enables customers to build out an application’s high level case structure and data models, it allows customers to pilot new application ideas, and it provides business teams with the tools to build small-scale solutions that are intended to be designed and changed rapidly. Pega Express offers an ideal environment for new users because it provides just-in-time learning and gradually introduces the broad set of features and functionality available in the Pega 7 Platform. As with Designer Studio, there is no coding required to build an app using Pega Express. Everything from UI to the data model is built visually. This common visual language lets business and IT work efficiently together to quickly prototype new business apps.

Pega Express provides three basic building blocks for creating a Pega 7 application: Cases, UI and Data. Cases represent the things a user wants their app to do or the work they want it to manage. Cases have a lifecycle consisting of high-level stages, and steps within each stage that drive the accomplishment of a meaningful business outcome. As an example, this might involve resolving a customer service request. UI represents the environment a user wants their end-users – who could be customers, fellow employees, partners, or anyone else using the Pega Express application – to interact with. It revolves around the experience a user wants their end-users to experience, from the beginning to the end of their engagement experience through the application. Finally, Data represents the information a user wants their application to manage. Data can be captured as part of a Case or can come from an external system.

In Pega Express, users can easily edit or create new apps or cases. They can also lay out the stages the case progresses through, followed by defining the steps that make up each stage. This creates the framework for a business process in a way that is easy for anyone to understand. As users run a case, they can configure the forms associated with each step and add fields to each form to design the UI of their app. Adding fields to the form automatically adds them to the application’s data structure. Furthermore, users can manage data structures or add in new data elements.
With Pega Express, users can run apps on any device. Apps can be branded, and users can preview the user experience on desktop, tablet, and mobile screens. Users can also invite other people to use their app. If anything needs to be changed within the app, Pega Express makes it easy to do so.

You can try Pega Express through the Pega 7 Platform 30-day free trial. This trial provides a secured experience hosted on Pega Cloud, and does not require that a user go through any formal training. Within the Pega Express environment are a number of embedded product tours, videos, and guided training to help users gain the most out of their Pega 7 Platform trial.

**CREATE & DEPLOY SURVEYS**

PegaSurvey has been significantly upgraded as part of the Pega 7.2.1 release. This survey authoring and delivery tool works seamlessly with the Pega 7 Platform and is available in a number of Pega’s vertical solutions. PegaSurvey not only enables users to create and deploy surveys within their Pega 7 Platform applications, it also allows them to customize how they gather their data. For instance, when creating a survey, users can organize questions into logical groupings, dynamically display questions based on the answers to previous questions, and make survey questions easy to answer by using a convenient user interface that provides radio buttons, check boxes, and text input areas.
GETTING THE REQUIREMENTS RIGHT

According to IAG Consulting research, up to 70 percent of IT projects resulted in marginal outcome or failure. The top reason was that the requirements and results did not mesh. Pega customers know how DCO (Directly Capture Objectives) helps them avoid failure by directly converting modeled requirements into finished applications without the usual time-consuming and error-prone process of hand-coding.

Pega 7 has improved DCO capabilities by making Case Lifecycle Management the design center of the product, and by furnishing visual tools that facilitate the accurate capture, realization and evolution of the full scope of work. It uses a visual language that everyone—business executives, subject matter experts, and IT practitioners—can readily understand. Case Lifecycle Management gives business users a way to define the steps of how work gets done by defining aspects of the “case,” as a set of work that needs to be accomplished and a definition of a desired outcome. A case, for example, defines how a bank’s customer service operations handle a lost credit card or how a health plan cares for a client with a chronic condition such as diabetes.

Case Lifecycle Management provides a way to capture all the important information about a business process without getting lost or bogged down in all of the details contained in a Business Process Management Notation (BPMN) definition of processes and transactions. Those details are important as well, but they are captured within the context of the high-level case definition, and can be elaborated over time once the high-level case lifecycle is understood.

In addition, Pega 7 Case Lifecycle Management provides the freedom for designers to make changes to the high-level design at any time during the development of a project. Because the high-level design is part of the model, the design and the finished application are always kept in sync.

CAPGEMINI FOUND IN ITS PRODUCTIVITY STUDY OF PEGA 7 THAT DCO IS 8 TIMES FASTER THAN TRADITIONAL APPLICATION REQUIREMENTS CAPTURE METHODS. A LARGE GLOBAL BANK HAS SEEN CASE LIFECYCLE MANAGEMENT AND DCO SPEED DEVELOPMENT. THESE CAPABILITIES HAVE HELPED THE SCRUM TEAM QUICKLY DEVELOP SEVERAL SPRINTS AND GO LIVE AT THE END OF THE FIFTH ONE.

Case stages are captured within the application documentation, which provides a complete view and understanding of case behavior in the documentation. The inclusion of Case Lifecycle Management in DCO contributes significantly to these gains as it makes it easy to capture and document the case management requirements of an application. It enables the componentization and reuse of apps, thereby breaking down aspects of a case into smaller, more executable flows rather than requiring users to rely on a single, monolithic process.

Another development in Pega’s dynamic case management capabilities is the addition of an Ad hoc Case Dashboard. The Ad hoc Case Dashboard makes it possible to create a new ad hoc case in order to flexibly organize and facilitate work that is unplanned and unstructured. It’s easy to create an ad hoc case, create a task list (with assignments, status and deadlines), attach content to the case to keep it organized, and optionally configure the ad hoc case for reuse.
Regardless of whether an ad hoc case is created from “My Cases”, Pega Pulse, or a local flow action, they all call the same functions and rules and create the same ad hoc cases. With this new capability, users have a unified way to add new tasks to work already in process, make changes in the way a case is being handled, or even draw new business processes on the fly. This speeds the resolution of work, while reuse allows organizations to quickly promulgate best practices across the organization.

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<td>Ad hoc Case Dashboard</td>
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**OPTIMIZE HOW WORK GETS DONE WITH PEGA ROBOTIC PROCESS AUTOMATION**

As part of the Pega 7.2.2 platform release, Pega introduced its Robotic Automation capabilities. Pega Robotic Automation includes Pega’s Workforce Intelligence, Robotic Desktop Application (RDA), and Robotic Process Automation (RPA) toolsets. It is the latter option, RPA, which is designed specifically for Pega 7 platform customers.

Businesses are rapidly turning to RPA software to increase efficiencies and reduce costs by automating high volume, repetitive tasks that get in the way of delivering the best possible business outcomes. Without any changes to underlying applications, Pega RPA enables organizations to quickly and effectively automate tasks, streamline processes, increase employee productivity, and ultimately deliver more satisfying customer experiences and better outcomes across the enterprise.

Out of the box, Pega Robotic Automation provides the broadest technology integration offering for: Windows thick client applications, VB, .NET, PowerBuilder, Java, Web, Mainframe, AS400, Web Services, Citrix Published Applications, Databases and Microsoft Office (Word, Excel and Outlook). And because of Pega's unique approach to robotic automation, Pega Robotic Automation supports not only straight-through RPA processing but also blended Robotic Desktop Automation (RDA) where robots and humans collaborate to complete work.
When deployed as a personal desktop robot (RDA), the automations are self-hosted as a REST service that any Pega application can invoke. When deployed as an unattended robot (RPA), Pega 7 assigns work to robots similar to the way humans are assigned work. Pega 7 is aware of and manages the RPA robots’ status, what queues are available, and current work queue workloads.

Pega provides the Robotic Automation Management Console to help you manage RPA robots. The Management Console is a Pega Application that lets you assign and prioritize robotic work, monitor robot health and report upon robotic work status and compliance. The Robotic Automation Management Console is the information clearinghouse for the Pega Robotic Automation ecosystem. From the console, privileged Pega Users and Case Administrators have the ability to create, maintain and holistically monitor RPA robots and their work through pre-configured reports and views. The Robotic Automation Management Console, available for download on the Pega Exchange, also enables users of Pega 7.2.1 to take advantage of Pega’s robotics capabilities.

**Challenge:** New fraud regulatory rules drove a leading National Financial Institution to quickly implement a solution for compliance and SLA governance of credit card fraud notification.

**Solution:** Pega RPA robots doing the work of over 300 works per month

- 52,000 Man hour per month
- 15,000 transactions per day
- Auto dial customer
- Reduce ATM and Credit Card Limits
- Flag account
- Confirm charges genuine
- Reestablish account limits or forward to agent

The Pega Robotic Automation Console enables your organization to assign and prioritize robotic work, monitor robot health, and report upon robotic work status and compliance.
GETTING THE USER EXPERIENCE RIGHT

A critical component for successful adoption of an application is getting the user experience right. This requires creating easy-to-use interfaces, incorporating feedback and revising as needed to ensure users can work efficiently and effectively with minimal training.

As noted earlier, in Pega 7 you create the UI once and deploy it on any device, in any locale, in any browser—all without coding. For developers, this saves a considerable amount of time and effort and it works across all three mobile experiences: Mobile Web, Pega Mobile Client and Pega Mobile Mashup.

How much development time does having all of this functionality in Pega 7 and accessible through the Designer Studio save organizations? When Capgemini performed its productivity study on Pega 7’s mobile development capabilities, it found development was 40 times faster than traditional coding techniques.¹

Live UI, another design-time enhancement, allows business stakeholders and developers to collaborate on the user experience interactively from within a running application. With Live UI, the team can adjust layouts (e.g., 3-column to 2-column), UI controls (e.g., change a link to a button with text), styling (e.g., button color), mandatory/non-mandatory field behavior, and field labeling. This speeds development by allowing adjustment to user screens during DCO sessions for immediate feedback. Built-in governance features control the migration of these changes to production.

Improvements in the latest release of the Pega 7 Platform, 7.2.2, include the following:

- Greater flexibility
- Enhanced capability to build responsive UIs that work around different form factors and devices
- Push notification support
- Improved support for mobile mash-up
- Support for Windows Client in 7.2.2
- Improved support for mobile offline usage

ONE LARGE, GLOBAL FINANCIAL SERVICES COMPANY HAS FOUND THE DEVELOPMENT OF THE USER INTERFACE DEVELOPMENT TO BE FASTER AND ALLOW MORE USER INTERFACE CAPABILITIES. AT ANOTHER CUSTOMER SITE, PEGA CONSULTANTS HAVE RECORDED A 20% REDUCTION IN USER INTERFACE DEVELOPMENT TIME.

¹(The study did not even include the Pega Mobile Client and Mobile Mashup capabilities, as they were not available at the time.)

<table>
<thead>
<tr>
<th>Capability</th>
<th>Pega 5.x</th>
<th>Pega 6.3</th>
<th>Pega 7</th>
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</thead>
<tbody>
<tr>
<td>Live UI</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Live UI makes it easy to refine a UI design from within a running application.
GETTING THE DATA RIGHT

A key component of efficient application development is getting the data model right the first time. According to Aberdeen Research, up to 40 percent of the time spent on an IT project is on integration. Pega 7 introduces Pega Live Data, a data integration and management facility that addresses this issue. Pega Live Data simplifies the use of data in processes in four important ways:

1. Through declarative rules, it automatically fetches data from systems of record as needed in processes and screens. This means that your processes aren’t cluttered by work related to the retrieval and preparation of data. A new Data Explorer makes it easier to incorporate data into applications.

2. It is much easier to set up the flow of data among clipboard/cases, data pages, and connectors/services.

3. Pega 7 now has the concept of nested data pages, which makes it easier to separate application-specific data management from cross-application data management, making reuse easier.

4. Caching and data sharing optimization, as well as predictive retrieval improve overall application performance.

The Pega 7 Data Visualizer is a central tool for viewing and editing Data Types and system of record instances. Developers will be more productive because they can now model all data in a single context.

THE NEW DATA MANAGEMENT CAPABILITIES HAVE SPEED DEVELOPMENT FOR ONE EUROPEAN FINANCIAL SERVICES FIRM BY 10%.

The new Data Visualizer provides an interactive way to explore data relationships via an entity relationship diagram-like visualization that shows the relationships among classes that are established via page (object) and page list (object array) properties. Any Pega class will show up if it is connected to a Data Type, including case types and data types. Developers now have an intuitive way to see how data fits into an application. This makes it easier and faster for developers to know how to use the data and modify the application.
EASIER THIRD-PARTY APPLICATION AND SERVICE INTEGRATION WITH PEGA 7

Pega 7’s new REST integration wizard saves developers considerable time when taking advantage of REST standards-based integration by providing a tool that automatically integrates a REST service into a Pega 7 Data Page. Furthermore, once this Data Page has been created, any subsequent team members working on the application will not need to know the details of how the integration was done.

```
Enter a URL for a REST service
http://www.pegaxchange.com/blog/ProductCatalogService.php?operation=search
```

REST configuration wizard integrates REST services into a Pega 7 Data Page, making the service available to other developers.

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<th>Pega 5.x</th>
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<th>Pega 7</th>
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</thead>
<tbody>
<tr>
<td>Pega Live Data</td>
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<td>Yes</td>
</tr>
<tr>
<td>Data Explorer</td>
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<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Data Visualizer</td>
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</tr>
<tr>
<td>SAML SSO</td>
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</tr>
<tr>
<td>REST Integration Wizard</td>
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<tr>
<td>Pega API</td>
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<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Box Integration</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>DocuSign Integration</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
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</table>

As of 7.2.2, the latest version of the Pega 7 platform, Pega includes SAML SSO with the product, which makes it easy to provide full SAML 2.0 Single Sign On regardless of whether the application is on premise or running in Pega Cloud. This capability saves the developer the time and effort of writing custom Java code to integrate Pega 7 with enterprise identity management systems.

Pega 7 also now includes Pega API, which provides a standard set of services that includes new case creation, assignment processing, and access to data pages. These built-in REST/JSON services enable the rapid implementation of Pega-powered mobile and client applications. By default, Pega API services are secured with user credentials and TLS/SSL connectivity. You can call any of the Pega API services by using standard HTTP methods (for example: GET, POST, or PUT).
Also incorporated into the latest version of Pega 7 are the following capabilities:

- The ability to set security parameters on SOAP/REST connectors. A key feature is the ability to specify the lowest allowable SSL/TLS version for a connector. Selecting the most secure configuration is simple, because auto-negotiation is done at run time and, by default, the most secure version available is selected. This setting applies whenever the target location URL starts with “https”.

- Data page error handling, by providing users with the tools required to be able to create custom error-handling responses to specific data page errors, which can be either data source or invocation errors, and include system errors, invalid inputs, connection problems, security/authorization issues, and using keys that are not on a keyed page list.

- Data management for Pega Express, providing customers the ability to delegate the management of data types and thus enabling other users to modify records in local data storage tables.

- SFTP Support, enabling customers to activate and configure SFTP protocols to securely transfer files. Customers can do so by selecting SSH FTP (SFTP) in the ‘Protocol’ section of the ‘Edit FTP server’ configuration page within Designer Studio.

- Improved OAuth 2.0 support and usability, allowing customers to leverage the Pega 7 platform to ingest the myriad REST services through the secured OAuth 2.0 protocol. The Pega 7 platform includes connectors to leading OAuth 2.0 providers including Box, Twitter, Facebook, and Google by using the authorization code or client credentials grant type.

- Native platform integration with Box.com, which enables customers to configure their applications to be able to both access and store Pega case, as well as Pulse, attachments within Box. Customers can store content within Box, source content from Box, or do both.

- Integration with DocuSign, enabling customers to significantly reduce costs while simultaneously providing a faster and more convenient way for their customers to sign and send transactional documents. In tandem, Pega and DocuSign will help customers keep their processes 100% digital from start to finish to accelerate transactions, reduce costs, and improve end-user satisfaction.

- Improvements to data import capabilities, including the ability for customers to add, update, or delete a large number of data records for their different data types by uploading .csv files into the Data Designer (a feature included with the 7.1.7 release of Pega 7 that enables customers to create and manage application data types and create properties within a selected data type). This bulk import process enables the import of data.

- The ability to view external data entities, thus providing customers with a consolidated view into the data layer that captures the wide range of data types offered within the platform. This consolidated view is presented on a landing page which also contains information that is important for users of a Pega application, including where the application data comes from and ways which new application data can be brought in.
INTEGRATION WITH SAP AND SALESFORCE

Pega Process Extender for SAP and Process Extender for Salesforce are two solutions that run on Pega 7 to help extend the value of your SAP and Salesforce investments. Pega has developed these Process Extenders for SAP and Salesforce to close the execution gaps associated with each platform:

- SAP application owners who are frustrated by the limitations of SAP to handle sales, service or other functions that tend to be highly customized will be able to better leverage their existing SAP installations in conjunction with Pega for process management. The Process Extender for SAP handles client-specific or fast-changing business requirements which are poorly served by SAP's standard CRM and ERP applications.

- The Process Extender for Salesforce does more than track just sales opportunity information. It ensures fulfillment of deals once they are closed, which helps customers keep the business they just won. Salesforce sales and service users who want to deepen their visibility and control of fulfillment can leverage Pega in conjunction with Salesforce applications to do just that.

Additionally, Pega 7 now includes support for SAP IDoc XSD documents via the SAP Integration Wizard within Designer Studio. The system generates records for the integration layer and data layer. These records include classes, properties, mapping rules, an authentication profile, and a connector.

A LARGE RETAIL AND HEALTHCARE COMPANY USES THE PROCESS EXTENDER FOR SALESFORCE TO DELIVER THE CASE MANAGEMENT CAPABILITIES NEEDED TO FULFILL ORDERS AFTER THE SALES PROCESS. THE PROCESS EXTENDER LOWERS COSTS FOR CVS CAREMARK BY REDUCING PAPER FORMS AND MANUAL NOTIFICATIONS, CREATING VISIBILITY AND TRANSPARENCY INTO IMPLEMENTATION PROGRESS AND MONITORING PROCESS PERFORMANCE AGAINST METRICS.

<table>
<thead>
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<th>Pega 5.x</th>
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</thead>
<tbody>
<tr>
<td>Process Extender for SAP</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Process Extender for Salesforce</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
IMPROVED DEVELOPER PRODUCTIVITY

Throughout Pega 7, there are numerous additional enhancements that will help organizations complete projects on time and under budget.

- Smart Process Shapes give designers a way to quickly add common process functions to a process. For example, a Smart Process Shape can define a step such as sending an email, creating or updating a case, or posting to a social feed. The benefits are fast reuse of common components as well as ensuring regulatory compliance for key processes that require specific, repeatable steps.

- Support for auto-complete so that developers can easily configure search fields during high-level case design. Search of Rule-, Data- and Work- is now much faster.

- When working in the Case Designer, business users and developers can now include an “add attachment” case step. In line with developing applications based on the way the business people think, this capability is a natural fit for the way people want to complete a task. In keeping with Pega 7’s goals of making things easy for developers, this attachment step type automatically takes mobile devices into account by prompting the mobile user to attach or take a photo.

- The enhanced Designer Studio is now 100 percent cross-browser compatible, allowing developers to use their browser of choice without compromising functionality. Pega’s own consultants working at customer sites have found the Designer Studio to perform better in Google Chrome, increasing their productivity. For power developers, Pega has added the ability to pin the most commonly used classes to the Application Explorer so they are easier and faster to find.

- Pega 7 also has an improved search capability, called Elastic Search, which provides faster and more reliable full-text search across Rule-, Data- and Work- instances. This replaces the Lucene search capability in previous versions.

- Another new time and effort saver in Pega 7 is update reversibility. This feature provides an automated way to roll back an update of the Pega 7 software. For developers, this means they can explore how an update will affect an application without having to create a clone system.

- Pega 7 has a new rule deprecation feature that allows developers to remove rules without deleting them so that they don’t accidently reuse outdated assets.
Reduce On-Going Application Operating Costs

IT organizations that want to reduce their on-going application operating costs need tools to proactively manage their applications and robust infrastructure to eliminate unplanned downtime. They need easier-to-use tools and a way to build applications that avoids future issues that can affect upgrades. Finally, having a high-performance platform that is better suited to multi-tenant environments help reduce costs. Pega 7 delivers capabilities to meet all of these requirements.

**IMPROVED APPLICATION AVAILABILITY AND UPTIME**

According to a CA Technologies survey of 200 enterprises, downtime resulted in an estimated $26.5B in lost revenue. The Zero-Disruption Architecture that Pega introduced in Pega 7 not only protects the organization from downtime associated with unplanned events (hardware, software and network failures), it also allows organizations to eliminate the need for planned downtime. With this capability, organizations can manage and implement maintenance and system updates without sacrificing end-user productivity.

Pega’s Predictive Diagnostic Cloud is a new service introduced with the latest release of Pega 7 that helps Pega customers identify and correct system health problems before they impact productivity. These tools augment traditional application performance management solutions by focusing on issues specifically related to the speed and reliability of Pega applications and recommend actions to address issues before they become problems. Pega has put this solution in the cloud specifically to help you focus on improving your Pega applications without having that one more application to worry about.

**IMPROVED DEVOPS**

The improved Guardrail Reports make specific recommendations when developers make choices that impact performance or upgradability. The reports and dashboards make recommendations to bring design choices back into compliance. Pega 7 can also send development team members an email that details Guardrail compliance scores and warnings in an easy-to-read format. The result is better application quality, the ability to go live with an application in less time, and the ability to avoid the cost and delay of remediating non-compliant applications ahead of future upgrades.

In addition, Pega 7’s Security Access Manager centralizes security in a way that makes it easy to visualize user group authorization to features and data within an application. This new approach simplifies security deployment, management and issue resolution.
In Pega 7.2.2, Pega added a couple DevOps capabilities which offer additional compelling reasons to upgrade to the Pega 7 platform. These are as follows:

- The ability to do a rollback on a deployment, thus enabling customers to return to a previous release. This is a unique feature that provides customers the peace of mind to be able to continuously operate their environment in a healthy, fully operative state.

- Additional automated testing capabilities, designed to help customers quickly and easily create tests for their applications created on the Pega 7 platform. These new features are tied in with Pega Live Data, meaning customers can write automated tests around their application's live data layer. This means they can test their data pages and validate whether application data has been properly loaded to ensure performance and functionality are optimal.

- The ability to do automated deployments and migrations as well as unit test executions using popular tools such as Jenkins. Furthermore, Pega 7 offers enhanced support for automated regression testing to enable Continuous Delivery release pipeline.

A EUROPEAN TAX COLLECTION AGENCY FOUND PEGA 7 SECURITY TESTING TO BE MUCH FASTER AS PEGA 7 IS MUCH EASIER TO SECURE.

**SUPPORT FOR CLOUD CHOICE**

Pega 7 gives customers the ability to choose the cloud solution that best meets their needs while also enabling them to exceed the challenges of both today and tomorrow. Pega 7 is designed to align with the infrastructures and cloud service platforms that Pega's customers want to leverage, and it enables support for three distinct deployment models:

- **Pega Cloud:** Pega’s managed cloud platform service offering is architectured for Pega’s applications. Pega Cloud is the fastest time to value for Pegas customers.

- **Customer Managed Cloud:** Customer owned and controlled environments that are run within private clouds or running on infrastructure-as-a-service (IaaS) offerings delivered by providers such as Amazon Web Services, Microsoft Azure, or Google Cloud Platform.

- **Partner Managed Cloud:** Business partner owned and controlled environments that deliver the Pega Platform as a custom hosting solution or purpose-built application service provider.

Pega’s decision to offer customers a hybrid deployment model, thus enabling them to select which applications and data reside in a public or private cloud setting and which don’t, is not only a result of the market trending towards hybrid approaches (according to Gartner, 92% of companies have or plan on having hybrid cloud by the end 2017), but also because it provides customers the toolset to compete and win in today’s increasingly complex and dynamic operating environment.

With the recent release of Pega 7.2.2, integration with Pega Cloud has become more pervasive within the Pega 7 platform with greater self-service, app development, integration, and automation capabilities. Key new updates include:

- New support for WebSockets which further enhances applications by building interactive communication sessions between user’s browsers and the Pega 7 platform.

- Expanded access to databases, thus allowing customers to perform their own queries on their Pega Cloud-based databases.

- Integration with Box.com, making it easier for customers to seamlessly leverage Box for content sharing and management, from anywhere and on any device.

- Auto Node Discovery, which is expanded integration with System Management Application (SMA) to offer automated recognition of nodes in a cluster. The key benefit of Auto Node Discovery is that it facilitates cluster node management and tracking without manual node configuration.
HIGHLY SCALABLE BATCH OPERATIONS

Pega has made it possible to perform more transactions per unit of hardware through new massively scalable batch operations. These offline, batched activities include Next-Best-Action campaign calculations, end of day transaction reconciliation and fraud analysis. This allows enterprises to save on hardware costs.

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<tr>
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<tr>
<td>Zero-Disruption Architecture</td>
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</tr>
<tr>
<td>Guardrail Reports</td>
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<tr>
<td>Predictive Diagnostic Cloud</td>
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<td>Security Access Manager</td>
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<tr>
<td>Multi-tenancy</td>
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<td>Yes</td>
</tr>
<tr>
<td>Massively scalable batch operations</td>
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</table>

Conclusion

With Pega 7, organizations can now more effectively engage customers and users with more sophisticated, yet simpler-to-deploy user experiences across devices and channels. Designing and building these applications is more efficient through new capabilities such as Case Lifecycle Management and Pega Live Data. Operations will also run more smoothly with Pega 7, with fewer disruptions and better utilization of resources. Enterprises running earlier versions of Pega PRPC and CPM will see tangible benefits from upgrading as they will be able to respond more quickly and effectively to new market opportunities, increase operational efficiencies and gain exceptional business agility with faster, more cost-effective application development.
ABOUT PEGASYSTEMS

We are Pegasystems, the leader in software for customer engagement and operational excellence. Our adaptive, cloud-architected software – built on the unified Pega® Platform – empowers people to rapidly deploy, and easily extend and change applications to meet strategic business needs. Over our 30-year history, we’ve delivered award-winning capabilities in CRM and BPM, powered by advanced artificial intelligence and robotic automation, to help the world’s leading brands achieve staggering results.

For more information, please visit us at WWW.PEGA.COM