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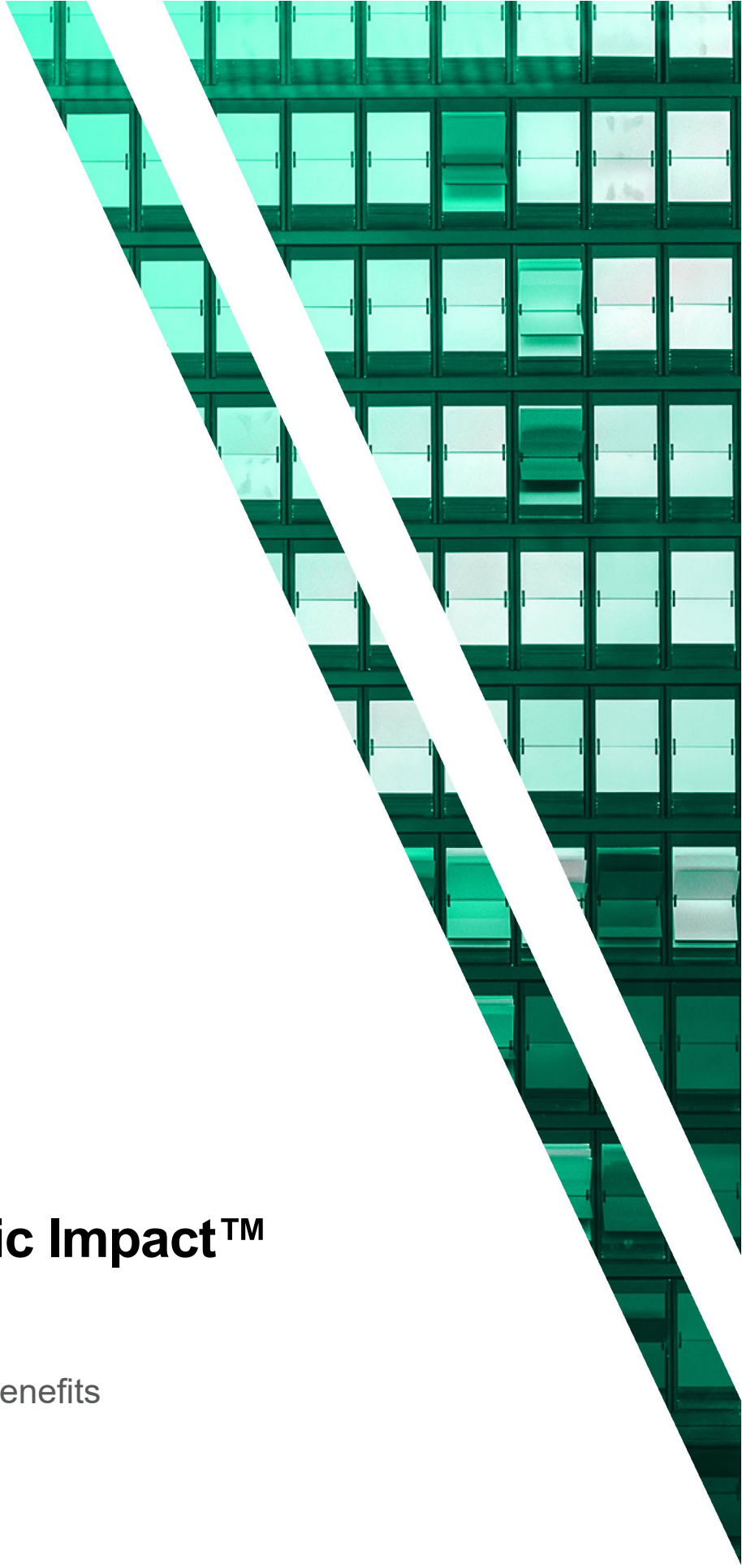

The Total Economic Impact™ Of OutSystems

Cost Savings And Business Benefits Enabled By OutSystems

APRIL 2022

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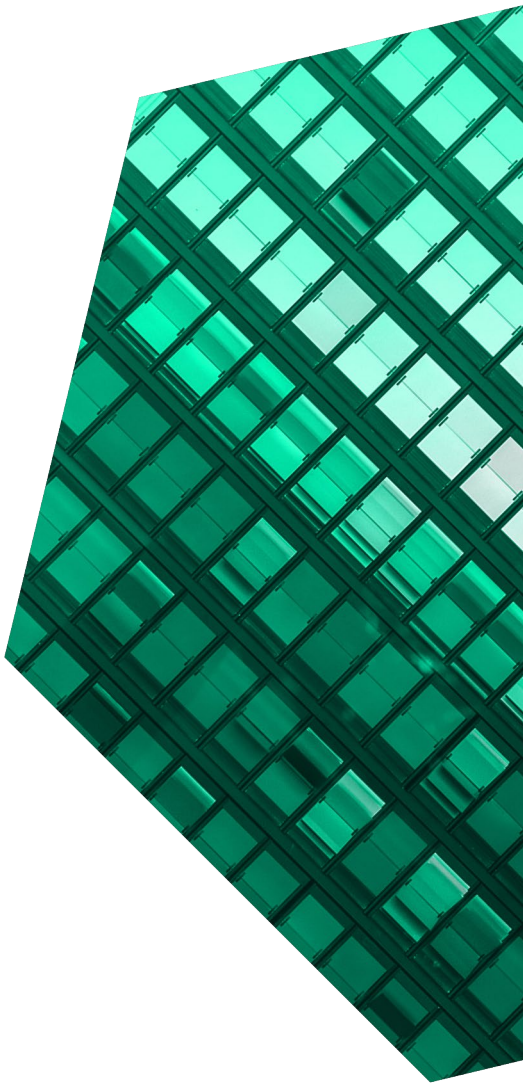
Project Lead: *Mary Barton*



ABOUT FORRESTER CONSULTING

Forrester Consulting provides independent and objective research-based consulting to help leaders succeed in their organizations. For more information, visit forrester.com/consulting.

Executive Summary

OutSystems is a vendor dedicated to providing low-code application development platforms. By improving software engineering productivity, OutSystems enables application development and delivery professionals to either deliver more applications with the same number of developers or deliver applications in a shorter time frame. It also simplifies ongoing maintenance of and changes to those applications.

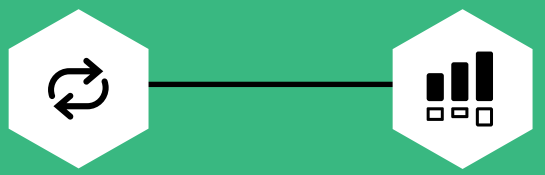
OutSystems commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying OutSystems.[1] The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of OutSystems on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed four decision-makers with experience using OutSystems. For the purposes of this study, Forrester aggregated the interviewees' experiences and combined the results into a single composite organization.

Prior to using OutSystems, the interviewees' organizations typically used traditional frameworks for their software development efforts. The organizations both created new software and maintained existing software. The time and expense of internal custom software development limited the organizations' ability to achieve their corporate goals for both revenue growth and operational cost savings. Managing and maintaining existing applications took too much time. Ultimately, specific and sizable software development needs catalyzed a fresh look at alternate means to address these needs.

After deploying OutSystems, the interviewees noted their organizations reduced developer effort (and expense) and the elapsed time needed for software development and maintenance. By building custom applications, including enterprisewide applications, they avoided paying ongoing fees to software vendors for redundant functionalities. Increased software development productivity translated into shorter project durations, and produced incremental income from faster time-to-market for new business initiatives and incremental cost savings from faster time-to-value for operational efficiency initiatives. The interviewees' organizations also benefited from systematic security checks, improved scalability of their applications, better development and corporate agility, and time savings for multidisciplinary staff involved in development projects.

KEY STATISTICS



Return on investment (ROI)
506%

Net present value (NPV)
$14.77M

The portfolio effect. The portfolio effect allows the reuse of app modules built to achieve tasks such as authentication, user onboarding, image recognition, and others common to many digital experiences, driving the productivity of development and maintenance teams by allowing the re-use of app modules built to achieve tasks such as

["There are templates that we created in OutSystems, and it's easy to use them in every other application as well, so you don't need to redo work in each and every application. We created those templates to ensure that we can replicate our work and have reusable components. It helps in both development and maintenance."]

[Director of custom development projects, manufacturer]

authentication, user onboarding, image recognition, and others common to many digital experiences. The apps are maintained in a central repository with versioning and automatic dependency management so that as updates and further development of those apps occur, the changes are propagated across the app portfolio. As the organization develops a portfolio of these apps, it gains additional efficiency in development, continued development and maintenance, and improved time-to-market.

KEY FINDINGS

Quantified benefits. Risk-adjusted present value (PV) quantified benefits include:

- **Application development cost savings of $4.3 million.** OutSystems capabilities like reusable components that simplify development, reduction or elimination of some of the more mechanical aspects of developing applications, and one-click deployment of completed apps combined to cut both the developer effort and total time to deliver a development project.
- **Application maintenance costs savings of $1.2 million.** Applications developed and deployed on the OutSystems platform cost less to maintain and change, because less developer

"From a technology perspective, our company was feeling the pain of not being able to move fast enough. We needed to come up with better solutions in order to remain ahead of the curve. And we needed to get through more projects in a year."

—Senior vice president of digital applications and integrations, technology and services company

effort was needed. These application maintenance cost savings continued to accrue every year that an OutSystems-developed application remained in production.

- **Incremental income of $4.6 million from faster time-to-market for revenue-generating new business initiatives.** With less developer effort needed to create the software behind their various new business initiatives, the interviewees' organizations began generating revenue and income from those initiatives months faster than they would have with their prior development environment.
- **Incremental cost savings of $6.7 million from faster time-to-value for operational efficiency initiatives.** The shorter development project duration for software underlying operational efficiency initiatives enabled interviewees' organizations to launch those initiatives months faster, capturing incremental cost savings from them.
- **Avoided costs of $765,000 for replaced legacy applications.** By using OutSystems to build functionality that replaced legacy third-party applications, interviewees noted their organizations avoided paying ongoing fees to vendors for those applications.

Unquantified benefits. Benefits that are not quantified for this study include:

- **Improved scalability.** Interviewees' organizations scaled applications faster and more easily than with their prior development environments. Scaling included enhancing functionality, expanding the volume of users, and increasing the frequency of use.
- **Systematic security checks.** Interviewees noted their organizations benefited from numerous security, access control, and authentication checks applied to every app created with the platform.
- **Time savings for nondeveloper staff.** In addition to significantly cutting developers' effort, OutSystems reduced the time other technical and nontechnical staff involved in development projects spent on the projects.
- **Enhanced ability for the development team to support corporate objectives and initiatives.** Adopting OutSystems enabled development teams to not only complete internal development projects with less developer effort and at lower cost, but to also tackle projects that they may not have contemplated with their prior development environment.
- **Greater development and corporate agility, resulting in improved competitiveness and customer and employee satisfaction.** The interviewees noted their organizations increased agility went beyond moving faster to moving differently, because OutSystems enabled a more iterative approach to development that better supported innovation.
- **Higher-quality code.** Although the extent of improvement varied depending on prior practices, interviewees indicated that after adopting OutSystems their organizations' development teams made fewer bugs and security holes and did not have to catch as many errors in general.
- **Ability to augment staff with non-traditional development talent.** Interviewees reported delivering as many as half of its projects using staff who had technical experience but not a traditional development background. For those projects, the compensation expense on average was 50% less than if traditional development talent had done the work.
- **Simplified development of mobile applications.** Interviewees reported that developing on OutSystems reduced the effort needed to deliver mobile capabilities, whether in

conjunction with a desktop/laptop application or as a freestanding mobile app.

Costs. Risk-adjusted PV costs include:

- **Initial and ongoing internal labor costs of $207,000.** Internal labor costs included IT staff time to fully implement OutSystems and then manage its platform use and continue to expand its utilization. Labor costs also include time developers spent learning to use OutSystems.
- **OutSystems fees of $2.7 million.** OutSystems fees included annual development platform-as-a-service subscription costs, premium support, and one-time fees for training.

The decision-maker interviews and financial analysis found that a composite organization experiences benefits of $17.69 million over three years versus costs of $2.92 million, adding up to a net present value (NPV) of $14.77 million and an ROI of 506%.

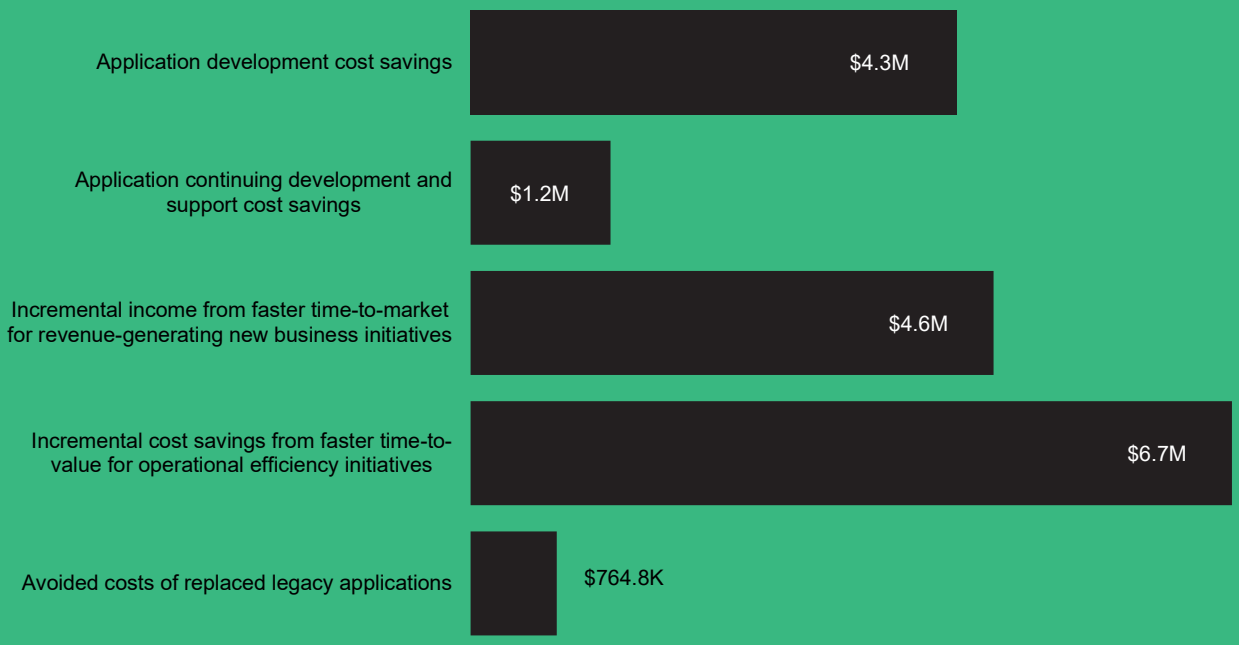
ROI
506%

BENEFITS PV
$17.69M

NPV
$14.77M

PAYBACK
<6 months

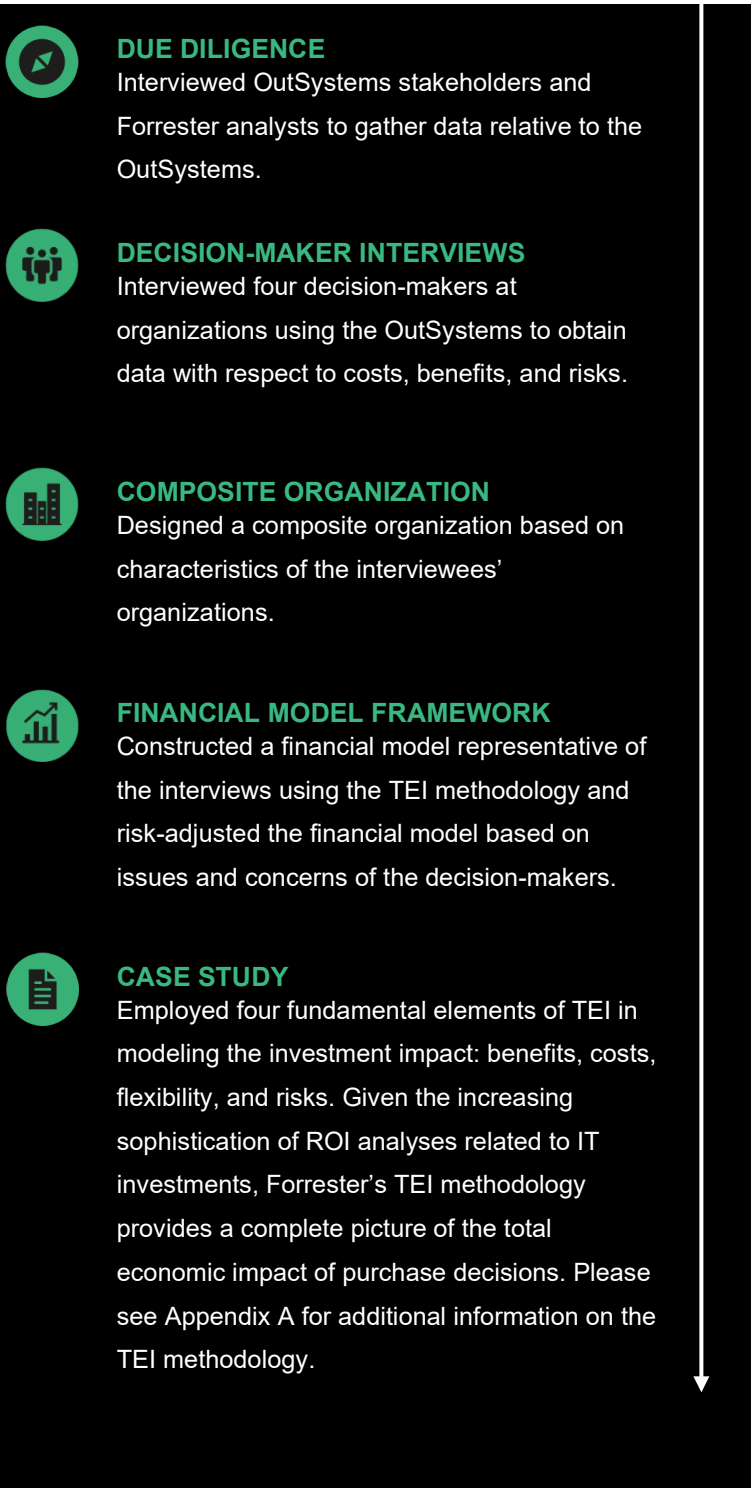
Benefits (Three-Year)



TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews, Forrester constructed a Total Economic Impact™ framework for those organizations considering an investment in OutSystems.

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 OutSystems can have on an organization.



The OutSystems Customer Journey

Drivers leading to the OutSystems investment

Interviewed Decision-Makers

Interviewee	Industry	Region
Director of software engineering	Life sciences	Headquartered in North America, global operations
Director of software development	Distribution	Headquartered in Europe, global operations
Senior vice president of digital applications and integrations	Technology and services	Headquartered in North America, global operations
Director of custom development projects	Manufacturer	Headquartered in Europe, global operations

KEY CHALLENGES

The interviewees noted how their organizations struggled with common challenges that drove their decisions to deploy OutSystems, including:

- **The time and expense of internal custom software development limited the companies' ability to achieve their corporate goals.** Prior to adopting OutSystems, the interviewees noted their organizations relied on traditional development tools and techniques. Budget constraints and developer capacity hindered interviewees' organizations' ability to pursue corporate objectives. They wanted to reduce both the elapsed time and the financial expense of developing software-based capabilities that would improve their competitive position, enabling them to generate additional revenue from current or new customers and serve those customers better. They also wanted to accelerate and cut the costs of technology-based operating efficiencies that would decrease their expenses.
- **The overall organization was evolving towards increased innovation and more agile workstyles.** The interviewees' organizations' development environments and processes did not provide the agility and pace of innovation needed to support the business, such as continuous iteration and experimentation around applications.
- **Specific and sizable enterprise software development needs that catalyzed a fresh look at the alternate means to address these needs.** Most interviewees noted their organizations had needed to replace an enterprise-scale legacy application, such as an enterprise resource planning (ERP) system, document management system, or workplace collaboration platform, that the vendor would no longer support. They perceived that off-the-shelf software applications would fully not meet their unique needs, and external custom application development would be costly and inflexible to their changing business needs. This prompted the interviewees to consider developing their own replacement applications, tailored to meet their organizations' unique needs without including functionality they might never use.
- **Managing and maintaining existing applications took too much time.** As a senior vice president of digital applications and integrations at a technology and services company noted: "We had too much

interdependency between our front end and back end. Every change required lots of analysis, lots of code reviews, lots of variations, to make sure you haven't broken the whole system."

COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and a ROI analysis that illustrates the areas financially affected. The composite organization is representative of the four decision-makers that Forrester interviewed and is used to present the aggregate financial analysis in the next section. The composite organization has the following characteristics:

Description of composite. The composite is a global industrial company worth $3 billion with 10,000 employees worldwide. It uses a combination of custom application development and packaged software applications to meet its application needs, ranging from departmental to enterprise level in scope, and including customer and partner-facing applications. Prior to implementing OutSystems, the organization uses traditional development tools and frameworks for its software development efforts. Those efforts are a mix of creating new software and maintaining and modifying existing software.

Deployment characteristics. The composite organization implements the software-as-a-service (SaaS) standard edition of OutSystems using its internal staff. After initially training 25 developers, it continues to increase its usage and currently has 35 developers across multiple development teams using OutSystems to tackle diverse business challenges. Over three years, the organization has uses OutSystems to develop 39 applications that are now live on the OutSystems platform and then manages, maintains, and, in some cases, expands those applications. The applications range from simple to very complex in scope with several developed as replacements for legacy third-party applications, including enterprise-scale applications.

Key assumptions

- **$3 billion revenue**
- **10,000 employees**
- **35 OutSystems developers trained by Year 3**
- **39 applications completed and is use by Year 3**

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	Application development cost savings	$1,006,200	$1,649,700	$2,702,700	$5,358,600	$4,308,694
Btr	Application continuing development and support cost savings	$187,200	$473,850	$900,900	$1,561,950	$1,238,653
Ctr	Incremental income from faster time-to-market for revenue-generating new business initiatives	$281,880	$1,345,986	$4,343,625	$5,971,491	$4,632,069
Dtr	Incremental cost savings from faster time-to-value for operational efficiency initiatives	$432,000	$1,894,688	$6,370,650	$8,697,338	$6,744,948
Etr	Avoided costs of replaced legacy applications	$90,000	$90,000	$810,000	$990,000	$764,763
	Total benefits (risk-adjusted)	$1,997,280	$5,454,224	$15,127,875	$22,579,379	$17,689,127

APPLICATION DEVELOPMENT COST SAVINGS

Evidence and data. The interviewees' indicated that using OutSystems allowed their organizations to need less developer effort to get the same or even more software development work done. A senior vice president of digital applications and integrations at a technology and services company indicated that developers were at least 50% more productive. A director of custom development projects at a manufacturer reported a two times savings on development time in the first year, which increased to between 2.2 to 2.5 times savings after several years. The director of software engineering and technology initiatives at a pharmaceutical company noted that OutSystems projects were 25% to 50% less expensive than comparable prior projects.

Interviewees indicated that the number of developer weeks needed for a given project decreased upon adoption of OutSystems with some smaller incremental improvements in individual developers' productivity over time.

Interviewees attributed the savings in developer effort to OutSystems capabilities that included:

- Reusable components that simplified development. Templates provided in OutSystems, along with an organization's ability to create and reuse its own templates, eliminated the need to start fresh for every new development project.
- Reduction or elimination of tasks. As a senior vice president of digital applications and integrations at a technology and services company explained: "Developers no longer need to do some of the very mechanical sides of developing and supporting applications like regression testing. They can think about the 'big rock' they're trying to develop, not how that big rock is going to affect other areas of the business."
- One-click publishing of completed code.

"We are delivering more solutions in a year now because developer productivity is increased. Our OutSystems projects are 25% to 50% less expensive than comparable projects would have been in the past."
Director of software engineering and technology initiatives, pharmaceutical company]

Modeling and assumptions. For the composite organization, Forrester assumes:

- Eighteen development projects are completed in Year 1, 25 in Year 2, and 35 in Year 3.
- An average of 1.2 developers are on development project prior to OutSystems.
- The average amount of developer effort saved per project is 40% in Year 1, 47% in Year 2, and 55% in Year 3, reflecting the portfolio effect.
- The average fully loaded annual developer salary is $130,000.

Risks. Application development cost savings may vary due to:

- The number and complexity of software development projects, both before and after OutSystems deployment.
- The salary of a fully loaded developer.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a

Application Development Cost Savings

Ref.	Metric	Source	Year 1	Year 2	Year 3
A1	Total number of development projects completed per year	Composite	18	25	35
A2	Number of developers on development projects prior to OutSystems	A1*1.2	21.6	30.0	42.0
A3	Percentage improvement with OutSystems	Interviews	40%	47%	55%
A4	Number of developers on development projects with OutSystems	A2*(1-A3)	13.0	15.9	18.9
A5	Number of FTEs saved per year with OutSystems	A2-A4	8.6	14.1	23.1
A6	Fully loaded annual developer salary	TEI standard	$130,000	$130,000	$130,000
At	Application development cost savings	A5*A6	$1,118,000	$1,833,000	$3,003,000
	Risk adjustment	↓10%			
Atr	Application development cost savings (risk-adjusted)		$1,006,200	$1,649,700	$2,702,700
	Three-year total: $5,358,600		**Three-year present value: $4,308,694**		

three-year, risk-adjusted total PV (discounted at 10%) of $4.3 million.

APPLICATION CONTINUING DEVELOPMENT AND SUPPORT COST SAVINGS

Evidence and data. The interviewees noted that applications developed and deployed on the OutSystems platform cost less to maintain and (if needed) change, since less developer effort was needed to do so. Unlike application development cost savings that were one time and specific to a development project, application maintenance cost savings were cumulative. They continued to accrue during every year that an OutSystems-developed application remained in production.

As a result, the annual savings on application maintenance costs increased over time as the organizations put additional OutSystems-developed applications into production. As the number of applications live on the OutSystems platform increased, so did the application maintenance cost savings.

Interviewees attributed the reduction in application maintenance effort (and thus costs) to multiple OutSystems capabilities, including:

- Reusable components that simplify maintenance.
- The ability to push changes through to production in a matter of minutes.
- Reduced interdependency between an application's front end and back end, and the ability to handle maintenance at an application level, decreasing the analysis and code reviews required for each change.
- DevOps maintenance tasks the OutSystems platform addressed that previously required manual effort.

Modeling and assumptions. For the composite organization, Forrester assumes:

- The composite organization maintains nine production models in Year 1, 22 in Year 2, and 39 in Year 3.
- The organization achieves a 60% efficiency gain in Year 1 growing to 66% in Year 3, reflecting the portfolio effect.
- The average fully loaded annual developer salary is $130,000.

Risks. Application continuing development and support cost savings may vary due to:

- The number and complexity of production models.
- The efficiency achieved.
- The salary of a fully loaded developer.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $1.2 million.

"OutSystems allows us to do the maintenance at an application level without risk of breaking all the applications. The maintenance, regression testing, and automation has become much easier."
Senior vice president of digital applications and integrations, technology and services company

Application Continuing Development And Support Cost Savings					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
B1	Number of applications live on OutSystems platform	(A1/2)+$B1_{PY}$	9	22	39
B2	Number of developers on maintenance of live apps	B1*0.3	2.7	6.6	11.7
B3	Percent improvement with OutSystems	Interviews	60%	63%	66%
B4	Number of developers on app maintenance with OutSystems	B2*(1-B3)	1.1	2.4	4.0
B5	Number of FTEs saved per year with OutSystems	B2-B4	1.6	4.1	7.7
B6	Fully-loaded annual developer salary	TEI standard	$130,000	$130,000	$130,000
Bt	Application continuing development and support cost savings	B5*B6	$208,000	$526,500	$1,001,000
	Risk adjustment	↓10%			
Btr	Application continuing development and support cost savings (risk-adjusted)		$187,200	$473,850	$900,900
	Three-year total: $1,561,950			**Three-year present value: $1,238,653**	

"As a result of an acquisition, we needed to make a change to one of our apps. We did that in less than 8 hours. Prior to OutSystems that probably would have taken 40 to 50 hours."
Director of software engineering and technology initiatives, pharmaceutical company

INCREMENTAL INCOME FROM FASTER TIME-TO-MARKET FOR REVENUE-GENERATING NEW BUSINESS INITIATIVES

Evidence and data. With less developer effort needed to create the information technology behind their various new business initiatives, the interviewees' organizations generated revenue and income from those initiatives faster than they would have prior to adopting OutSystems.

- A director of custom development projects at a manufacturer described faster development efforts focused on the organization's vendor ecosystem that increased the revenue generated from those vendors.
- A senior vice president of digital applications and integrations at a technology and services company noted that the organization's use of OutSystems enabled it to develop and deliver client-facing capabilities more rapidly.

Modeling and assumptions. For the composite organization, Forrester assumes:

- The total number of development projects for revenue-generating new business initiatives ranges from three in Year 1 to 13 in Year 3.

- Incremental income is the income generated between the time when a revenue-generating initiative based on software developed with OutSystems went live, and the time when that initiative would have gone live if the software had been developed using the organization's prior development technologies.
- The incremental income for a given year is calculated as a total of the one-time project-specific incremental income for each of the development projects for that year.

Risks. Incremental income from faster time-to-market for revenue-generating new business initiatives may vary due to:

- The nature of the organization, targeted market and initiative, and resulting magnitude of potential revenue.
- Project scope.
- The number of developers per project team.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $4.6 million

Incremental Income From Faster Time-To-Market For Revenue-Generating New Business Initiatives

Ref.	Metric	Source	Year 1	Year 2	Year 3
C1	Number of development projects for revenue-generating new business initiatives	Interviews	3	7	13
C2	Average development effort for revenue-generating new business initiatives prior to OutSystems (weeks)	Interviews	29	37	45
C3	Percentage improvement with OutSystems	A3	40%	47%	55%
C4	Average annual revenue generated by each new business initiative when taken live	Interviews	$900,000	$1,200,000	$1,500,000
C5	Operating margin	Interviews	12%	12%	12%
Ct	Incremental income from faster time-to-market for revenue-generating new business initiatives	(C1*C2*C3*C4*C5)/12	$313,200	$1,495,540	$4,826,250
	Risk adjustment	↓10%			
Ctr	Incremental income from faster time-to-market for revenue-generating new business initiatives (risk-adjusted)		$281,880	$1,345,986	$4,343,625
	Three-year total: $5,971,491		**Three-year present value: $4,632,069**		

INCREMENTAL COST SAVINGS FROM FASTER TIME-TO-VALUE FOR OPERATIONAL EFFICIENCY INITIATIVES

Evidence and data. By adopting OutSystems, the interviewees' organizations captured incremental cost savings from their operational efficiency initiatives. The shorter development project duration for the information technology underlying those initiatives enabled the organizations to implement the initiatives sooner.

- A director of software engineering and technology initiatives at a pharmaceutical company described a tool that developers built with half the development effort a similar project would have required prior to OutSystems. The organization's new supplier evaluation tool replaced its employees' prior time-consuming research of required policies and procedures for onboarding new suppliers with a simple online interview that generated the pertinent requirements, saving thousands of hours of employee time and ensuring consistent application of those policies and procedures.
- A director of custom development projects at a manufacturer noted that the organization saved several million dollars over three years by using OutSystems-developed software to implement operational efficiencies in its factories and warehouses. The organization found it could start with a relatively small-scope initiative and then readily extend the scope of that initiative and expand the number of locations to which it was deployed, increasing the aggregate cost savings.
- A director of software development for a distribution company anticipated that an enterprisewide operational management system developed with OutSystems would improve productivity by 15% to 20% for a wide range of the organization's employees as it continued to expand that system's capabilities and deploy it across its many facilities worldwide. The director estimated that development of the system's evolving set of capabilities required approximately half of the developer effort it otherwise would, resulting in shorter project duration and faster time-to-value.

Modeling and assumptions. For the composite organization, Forrester assumes:

- The total number of development projects for operational efficiency initiatives ranges from three in Year 1 to 13 in Year 3.
- Incremental cost savings are those savings generated between the time when an operational efficiency initiative based on software developed with OutSystems went live, and the time when that initiative would have gone live if the software had been developed using the organization's prior development technologies.
- The incremental cost savings for a given year are calculated as a total of the one-time project-specific incremental cost savings for each of the pertinent development projects indicated for that year.

Risks. The incremental cost savings from faster time-to-value for operational efficiency initiatives may vary due to:

- The nature of the organization and initiative and resulting magnitude of potential savings.
- The number of developers per project team.
- Project scope.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $6.7 million.

Incremental Cost Savings From Faster Time-To-Value For Operational Efficiency Initiatives					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
D1	Number of development projects for operational efficiency initiatives	Interviews	3	7	13
D2	Average development project duration for operational efficiency initiatives prior to OutSystems (weeks)	Interviews	20	25	33
D3	Percentage improvement with OutSystems	A3	40%	47%	55%
D4	Average operational expense reduction produced annually by each operational efficiency initiative when taken live	Interviews	$240,000	$300,000	$360,000
Dt	Incremental cost savings from faster time-to-value for operational efficiency initiatives	(D1*D2*D3*D4)/12	$480,000	$2,105,208	$7,078,500
	Risk adjustment	↓10%			
Dtr	Incremental cost savings from faster time-to-value for operational efficiency initiatives (risk-adjusted)		$432,000	$1,894,688	$6,370,650
	Three-year total: $8,697,338			**Three-year present value: $6,744,948**	

AVOIDED COSTS OF REPLACED LEGACY APPLICATIONS

Evidence and data. By using OutSystems to build functionality that replaced legacy third-party applications, organizations avoided paying ongoing fees to vendors for those applications. For instance, the director of software development at a distribution company noted the organization used OutSystems to build a replacement for its ERP system and its document management system, while the director of custom development projects at a manufacturer noted the organization replaced a workplace collaboration platform. The director of software engineering and technology initiatives at a pharmaceutical company reported the organization replaced a planning and scheduling application, and also built an application for external communications that is now used to address a recurring need for which it previously had paid outside vendors to meet. These avoided expenses are a gross benefit; related ongoing expenses for OutSystems are noted in the cost section of this study.

Modeling and assumptions: For the composite organization, Forrester assumes:

- Licensing/subscription fees of $100,000 in Years 1 and 2, and $900,000 in Year 3 as the organization replaces more complex and more expensive legacy applications that incur higher annual fees.

Risks. Avoided costs of replaced legacy applications may vary due to:

- The number of legacy applications replaced with OutSystems-developed applications.
- The pace at which those applications are replaced.
- The licensing/subscription fees for those legacy applications.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of $765,000.

Avoided Costs Of Replaced Legacy Applications					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
E1	Licensing/subscription fees avoided due to OutSystems	Interview	$100,000	$100,000	$900,000
Et	Avoided costs of replaced legacy applications	E1	$100,000	$100,000	$900,000
	Risk adjustment	↓10%			
Etr	Avoided costs of replaced legacy applications (risk-adjusted)		$90,000	$90,000	$810,000
	Three-year total: $990,000		**Three-year present value: $764,763**		

UNQUANTIFIED BENEFITS

Additional benefits that customers experienced but were not able to quantify include:

- **Improved scalability.** Interviewees' organizations scaled applications they had developed on OutSystems faster and more easily than with their prior development environment, whether that entailed enhancing functionality or expanding the volume of users or frequency of use. A director of software engineering and technology initiatives at a pharmaceutical company said: "One of the first apps we built was so successful, we've never stopped building on it. We stood up a team and they just kept going because management said, 'We can come up with stuff for two years for this. So, just keep going.' We release it in much shorter timeframes. They don't wait nine months for a new release — they get it in a month or two."
- **Systematic security checks.** Interviewees noted their organizations benefited from numerous security, access control, and authentication checks applied to every app created with the platform.
- **Time savings for nondeveloper roles.** In addition to significantly cutting developers' effort, OutSystems reduced the time other technical and nontechnical staff involved in development projects spent on the projects. For instance, analysts' ability to prototype things faster and answer questions visually simplified the requirements process for some projects. The testing team no longer spent time on mechanical sides of development like regression testing and, with fewer bugs in code generated with OutSystems, they did less retesting. IT operational staff were less involved because the OutSystems platform handled code promotion and other tasks they used to do, and software built on the OutSystems platform ran more smoothly. Similarly, the platform addressed some security-related tasks.
- **Enhanced ability for the development team to support corporate objectives and initiatives.** Adopting OutSystems enabled development teams to not only complete internal development projects with less developer effort and at lower cost, but also tackle projects that they may not have contemplated with their prior development environment. A director of custom development projects at a manufacturer noted that OutSystems enabled the company to take on a greater number of complex development projects than it previously had, expanding the development team's overall impact on the

organization. A senior vice president of digital applications and integrations at a technology and services company explained how the substantial previous development effort (and expense) needed to onboard and support large organizations as clients had hindered pursuit of those potentially lucrative opportunities. Prior to using OutSystems, the company could not confidently provide an onboarding timeline for a large prospect that matched or exceeded its competitors' timelines without incurring prohibitive upfront development expenses. The interviewee also noted the organization also faced substantial ongoing developer effort to meet ongoing client expectations for changes and improvements. With the reductions in developer effort and resulting compression of development timelines that OutSystems enabled, the company began to win and retain sizable new clients and do so profitably.

- **Greater development and corporate agility, resulting in improved competitiveness and customer and employee satisfaction.** A director of software development for a distribution company said, "The faster you can implement changes — even just an initial piece of those, whatever quickly brings value — the happier people will be, both internally and externally." This interviewee noted the organization also increased agility in both developing new software and changing or enhancing software previously developed. This agility around corporate objectives, customer requests, or internal suggestions of operational improvements went beyond moving faster via reductions in developer effort and project duration, to moving differently because OutSystems enabled a more iterative approach to development that better supported innovation. Because of the ease and lower cost of making changes, even late in a development cycle, development teams were able to start with a minimum viable product then productively modify and expand that product by incorporating feedback and insights generated by that MVP and successive iterations. An initial set of requirements and specifications no longer dictated entire projects. The lower effort and hence cost of making changes enabled organizations to start development projects without precisely detailing all requirements, some of which may have been challenging to pinpoint at the outset or would have resulted in developing functionality that later proved sub-optimal but could not readily be modified. With OutSystems, early learnings helped clarify objectives and inform subsequent development. Development teams rapidly and continually made changes throughout a project, publishing updates with a single click and knowing the OutSystems platform would automatically address interdependencies (e.g., across APIs and the user interface).
- **Higher-quality code.** Although the extent of improvement varied depending on prior practices, interviewees indicated that after adopting OutSystems their organizations' development teams made fewer bugs and security holes and did not have to catch as many errors in general.
- **Ability to augment staff with non-traditional development talent.** Interviewee's reported delivering as many as half of projects using staff who had technical experience but not a traditional development background. For those projects, the compensation expense on average was 50% less than if traditional development talent had done the work.
- **Simplified development of mobile applications.** Interviewees reported that developing on OutSystems reduced the effort needed to deliver mobile capabilities, whether in conjunction with a desktop/laptop application or as a freestanding mobile app. A director of software development for a distribution company

said, “The OutSystems platform takes care of the nitty-gritty mechanical aspects of creating mobile capabilities in a very smart way, so you can focus on the application’s functionality and business value.” To avoid double-counting, this benefit is not quantified separately from overall application development cost savings detailed elsewhere in this case study.

FLEXIBILITY

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement OutSystems and later realize additional uses and business opportunities, including:

- **Expanding the use of OutSystems across the organization.** In describing their organizations’ experience with OutSystems, interviewees typically mentioned starting with an initial group of developers and applications, then continuing to expand OutSystems usage across additional development teams and a larger set of use cases.
- **Leveraging a growing set of previously developed software components.** Over time, interviewees noted that their organizations could reuse a growing set of components from prior OutSystems development projects, further improving developers’ productivity and expediting project delivery.
- **Capitalizing on new OutSystems capabilities as they launch.** As software development approaches evolve, interviewees anticipated that using OutSystems will enable their organizations to adopt the latest best practices more easily.
- **Upgrading from Standard edition to Enterprise edition.** As their development needs changed over time, organizations could transition among OutSystems editions if needed.

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**
Ftr	Initial and ongoing internal labor costs	$101,668	$31,460	$48,648	$48,648	$230,423	$207,022
Gtr	OutSystems fees	$0	$705,177	$1,049,851	$1,598,454	$3,353,482	$2,709,658
	Total costs (risk-adjusted)	$101,668	$736,637	$1,098,499	$1,647,102	$3,583,905	$2,916,680

INITIAL AND ONGOING INTERNAL LABOR COSTS

Evidence and data. Interviewees' organizations typically implemented OutSystems using internal staff, which may include developers, an architect, and infrastructure and technical operations staff. Gaining access to the needed OutSystems environments (e.g., development, test, user acceptance, preproduction, production) was a relatively brief process typically completed in several days, but interviewees described other aspects of a full implementation. Depending on the organization, these may include configuring the platform; getting a VPN between the OutSystems' cloud and an organization's network or data center; getting the information security team's approval, setting up identities and permissions; integrating OutSystems with the organization's active directory; establishing development conventions; and other tasks needed to get OutSystems set up and fully functional for that organization.

Initial labor costs also included time spent in training. This typically amounted to about one week of formal training provided by OutSystems (onsite or at OutSystems locations), followed by some independent study of OutSystems' materials and time spent getting familiar with the OutSystems platform. However, some interviewees noted training success using only independent study, once their organizations had developers with OutSystems experience who could coach trainees. Interviewees noted that developers solidly contributed to OutSystems projects within a month or two of starting training and further increased their competency over time.

Modeling and assumptions. For the composite organization, Forrester assumes:

- Four IT staff (including a developer, an architect, and operations staff) spending 10% time over three months for full implementation.
- Twenty-five developers spend 50 hours each on training in Year 1 with an additional 5 developers trained in Years 2 and 3.

Risks. Initial and ongoing internal labor costs may vary due to:

- IT and developer staff salaries.
- The size and complexity of initial deployment.

Results. To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of just over $207,000.

Initial And Ongoing Internal Labor Costs						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
F1	IT hours for initial implementation and ongoing management, maintenance, and support	Interviews	208	416	416	416
F2	Blended fully loaded hourly IT staff salary	$143,000/2,080	$68.75	$68.75	$68.75	$68.75
F3	Number of developers trained	Composite	25		5	5
F4	Hours of training per developer	Composite	50	50	50	50
F5	Fully loaded hourly developer salary	$130,000/2,080	$62.50	$62.50	$62.50	$62.50
Ft	Initial and ongoing internal labor costs	(F1*F2)+(F3*F4*F5)	$92,425	$28,600	$44,225	$44,225
	Risk adjustment	↑10%				
Ftr	Initial and ongoing internal labor costs (risk-adjusted)		$101,668	$31,460	$48,648	$48,648
	Three-year total: $230,423		**Three-year present value: $207,022**			

OUTSYSTEMS FEES

Evidence and data. OutSystems fees included subscription fees and, depending on the interviewee, could also include premium support, training, or other optional services. Subscription fees varied depending on the platform edition, the number of end users, and the number of environments and pipelines.

Because OutSystems fees vary based on customer-specific factors, consult with OutSystems for pricing specific to your organization when conducting your own analysis.

Modeling and assumptions. For the composite organization, Forrester assumes:

- The composite uses SaaS Standard edition of OutSystems.
- There are 1,000 internal end users in Year 1, 2,000 in Year 2, and 3,000 in Year 3.
- There are 30,000 external end users in Year 1, 60,000 in Year 2, and 100,000 in Year 3.
- $20,000 for OutSystems training during implementation, and an additional $20,000 in each of Years 2 and 3 as OutSystems use expands within the organization.
- The composite receives premium-level support.

Risks. OutSystems fees may vary due to:

- The platform edition selected.
- The number of internal end users (i.e., individuals your organization employs that are registered end users of applications you build).
- The number of external end users (i.e., individuals your organization does not employ that are registered end users of applications you build).

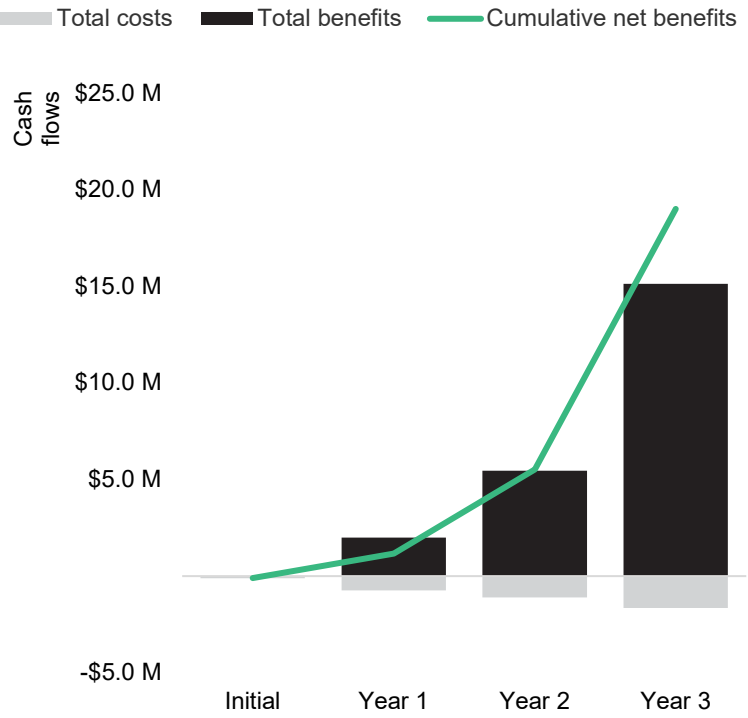
Results. To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of $2.7 million.

OutSystems Fees						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
G1	Standard edition base fee	Composite		$127,050	$127,050	$127,050
G2	Premium support	Composite		$62,000	$62,000	$62,000
G3	Internal users	Composite		$133,100	$205,700	$326,700
G4	External users	Composite		$62,920	$91,960	$179,080
G5	Training fees	Composite		$40,000	$20,000	$10,000
G6	Add-ons	Composite		$216,000	$447,700	$748,310
Gt	OutSystems fees	G1+G2+G3+G4+G5+G6	$0	$641,070	$954,410	$1,453,140
	Risk adjustment	↑10%				
Gtr	OutSystems fees (risk-adjusted)		$0	$705,177	$1,049,851	$1,598,454
	Three-year total: $3,353,482			**Three-year present value: $2,709,658**		

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	($101,668)	($736,637)	($1,098,499)	($1,647,102)	($3,583,905)	($2,916,680)
Total benefits	$0	$1,997,280	$5,454,224	$15,127,875	$22,579,379	$17,689,127
Net benefits	($101,668)	$1,260,643	$4,355,725	$13,480,774	$18,995,474	$14,772,447
ROI						506%
Payback period (months)						<6

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: Endnotes

[1] 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.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