

A Forrester Total Economic Impact™  
Study Commissioned By Pega  
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# The Total Economic Impact™ Of Pega Platform For Low Code

Cost Savings And Business Benefits  
Enabled By Pega Platform For Low Code

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## ABOUT FORRESTER CONSULTING

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# Executive Summary

Pega's application development platform employs low-code tooling, training, and guidelines to help its customers build mission-critical applications faster. As a layered platform, components developed with the Pega solution can be reused to scale capabilities across many use cases with minimal rework and custom development. An intuitive user interface (UI) opens the door to professional and citizen developers in one inclusive environment, allowing for more flexibility in the resource pool and removing any single points of failure from the development project team. Pega commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by employing its platform to develop custom applications. This study provides readers with a framework to evaluate the potential financial impact of the Pega Platform for low code on their software delivery.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed several customers with experience using Pega for low code. These customers use the platform to speed application development by enabling both nontechnical individuals and professional developers to participate in development projects. Pega Platform for low code is designed to automate complex processes that support thousands of business users to complete critical functions often.

Prior to investing in Pega for low code, a typical environment required extensive coding with technical programming languages. Some organizations did not employ individuals with the required skills for low code development, and they were forced to outsource development work at a higher cost.

After adopting Pega for low code, the interviewed organizations reallocated internal IT staff to application delivery, and they shifted away from third-party developers. The organizations reduced the cost of custom development, accelerated development processes, and simplified their technical architectures. Nontechnical employees with richer business expertise joined in the development processes due to the reduced coding knowledge required to use the platform. Pega for low code stores and manages components of the platform that are developed so that developers can easily reuse them for new business cases. Business users then reap the productivity benefits the applications afford them. As more of an organization is supported by Pega applications, it can consolidate complicated legacy systems, which saves on product licensing and support costs and simplifies technical architecture.

## Key Findings

**Quantified benefits.** The following risk-adjusted present value (PV) quantified benefits are representative of those experienced by the companies interviewed:



ROI  
**598%**



Benefits PV  
**\$13.9 million**



NPV  
**\$11.9 million**



Payback  
**<3 months**

- › Development cost savings of \$511,773 from redistribution of resources away from expensive third-party consulting to internal IT and citizen developers. Pega for low code's development tools support low- or no-code authoring so professional and citizen developers can participate in application projects. This limits the need for third-party consulting services and reduces the total cost to develop applications. On average, the interviewed companies lowered their spend on consulting services by 60% over three years.
- › **Productivity savings for end users of applications resulting in nearly \$12.5 million in savings.** The organizations reduced average project timelines from 12 months to three months and allowed end users to gain the business benefit of the new applications for an additional nine months by Year 3. The developed applications automate labor-intensive administrative or operational processes that previously took either many FTEs or many hours to complete. End users of enterprise-level applications experience a 25% productivity uptick through their ability to avoid or minimize time spent on critical tasks. Development work completed for large-scale, enterprise-level applications is reused to further shorten timelines and increase output of development. This also frees up resources to tackle smaller-scale applications for departmental or divisional needs. Therefore, over three years, a cumulative total of 20 applications that support 3,350 users across the business provides productivity improvements worth more than \$12.5 million.
- › **Legacy platform cost savings totaling \$826,878 in three years from decommissioning older platforms.** As organizations develop more applications using Pega for low code and automate more processes across the business, they rely less on legacy systems. On average, the organizations decommissioned one legacy system by the end of the third year, resulting in incremental savings on licensing fees and support costs of \$332,500 annually.

**Unquantified benefits.** The interviewed organizations experienced the following additional benefits not quantified by this study:

- › **Revenue growth from Pega-developed applications.** At the start of the investment, organizations largely focused on automating back-end processes that improved productivity for their end users. As development resources freed up, work pivoted to front-end use cases in areas such as sales and marketing. Applications in front-end business lines contributed to topline growth.
- › **Avoided development costs from application flexibility to meet unforeseen deadlines.** Applications built with Pega for low code are equally as accessible as the platform itself. When unforeseen circumstances require development work, new rules or changes are made quickly and with the resources available on hand. Therefore, the organizations met deadlines without incurring additional external resource costs to handle demand.
- › **Additional end user productivity when developed applications include additional Pega functionality, such as robotics.** Applications developed with Pega for low code's functionality can be further augmented with additional Pega components, such as robotic process automation (RPA). Many of the interviewed organizations have introduced bots to their Pega-developed workstreams that further automate processes and amplify the productivity benefits the application end users experience.

- › **Enhanced user experience with easier maintenance and support of custom applications.** Traditional and citizen developers manage updates and fixes with the same declarative tools used to build the original applications. As a result, the custom applications are easier to maintain, and they minimize downtime and business disruptions. Therefore, end users have a more seamless user experience (UX) regardless of any technical support or maintenance efforts happening on the back end.
- › **Better collaboration between IT and business and improved output quality through approach to development.** A visual development approach and reusable components reduce reliance on traditional requirements documentation for each project. Instead, business users participate directly in the development process, which enhances the quality of the project's outcome and fosters a better relationship between IT and the business.
- › **Increased employee satisfaction for IT development resources and business users alike.** Pega for low code allows business users to learn new technical skills that lead to more career opportunities. Meanwhile, IT professionals take on more development work and dive deeper into complicated projects as they focus on core releases to the platform. The enterprise capability owner of a semiconductor company said, "On Pega, we've not lost a single developer that we've trained. No one has asked to change tools. They really love working in the tool."

**Flexibility.** While this study outlines the quantified benefits already experienced by the interviewed organizations, it also considers how these organizations will leverage Pega Platform for low code moving forward. These organizations predict that future usage will amplify existing cost savings and productivity benefits already realized in the following ways:

- › **Expedited delivery timelines for continuous improvements to existing applications due to more flexible development resources.** The accessibility of Pega for low code that makes it possible for organizations to invite business users into the development effort also removes the risk of single points of failure in the development cycle and the ongoing risk of development knowledge walking out the door. As the investment progresses, organizations will not only continue to grow available resources for application development and maintenance, they will also expect to improve the interchangeability of those resources throughout the application lifecycle.
- › **Further development cost savings by optimizing output with existing resources due to reusability of developed components.** Just as resources grow as the investment continues, so does the availability of developed components. Development with Pega for low code ensures that work completed to build a single application can be used and reused to build new and to augment existing applications. As more development work is completed with Pega Platform for low code, more components become available for reuse. Organizations plan to use completed development work to further optimize their application outputs each year without the cost of hiring additional FTE.
- › **Further technical architecture cost savings from consolidating legacy systems.** The interviewed organizations, having already experienced the cost savings associated with decommissioning a legacy system, expect to see more of these savings as their investments with Pega mature. As they develop more applications, these organizations

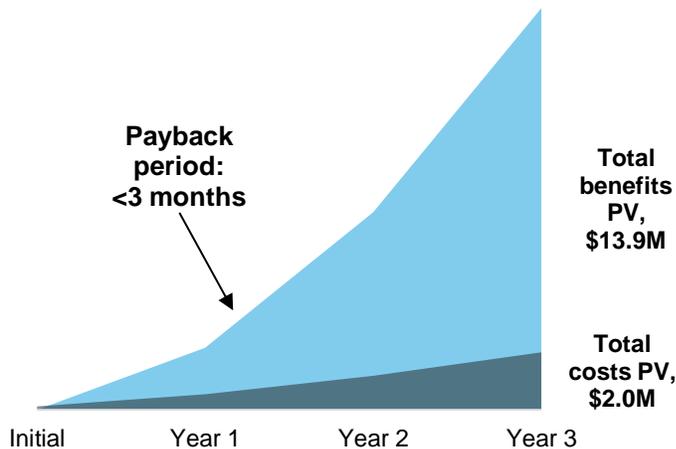
will further streamline their technical architectures and replace legacy systems with Pega-developed applications.

**Costs.** The interviewed organizations experienced the following risk-adjusted PV costs:

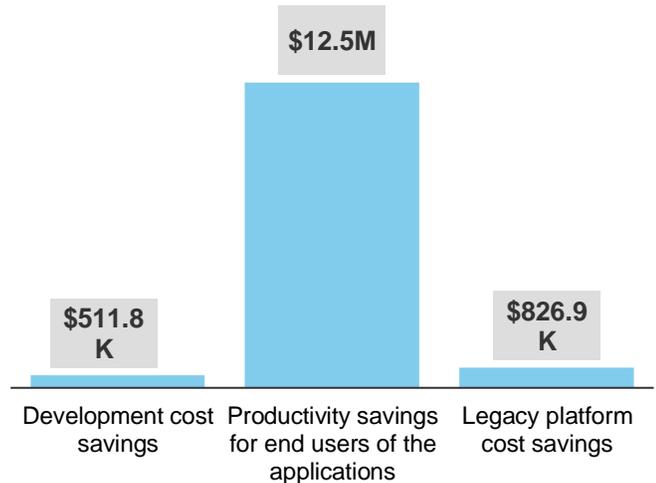
- › **Total costs for annual Pega licensing and one-time implementation fees totaling \$1.8 million after three years.** Pega prices its platform for low code on a per-user, per-month basis. The rate applied depends on the number of developers on the platform as well as the number of end users of the applications running on the platform. The annual fee includes the decided rate as well as ongoing support costs. Pega also charges a one-time implementation fee of \$100,000 that encompasses its involvement in the development effort for the first six months.
- › **Implementation and management of the platform totaling \$84,631 for three years.** Organizations require a dedicated IT employee throughout implementation. Additionally, ongoing support of the platform is spread across four FTEs for each of the following years at an average burdened salary of \$80,000.
- › **Training of development resources for both IT and business staff totaling \$124,993 over three years.** Pega does not charge additional fees for training services. However, organizations provide internal training programs for both IT and business that require labor hours to complete.

Forrester’s interviews with five customers and subsequent financial analysis found that an organization based on these interviewed organizations would experience benefits of \$13.9 million over three years versus costs of \$2 million, adding up to a net present value (NPV) of \$11.9 million and an ROI of 598%.

### Financial Summary



### Benefits (Three-Year)



The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

## TEI Framework And Methodology

From the information provided in the interviews, Forrester has constructed a Total Economic Impact™ (TEI) framework for those organizations considering implementing Pega Platform for Low Code.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that Pega Platform for low code can have on an organization:



### **DUE DILIGENCE**

Interviewed Pega stakeholders and Forrester analysts to gather data relative to Pega Platform for Low Code.



### **CUSTOMER INTERVIEWS**

Interviewed 5 organizations using Pega Platform for Low Code to obtain data with respect to costs, benefits, and risks.



### **COMPOSITE ORGANIZATION**

Designed a composite organization based on characteristics of the interviewed organizations.



### **FINANCIAL MODEL FRAMEWORK**

Constructed a financial model representative of the interviews using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewed organizations.



### **CASE STUDY**

Employed four fundamental elements of TEI in modeling Pega Platform for Low Code's impact: benefits, costs, flexibility, and risks. Given the increasing sophistication that enterprises have regarding ROI analyses related to IT investments, Forrester's TEI methodology serves to provide a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

## DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Pega and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.

Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the report to determine the appropriateness of an investment in Pega Platform for low code.

Pega reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.

Pega provided the customer names for the interviews but did not participate in the interviews.

# The Pega Platform For Low Code Customer Journey

## BEFORE AND AFTER THE PEGA FOR LOW CODE INVESTMENT

### Interviewed Organizations

For this study, Forrester conducted five interviews with Pega Platform for low code customers. Interviewed customers include the following:

INDUSTRY	REGION	INTERVIEWEE	SOLUTION DESCRIPTION
Telecommunications	Headquartered in Europe	Senior manager, automation and robotics	Process workflow automation for customer service across core market areas, as well as back office support for finance and other operations.
Healthcare/medtech	Headquartered in Europe	Head of operational excellence	Process workflow automation, digital collaboration, and case management for sales back office operations.
Financial services	Headquartered in Europe	Business architect	Process workflow automation and case management for sales, customer service, governance, and asset management areas.
Semiconductor	Headquartered in North America	Enterprise capability owner	Process workflow automation for sales, marketing, supply chain, and finance.
Financial services	Headquartered in North America	Senior director, BPM business frameworks engineering	Process workflow automation for back office operations and the business in the contact center and for customer onboarding.
Financial services	Headquartered in Australia	General manager, process automation	Process workflow automation across both the business and operations.

### Key Challenges

Before the investment in Pega for low code for custom development, the interviewed organizations had several systems in place to support business processes that required hard-coding in order to update, extend, and maintain capabilities.

- › **Insufficient internal skills were augmented by expensive third-party development resources.** Enterprise architecture in the before state was comprised of many inflexible legacy systems, such as business process management (BPM) platforms, that supported the businesses with lots of human intervention. The skill sets required to code these systems were often so niche to the systems themselves that they either did not exist inside the organizations or did not exist in enough quantity to complete development projects with internal resources. Bringing in third-party IT consulting services, albeit expensive, was often the only way to complete the development projects. The general manager at the financial services firm said: “Because we did not have the skills to do it, we had a small IT company that supported that platform. [The company] used to love us because it would get paid a small fortune to change even relatively minor things.”

“What we had found with prior tools is that we were essentially hacking it to the bare metal to get it to work. We had completely overridden the user experience layer, and we’re writing just copious amounts of code.”

*Enterprise capability owner,  
semiconductor*



- › **Outsourced development led to extended project timelines.** The general manager of process automation for the financial services organization said: “There was a huge amount of manual work sitting around [the legacy tools and platforms in our enterprise architecture] because they had been built at a particular time and they did not have the flexibility or the adaptability that we see in some of the more modern platforms.” Hiring consulting services not only resulted in extra expenses, but it also gave organizations less control over development timelines. Extended development cycles greatly restricted the number of business processes that could be supported and left the organizations to resort to manual workarounds.
- › **The ability to extend capabilities and scale operations was restricted.** The lack of internal coding skills leading to higher cost development resources coupled with long development timelines greatly restricted the organizations’ abilities to widely extend applications and their benefits. Therefore, the development focus was on working around the systems in place and not on expanding use cases and scaling the operations for the future. The head of operational excellence for the healthcare/medtech described the end objective: “Everyone is, of course, talking about increasing automation, the frictionless enterprise, and the reduction of manual rework.” The interviewed organizations aimed to move away from meeting business demands with manual workarounds that ultimately hindered visibility into and control of the unstructured processes, and towards a more frictionless enterprise.
- › **Siloed IT and business functions delivered mixed quality.** The development work that internal IT professionals completed centered around the same legacy platforms that required coding knowledge. The end users of the business applications being built (who did not have this knowledge) were often separated from the development effort. The senior manager of automation and robotics at the telecommunications organization described the “traditional waterfall model” that existed prior to the Pega investment: “Business analysts wrote lots of requirements up front and handed them straight through to technology teams that did a bunch of coding in a variety of different technologies and platforms.” With the end users of the applications removed from the process, the resulting output had mixed results in terms of quality and success in the business lines.

“We have all of these processes that still exist with spreadsheets and human glue. We can either leave it like the Wild West or we can apply process automation technologies to go address them. So, every one of our use cases follows the same pattern of this human-glued, unstructured, dark factories, if you will. And we’re using Pega to bring visibility and control.”

*Enterprise capability owner,  
semiconductor*



## Solution Requirements

The interviewed organizations searched for a solution that would allow them to bring more of the development in house, speed up development time cycles, and extend capabilities to support more business processes and workflows by:

- › Bringing business users, developers, and IT together in one collaborative environment.
- › Offering an intuitive UI that does not require code in order to develop.
- › Targeting complicated mission-critical business processes that involve many business-line FTEs or require many hours to complete.
- › Allowing IT to configure guardrails that enable citizen developers to participate in development projects without compromising compliance and quality standards.

“From an IT perspective, we want to spend a portion of our time tackling the more complex processes, but then also spend a portion of our time investing in building reusable assets that can be used by citizen developers.”

*Enterprise capability owner,  
semiconductor*



- › Managing reusable assets to cut down on rework and allow for more resource collaboration in the development process.
- › Having a low barrier to entry and a modular development approach that can start small with a single project and scale easily.

After an extensive RFP and business case process evaluating multiple vendors, the interviewed organizations chose Pega Platform for low code and began deployment:

- › All interviewees chose a phased approach to implementation, beginning with a six-month development project of a single mission-critical application.
- › All interviewees were able to extend the development effort across to multiple business processes within the first year.
- › Two of five interviewees chose to pilot a citizen development program within the first year of using Pega's co-development model that pairs business users with Pega developers on projects.

## Key Results

The interviews revealed that key results from the Pega for low code investment include:

- › **Cost savings from redistribution of development work to in-house IT and citizen developers.** Over three years, the interviewed organizations saw a decrease in the amount of development work they allocated to their most expensive resources: third-party consulting services. That work is redistributed to internal IT resources and citizen developers as they are introduced into the operation, first through a pilot program in Year 1. The enterprise capability owner with the semiconductor described how the overall cost to develop is reduced: "As we've grown over time, we've enhanced our skill sets. We had a lot more consultants early on. Every one of our projects was augmented heavily with consulting. These days, we have consultants on less than a third of our projects." Bringing development in house and, therefore, bringing IT and the business together not only strengthens the cross-functional relationship, but it also improves the quality of the completed projects.
- › **Shorter development time cycles and more completed projects leading to increased productivity from business line users.** The time to develop applications continues to decrease over three years from the 12-month cycles organizations experienced in the before state. They benefit from having the completed applications in the business lines supporting mission-critical, end-to-end processes and workflows for both the enterprise and individual departments and divisions more quickly. The enterprise capability owner with the semiconductor determined that because of the model-driven nature of the platform, their organization experienced "developer efficiencies" that translated to their "ability to just get (applications) out the door faster." As timelines decrease, the outputs increase as more components are built into the platform and become available for reuse. By Year 3, delivery timelines average three months, allowing the output to improve and further lending to the business value experienced.

"As we've grown over time, we've enhanced our skill sets. We had a lot more consultants early on. Every one of our projects was augmented heavily with consulting. These days, we have consultants on less than a third of our projects."

*Enterprise capability owner,  
semiconductor*



"With Pega, there's a hierarchical tree that you could navigate all the way from the user experience. I can look at a drop-down menu on a screen and drill down from there into the database table and the web service called to implement. You can't do that in standard code."

*Enterprise capability owner,  
semiconductor*



- › **Cost savings from decommissioning legacy platforms.** The interviewed organizations scaled their development operations due to the promotion of in-house resources and the shortening of delivery timelines. The resulting improved output supports more of the businesses that was previously managed by legacy platforms. By the end of the third year, the interviewed organizations decommissioned one legacy platform, such as BPM. Therefore, they avoid annual fees and maintenance costs associated with the legacy tool.

## Composite Organization

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an associated ROI analysis that illustrates the areas financially affected. The composite organization is representative of the five companies that Forrester interviewed and is used to present the aggregate financial analysis in the next section. The composite organization that Forrester synthesized from the customer interviews has the following characteristics:

- › **Description of composite.** It's a global, multibillion-dollar organization with hundreds of thousands of employees across many business lines. The applications that are built are mission-critical in nature and often support end-to-end workflows implemented at the department level. This assumes the application either supports a high volume of FTE or usage. Therefore, each project requires 15 FTEs across IT, business, and consulting services to complete. Once the applications are deployed to the business lines, they can be used and reconfigured to support many previously manual processes such as email sorting and associate pool allocation.
- › **Deployment characteristics.** The organization began development of Pega Platform for low code with a single application. The initial implementation took about six months to complete. This included implementing Pega Platform for low code and configuring it to meet business needs of the end users. Consulting resources, internal IT, and Pega resources were required to complete this initial build. Citizen developers are introduced in Year 1 after the initial implementation and they help with development projects meant to reconfigure existing platform capabilities and to meet additional use cases at the department and divisional level as well.

The organization continues to extend the capabilities of the platform and to develop new modules that allow applications to be rolled out to additional mission-critical functions. As the development time cycles shorten, the organization achieves more output each year. It further optimizes output as it develops more reusable components and includes more flexible resources in the development effort.

“As long as we have the appropriate quality control on the back end, citizen development allows our end users to manage their own fates.”

*General manager process automation, financial services*



### Key assumptions

100,000 employees

20 total applications

completed

3,350 FTEs supported by

Pega applications

# Analysis Of Benefits

## QUANTIFIED BENEFIT DATA AS APPLIED TO THE COMPOSITE

### Total Benefits

REF.	BENEFIT	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Atr	Development cost savings	\$103,950	\$221,400	\$311,850	\$637,200	\$511,773
Btr	Productivity savings for end users of the applications	\$1,912,600	\$5,100,267	\$8,738,100	\$15,750,967	\$12,518,888
Ctr	Legacy platform cost savings	\$332,500	\$332,500	\$332,500	\$997,500	\$826,878
	Total benefits (risk-adjusted)	\$2,349,050	\$5,654,167	\$9,382,450	\$17,385,667	\$13,857,539

## Development Cost Savings

The composite organization redistributes development work to internal resources across IT and business lines and away from expensive third-party consulting services. Pega Platform for low code has an intuitive UI that brings a visual component to development efforts and does not require hard coding in order to make changes and updates. Therefore, the organization allocates more of the development work to internal IT resources and citizen developers.

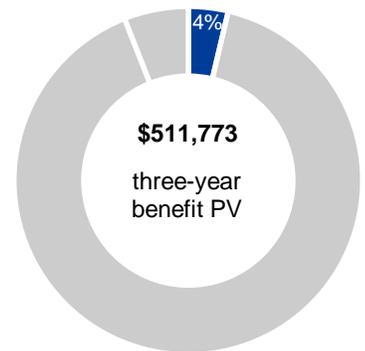
IT resources conduct the more complicated development to build out the modular foundation of the platform. As citizen developers are added to the resource pool, IT manages the guardrails in place that maintain quality and compliance standards. As one executive said: “The really positive thing we find around the platform is our ability to know where work is within the enterprise and to really track and measure it to make sure the work is getting done within the agreed timeframes and to the agreed standard and quality.”

Another executive described the investment in Pega for low code as a way to internally skill up to cut costs and enable future flexibility: “For us, it’s beneficial in terms of having more skills across the business to do more projects more quickly.”

For the composite organization, Forrester assumes that:

- › Prior to the investment, the organization utilized third-party consulting services for the majority of development work.
- › The pool of development resources remains consistent across the three years in terms of total amount of FTEs. But the allocation of work across the different resource types changes as the organization moves away from third-party consulting services and introduces citizen developers.
- › Citizen developers are introduced through a pilot program in Year 1, and scale to support IT and lessen the reliance on third-party services in years 2 and 3.

The table above shows the total of all benefits across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total benefits to be a PV of more than \$13.9 million.



**Development cost savings: 4% of total benefits**

Impact risk is the risk that the business or technology needs of the organization may not be met by the investment, resulting in lower overall total benefits. The greater the uncertainty, the wider the potential range of outcomes for benefit estimates.

The reduction in development costs will vary with:

- › The skills available (already having the people to take on the additional work) and the employees' capacity and willingness to take on more of the work.
- › Development timelines.
- › Cost of consulting resources, fully loaded IT salaries, and the salaries business users who are introduced to the development effort.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of \$511,773.



**60%** reduction in spend  
on consulting services  
over three years

#### Development Cost Savings: Calculation Table

REF.	METRIC	CALCULATION	YEAR 1	YEAR 2	YEAR 3
A1	Development resources available (in FTE)	Interview	15	15	15
A2	Percent of development done by IT FTE before Pega	Interview	30%	30%	30%
A3	Average fully loaded compensation, IT FTE	Forrester assumption	\$110,000	\$110,000	\$110,000
A4	Percent of development done by IT consultants before Pega	Interview	70%	70%	70%
A5	Average outsourced consulting fees, IT consultants	Forrester assumption	\$130,000	\$130,000	\$130,000
A6	Development costs before Pega	$((A2*A1)*A3)+((A4*A1)*A5)$	\$1,860,000	\$1,860,000	\$1,860,000
A7	Percent of development done by IT FTE with Pega	Interview	40%	55%	60%
A8	Percent of development done by IT consultant with Pega	Interview	50%	25%	10%
A9	Percent of development done by citizen developers with Pega	Interview	10%	20%	30%
A10	Average fully loaded compensation, citizen developer	Forrester assumption	\$73,000	\$73,000	\$73,000
A11	Development costs with Pega Platform	$((A7*A1)*A3)+(A8*A1)*A5)+(A9*A1)*A10)$	\$1,744,500	\$1,614,000	\$1,513,500
At	Development cost savings	A6-A11	\$115,500	\$246,000	\$346,500
	Risk adjustment	↓10%			
Atr	Development cost savings (risk-adjusted)		\$103,950	\$221,400	\$311,850

## Productivity Savings For End Users

The organization realizes much faster delivery timelines due to the accessibility of Pega Platform for low code and the reusability of developed components that cut down on duplicate efforts. Developing with no or low code brings internal IT and the business together to increase collaboration and greatly reduce rework. The reusability

component of the platform means that as time goes on, the delivery timelines shrink, and more components are made available for reuse. This frees up resources to continue developing enterprise applications and to focus efforts on smaller-scale applications that meet departmental or divisional needs. Development efforts optimize each year to improve output while the overall project timelines continue to reduce. Output for applications grows steadily to where three enterprise applications and eight departmental or divisional applications are completed in the third year alone. This is in stark contrast to the single-enterprise application and two smaller applications developed in the first year of the investment.

A manager of robotics and automation described how their organization's output multiplies without adding to the resource pool due to the nature of Pega for low code: "[It allows for] building applications and new layers on the same platform for completely different purposes that can be organized to support other business processes."

Shorter delivery timelines increase the number of outputs per year in terms of the number of projects the organization can take on as well as how quickly it can deploy the finished applications to the business users. Once deployed to the business lines, end users of enterprise-level applications experience a 25% uptick in their productivity, and it happens much sooner than it would without Pega for low code. Similarly, at the departmental or divisional level, end users experience a 12% uptick in their productivity when using applications deployed at this more local level. The uptick comes from redirecting time and FTEs away from laborious processes that are now automated.

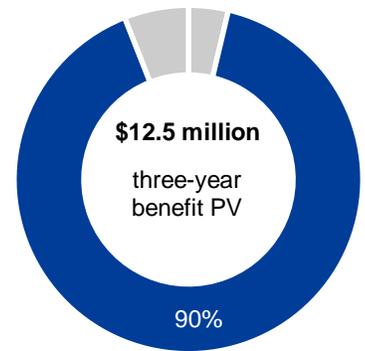
For the composite organization, Forrester assumes that:

- › Project output is tied to shortened delivery timeframes and reusable components — not additional resources.
- › The time needed to develop applications is six months in Year 1, four months in the Year 2 and three months in Year 3 versus 12 months without Pega for low code.
- › The developed enterprise applications are mission-critical in nature and support a large number of FTEs in terms of discrete resources or time dedicated (think complex processes and deep deployments).
- › The divisional or departmental applications fit smaller use cases and support fewer FTEs.

The reduced delivery timelines and associated revenue will vary depending on:

- › The number of development resources.
- › The time needed to develop the applications.
- › The fully loaded compensation of developers and business-line end users.
- › The productivity uptick business-line that end users experience.
- › The number of business-line end users supported by each developed application.

To account for these risks, Forrester adjusted this benefit downward by 20%, yielding a three-year risk-adjusted total PV of \$12,518,888.



Productivity savings for end users: 90% of total benefits



25% productivity uptick for enterprise level applications

12% productivity uptick for departmental or divisional level applications

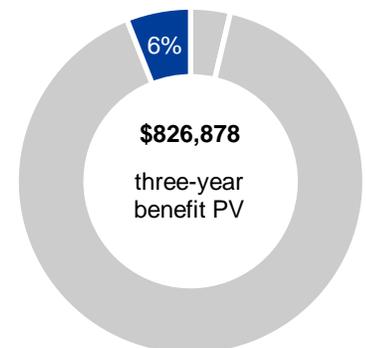
## Productivity Savings For End Users Of The Applications: Calculation Table

REF.	METRIC	CALCULATION	YEAR 1	YEAR 2	YEAR 3
B1	Number of enterprise-level applications	Interview	1	2	3
B2	Average number of end users supported by each enterprise-level application	Interview	500	500	500
B3	Total end users supported by enterprise-level applications	B1*B2	500	1000	1500
B4	Percentage productivity savings for enterprise apps	Interview	25%	25%	25%
B5	Number of departmental or divisional applications	Interview	2	4	8
B6	Average number of end users supported by each departmental or divisional application	Interview	25	25	25
B7	Total end users supported by departmental or divisional applications	B5*B6	50	100	200
B8	Percentage of productivity savings for departmental or divisional apps	Interview	12%	12%	12%
B9	Average fully loaded annual salary rate, business line user	Assumption	\$73,000	\$73,000	\$73,000
B10	Percent productivity captured	Assumption	50%	50%	50%
B11	Productivity uptick for business users per month (rounded value shown)	$((B3*B4)+(B7*B8))*B9*B10/12$	\$398,458	\$796,917	\$1,213,625
B12	Number of months of additional business value due to reduced development cycle times for project delivery	Interview	6	8	9
Bt	Productivity savings for end users of the applications	B11*B12	\$2,390,750	\$6,375,333	\$10,922,625
	Risk adjustment	↓20%			
Btr	Productivity savings for end users of the applications (risk-adjusted)		\$1,912,600	\$5,100,267	\$8,738,100

## Legacy Platform Cost Savings

Interviewees did not replace an existing low code application development platform, but they were able to leverage Pega for low code to build applications that supported processes previously supported by bulky legacy platforms that required hard coding and expensive resources to develop and maintain. For the composite organization, decommissioning these legacy platforms and eliminating the associated license fees and maintenance costs results in just under \$1 million of savings across the three-year investment.

As one executive explained, untangling the complicated systems of the past clears the way for an enterprise to run a “very low-code development platform in a highly digital architecture.” By decommissioning platforms and eliminating reliance on manual workarounds, the organization can simultaneously consolidate tools and



Legacy platform cost savings: 6% of total benefits

digitize more of its architecture. It sees cost savings from avoided license fees for the legacy systems, but also from the lighter maintenance effort required to support and maintain Pega for low code. The enterprise capability owner with the semiconductor company summed up their general sentiment about Pega for low code like this: “Low-code application development translates into simpler maintenance efficiency and a lower overall total cost of ownership. Because, if it is easier to develop, it’s also easier to sustain.”

For the composite organization, Forrester assumes:

- › It incrementally decommissions one legacy platform over the three years.
- › The total costs savings include license fees and maintenance and support costs for the decommissioned system.

The cost savings associated with decommissioning a legacy platform can vary depending on:

- › The size, complexity, and infrastructure of the platform.
- › The cost of the legacy platform in terms of licenses, support, and maintenance.

To account for these risks, Forrester adjusted this benefit downward by 5%, yielding a three-year risk-adjusted total PV of \$826,878.

Legacy Platform Cost Savings: Calculation Table					
REF.	METRIC	CALCULATION	YEAR 1	YEAR 2	YEAR 3
C1	Legacy platform licensing and fees per year	Interview	350,000	350,000	350,000
Ct	Legacy platform cost savings	C1	\$350,000	\$350,000	\$350,000
	Risk adjustment	↓5%			
Ctr	Legacy platform cost savings (risk-adjusted)		\$332,500	\$332,500	\$332,500

## Unquantified Benefits

The interviewed organizations also identified a variety of benefits they achieved with Pega Platform for low code that could not be quantified for this study:

- › **Revenue growth from deployed applications.** Some applications built with Pega for low code support business functions instead of back-end operations. Automating sales and marketing processes with Pega applications contributes to the topline. Examples of built applications include sales automation projects that extend warranties and marketing automation projects that expand upon soft touches such as birthday messages and the like to foster customer relationships. An executive said: “After warranty periods end, we are able to automate workflow to approach customers to sell an extended warranty. I am 100% sure you can attribute revenue growth to that.”

- › Ability to meet unforeseen deadlines without incurring additional development costs due to flexibility of existing applications. The accessibility of Pega for low code extends beyond the initial development effort. Organizations rework low-code applications swiftly and with resources available in house. This became obvious for the interviewed organizations during the COVID-19 pandemic in 2020. One interviewee from a financial services organization said their company augmented existing Pega-built applications to meet new financial requirements and to allow for exceptions such as delayed mortgage and credit card payments: “[Pega for low code enables] major rapid response to unforeseen situations and without enlisting an army of 40 people per update.”
- › **Ramp up productivity for end users by including additional Pega functionality to developed applications.** There is additional flexibility in how the applications built with Pega for low code work together with other Pega capabilities, such as robotic process automation (RPA), to further enhance end user benefits. The general manager of process automation at a financial services company said their organization gained an additional productivity benefit by using Pega for low code functionality to build a bot that automates the due diligence process for high-risk customers each year. “Now that we have added the bot, it goes into the background, and opens all the necessary platforms to retrieve data for the operator. This way, they can click through the data in tab format without having to go into all those various systems. We are seeing efficiency. What used to take 20 minutes now takes 5 minutes.” For more information on how Pega RPA amplifies the benefits of Pega low code applications, read the Forrester TEI for Pega RPA.
- › **Better user experience for end users because of easier maintenance.** When Pega Platform for low code requires fixes or updates, it does not need to be taken offline in order to make the necessary changes. Therefore, the end users of the applications do not experience any interruption. One executive said, “We’ve done multiple upgrades with the Pega environment that have been relatively seamless to the end users.”
- › **Better relationship between IT and business.** The business users of the developed applications have more success with them because they are more heavily involved in the development process. The enterprise capability owner at the semiconductor company said: “We absolutely can bring the businessperson in as the developer is going through case and stage design and modeling business logic in a decision table, and they can stand there and provide input and suggest changes. There’s higher quality, and the business has much greater confidence in what’s being done, which is also more efficient over time.”
- › Similarly, from an IT perspective, the more collaborative approach to development alleviates some of the pressures to deliver by changing the dynamics around issue resolution. The healthcare executive said: “People who actually find mistakes are heroes. Because the thing is that we can fix it anyway so quickly.”
- › **Employee satisfaction from more responsibility and career development.** Pega Platform for low code is geared towards supporting complicated businesses that keep IT developers engaged and interested in using the tool. For the businesses, it opens the door

to more career opportunities and the ability to skill up in a domain they would not have had access to prior to the investment in Pega for low code. The senior manager of automation and robotics at the telecommunications company described how new skills enable career development opportunities to business line users: “We had the vacancies and the opportunity available, and with Pega low code development experience, our citizen developers had the skills to fill more full time IT roles and progress in even more technical career paths.”

## Flexibility

While this study outlines the quantified benefits the interviewed organizations already experienced, this section looks into the future to determine how these organizations could leverage Pega Platform for low code. The healthcare executive said, “What comes with [the Pega Platform investment] is the security of infinite scalability.” Pega Platform for low code is built for future flexibility because the benefits an organization experiences in the initial years of the investment are further expounded as it completes development work and adds internal resources to the pool. The interviewed organizations predict that future usage will amplify existing cost savings and productivity benefits already realized in the following ways:

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for a future additional investment. This provides an organization with the “right” or the ability to engage in future initiatives but not the obligation to do so.

- › **Expedited delivery timelines for continuous improvements to existing applications due to more flexible development resources.**  
The interviewed organizations expect to continue to reduce reliance on expensive consulting resources and perforce development work down through the technology department while adding to the business developers available for support. Bringing the development work in house and spreading it across multiple functions improves the level of flexibility around resource allocation to the maintenance and continued improvement of existing applications. This further expedites delivery timelines in the development lifecycle because organizations do not need the same workers who started the project to finish it or to maintain it in the future.
- › **Further development cost savings by optimizing output with existing resources due to reusability of developed components.**  
The modular approach to development ensures that work completed to meet one workflow requirement is not lost when it’s time to extend to additional use cases. As the investment progresses, so does the pool of components available for reuse and the number of internal resources available to put them into action. Looking beyond the three-year model, the organizations expect to further optimize output using their growing pools of developed components, which enable them to avoid adding headcount. By taking advantage of existing components and resources, A senior director at a financial services company said, “[By taking advantage of existing components and resources, we currently have] five major operational frameworks comprised of 30 applications that all work together ready to roll out in the next 18 months.”

- › **Further technical architecture cost savings from consolidating legacy systems.** As development projects are optimized and more business processes are supported with applications built with Pega for low code, there is less reliance on the hard-coded systems of the past. Having realized the benefits associated with decommissioning at least one legacy platform, each of the interviewees said their organization looks forward to continuing to replace these platforms to further streamline their technical architectures.

Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix A).

# Analysis Of Costs

## QUANTIFIED COST DATA AS APPLIED TO THE COMPOSITE

Total Costs							
REF.	COST	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Dtr	Total Pega costs	\$115,000	\$345,000	\$690,000	\$1,035,000	\$2,185,000	\$1,776,495
Etr	Implementation and management	\$2,490	\$32,956	\$32,956	\$32,956	\$101,579	\$84,631
Ftr	Training costs	\$0	\$95,444	\$31,565	\$16,157	\$143,166	\$124,993
	Total costs (risk-adjusted)	\$117,490	\$473,400	\$754,521	\$1,084,113	\$2,429,524	\$1,985,935

## Total Pega Costs

The total costs the composite organization incurs from Pega include an annual fee that combines licensing fees and ongoing support. There is also a one-time implementation fee for Pega services required during that time. Licensing fees are based on a per user, per month basis and a blended rate that takes into consideration the number of IT development resources using the platform to develop applications, as well as the number of business-line end users of those applications.

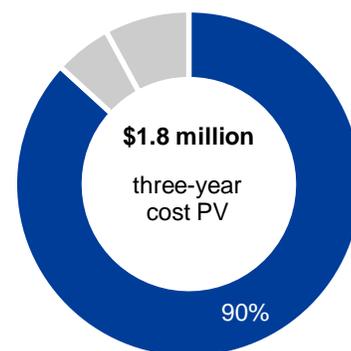
- › The cost of Pega Platform for low code licenses includes support.
- › The composite organization pays a one-time installation fee of \$100,000 at the start of its engagement with Pega for low code that accounts for Pega development resources and coaching services for a six-month period.

Implementation risk is the risk that a proposed investment may deviate from the original or expected requirements, resulting in higher costs than anticipated. The greater the uncertainty, the wider the potential range of outcomes for cost estimates. Such risks include:

- › The size of the organization and the number of application developers, application end users, and the uses built off those applications.
- › The implementation timeline stays on track and is completed within six months.

To account for these risks, Forrester adjusted this cost upward by 15%, yielding a three-year risk-adjusted total PV of \$1,776,495.

The table above shows the total of all costs across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total costs to be a PV of nearly \$2 million.



**Total Pega Costs: 90% of total costs**

## Total Pega Costs: Calculation Table

REF.	METRIC	CALCULATION	INITIAL	YEAR 1	YEAR 2	YEAR 3
D1	Annual Pega license fee	50/user/month for end users	\$0	\$300,000	\$600,000	\$900,000
D2	One-time Pega installation fee	Pega coaching hours and services for development	\$100,000	\$0	\$0	\$0
Dt	Total Pega costs	D1+D2	\$100,000	\$300,000	\$600,000	\$900,000
	Risk adjustment	↑15%				
Dtr	Total Pega costs (risk-adjusted)		\$115,000	\$345,000	\$690,000	\$1,035,000

## Implementation And Management

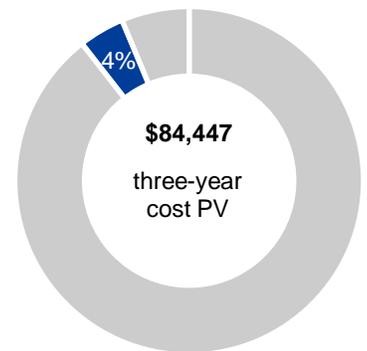
The composite organization dedicates internal resources to both the initial installation effort as well as the ongoing administration and maintenance of Pega Platform for low code. In modeling implementation and management resource costs, Forrester assumes:

- › The organization dedicates 44 hours of internal resource development time to the initial platform installation.
- › The organization split responsibility for ongoing administration and maintenance of the platform across four IT FTEs.
- › The IT resources allocated to administration and maintenance of Pega Platform for low code are not dedicated resources and the organization typically spends about 7% on Pega support.

Costs related to implementation and deployment may vary based on:

- › The size and scope of operations.
- › The available skill sets of teams.
- › Organizational agility.

To account for these risks, Forrester adjusted this cost upward by 7%, yielding a three-year risk-adjusted total PV of \$84,631.



Implementation and management: 4% of total costs

## Implementation And Management: Calculation Table

REF.	METRIC	CALCULATION	INITIAL	YEAR 1	YEAR 2	YEAR 3
E1	Installation hours, internal FTE	Interview	44	0	0	0
E2	Administration time (ongoing)	Interview		7%	7%	7%
E3	Number of FTEs on administration and maintenance	Interview		4	4	4
E4	Average fully loaded compensation, IT, hourly	Assumption	\$53	\$53	\$53	\$53
Et	Implementation and management	$(E1 \cdot E4) + (E2 \cdot E3 \cdot E4 \cdot 2,080)$	\$2,332	\$30,867	\$30,867	\$30,867
	Risk adjustment	↑7%				
Etr	Implementation and management (risk-adjusted)		\$2,495	\$32,028	\$32,028	\$32,028

## Training Costs

There are costs associated with training development resources using Pega Platform for low code. Internal IT resources and business users who will become citizen developers require training in order to effectively participate in the development efforts. The biggest training initiative occurs in Year 1. Only net new development resources must be trained in the subsequent years, and Pega does not charge for ongoing training services. Training costs are calculated by the number of hours required to complete the training and the cost associated with the development resource participating.

Internal IT resources require 200 hours of development training, typically completed over the course of one month, in order to be an expert on the platform and to begin developing applications.

Citizen developers usually spend 20 hours of training conducted using a co-development model with a Pega developer.

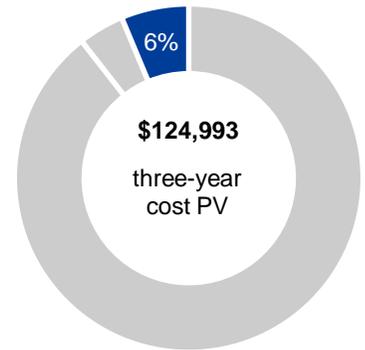
In modeling the costs associated with development training, Forrester assumes:

- › The average fully loaded hourly rate for IT resources is \$53.
- › The average fully loaded hourly rate for a generic business user who will become a citizen developer is \$35.

Costs related to training may vary based on the following:

- › The workforce size and current skill sets.
- › Business requirements and analytics usage across development teams.

To account for these risks, Forrester adjusted this cost upward by 7%, yielding a three-year risk-adjusted total PV of \$124,993.



Training costs: 6% of total costs

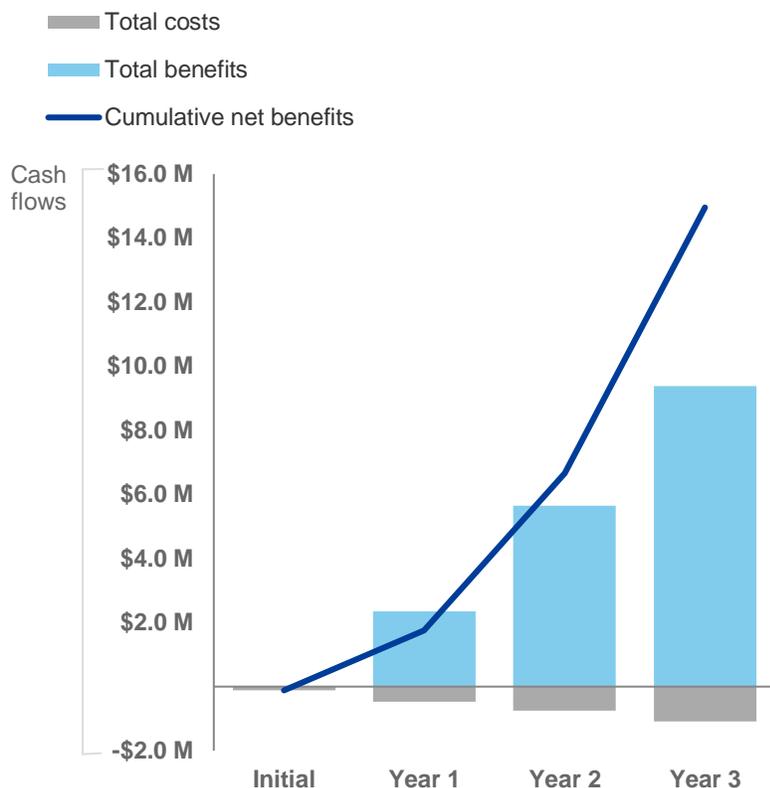
### Training Costs: Calculation Table

REF.	METRIC	CALCULATION	INITIAL	YEAR 1	YEAR 2	YEAR 3
F1	Training services, Pega	Interview	\$0	\$0	\$0	\$0
F2	Training for developers (hours)	Interview	200	200	200	200
F3	Number of IT resources (net new)	Interview	6	2	1	1
F4	Average fully loaded hourly compensation, IT	Assumption	\$72	\$72	\$72	\$72
F5	Number of citizen developers	Interview	2	1	1	1
F6	Training for citizen developers (hours)	20 hours per citizen developer	40	20	20	20
F7	Average fully loaded hourly compensation, business	Assumption	\$35	\$35	\$35	\$35
Ft	Training costs	$F1+(F2*F3*F4)+(F5*F6*F7)$	\$89,200	\$29,500	\$15,100	
	Risk adjustment	↑7%				
Ftr	Training costs (risk-adjusted)		\$0	\$95,444	\$31,565	\$16,157

# Financial Summary

## CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

### Cash Flow Chart (Risk-Adjusted)



The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.



These risk-adjusted ROI, NPV, and payback period values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

### Cash Flow Analysis (risk-adjusted estimates)

	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Total costs	(\$117,490)	(\$473,400)	(\$754,521)	(\$1,084,113)	(\$2,429,524)	(\$1,985,935)
Total benefits	\$0	\$2,349,050	\$5,654,167	\$9,382,450	\$17,385,667	\$13,857,539
Net benefits	(\$117,490)	\$1,875,650	\$4,899,646	\$8,298,337	\$14,956,143	\$11,871,604
ROI						598%
Payback period (months)						<3

# Pega Platform for Low Code: Overview

The following information is provided by Pega. Forrester has not validated any claims and does not endorse Pega or its offerings.

Pega's low-code application platform helps businesses respond to immediate challenges, fast, while also enabling widespread enterprise-wide transformation. With its low-code factory approach, Pega empowers organizations with tools, training, and guidelines to quickly develop quality applications through collaboration between business and IT.

- **Build Faster.** Respond to ever-evolving business needs in real-time with low-code powered by Case Management.
  - Visual design components and prebuilt app templates in App Studio allow users with little or no coding experience to build or update apps with ease
  - A unified design environment and built-in social tools allow for continuous collaboration and coaching between business users, developers, and enterprise IT teams
  - Easily define key application components – like outcomes, users, and data – within prebuilt app templates at the outset of a project to accelerate development
  - World-class design system provides a simple, seamless user experience for app builders and end-users
- **Work Smarter.** Reconcile low-code solutions with developer-grade tools in a unified solution that promotes productivity for all users.
  - With effective low-code tools and role-based authoring studios, developers can delegate routine app development, increasing their time spent on higher-value tasks
  - Seamlessly integrate Pega with technologies you love by leveraging open APIs
  - Leverage a variety of intelligent automation tools to automate simple tasks and produce optimal outcomes in your applications
  - Out-of-the-box DevOps enables continuous integration and easy deployment
- **Scale with Confidence.** Operationalize and manage low-code at scale across your organization from one comprehensive dashboard with App Factory.
  - A centralized app management tool, App Factory allows enterprise IT to safely promote and leverage the benefits of low-code by allowing them to set guardrails and apply best practices to company-wide development
  - Increase productivity with visibility into all ongoing development projects, allowing for reduced redundancies, better task delegation, and promotion of component reuse across apps
  - Scale innovation with seamless integrations across legacy systems and easily extensible architecture
  - Automatically deploy and replicate a fully-customizable world-class user experience across all channels and devices

Pega's low-code application platform allows for a unified approach to tackling business challenges. With App Studio, business users are better able to collaborate with professional developers on projects, as well as offload some of the more basic development tasks. And App Factory allows enterprise IT to manage and govern all these projects from one dashboard, preventing the issues with shadow IT or compliance that often arise with disparate low-code solutions and siloed approaches to development.

# Appendix A: Total Economic Impact

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

## Total Economic Impact Approach



**Benefits** represent the value delivered to the business by the product. The TEI methodology places equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization.



**Costs** consider all expenses necessary to deliver the proposed value, or benefits, of the product. The cost category within TEI captures incremental costs over the existing environment for ongoing costs associated with the solution.



**Flexibility** represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. Having the ability to capture that benefit has a PV that can be estimated.



**Risks** measure the uncertainty of benefit and cost estimates given: 1) the likelihood that estimates will meet original projections and 2) the likelihood that estimates will be tracked over time. TEI risk factors are based on "triangular distribution."

The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1 that are not discounted. All other cash flows are discounted using the discount rate at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations in the summary tables are the sum of the initial investment and the discounted cash flows in each year. Sums and present value calculations of the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.



### Present value (PV)

The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total NPV of cash flows.



### Net present value (NPV)

The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.



### Return on investment (ROI)

A project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits less costs) by costs.



### Discount rate

The interest rate used in cash flow analysis to take into account the time value of money. Organizations typically use discount rates between 8% and 16%.



### Payback period

The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or cost.

# Appendix B: Supplemental Material

## *Related Forrester Research*

“The Total Economic Impact™ Of Pegasystems’ Hybrid RPA Approach,” a commissioned study conducted by Forrester Consulting on behalf of Pegasystems, February 2020

(<https://www.pega.com/system/files/resources/2020-04/pega-forrester-tei-rpa-study-v2.pdf>).