

FORRESTER®

The Total Economic Impact™ Of JetBrains IntelliJ IDEA

Cost Savings And Business Benefits
Enabled By IntelliJ IDEA

JULY 2021

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Executive Summary

Developers today are central to building the digital capabilities that businesses need to address customer demands and internal efficiencies. Optimizing the productivity and ways of working for developers, therefore becomes important to ensure these digital needs are met. The Integrated Development Environment (IDE) of developers hence, is pivotal to enable developers work as intuitively and productively as possible.

JetBrains commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying [IntelliJ IDEA](#).¹ The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of IntelliJ IDEA on their organizations. IntelliJ IDEA is an integrated development environment (IDE) that helps developers be more efficient by writing better code, faster and with fewer bugs.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed four customers with experience using IntelliJ IDEA. For the purposes of this study, Forrester aggregated the experiences of the interviewed customers and combined the results into a single [composite organization](#).

Prior to using IntelliJ IDEA, interviewed organizations used alternative solutions such as text editors or competitor open-source IDEs. However, after the adoption of IntelliJ IDEA, they found their developers were able to work more productively on code development and improve code quality significantly.

KEY FINDINGS

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

- **Improved developer productivity saw an average benefit of \$4.6 million.** IntelliJ IDEA enabled a 20% improvement in code development. With this, developers were able to save 432,640 hours cumulatively across a three-

KEY STATISTICS



Return on investment (ROI)

628%



Net present value (NPV)

\$4,839,888

year horizon in their development of new code. The auto-completion capabilities and code that IntelliJ IDEA provided, allowed developers to complete code in a quicker and more efficient way.

- **Improved code quality and more productive code review cycles, saw a \$1.06 million cost saving.** Code quality tools, as well as the interactivity and collaboration IntelliJ IDEA enabled, allowed multiple developers to simultaneously work and review a piece of code. This brought enhanced efficiency and a more effective refactoring process with the IntelliJ IDEA capabilities.
- **Improved code maintenance effort resulting in a benefit of \$355,373.** Interviewed organizations noted benefits in code maintenance due to reduced defect density. As a result, the developers recaptured 25,272 hours of productivity across the three-year horizon.

- **Improved new hire onboarding resulting in a benefit of \$150,232.** Interviewed organizations noted a decrease in overall onboarding time for new employees with IntelliJ IDEA due to the reduced technical debt, better user interface, shared configuration files, and implementation of styles guides and templates. In total, 12,000 hours are saved in the onboarding process because of IntelliJ IDEA.

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

- **Trust and confidence with IntelliJ IDEA solution.** Developers using the solution are more confident in the code they are submitting with all the automated quality controls, recommendations that the solution provides. This makes their code simplified and clearer for review and release.
- **Enhanced collaboration.** Developers can more easily share and understand each others' code thanks to the improved code quality and consistency resulting from live analysis, code completion.
- **Elevated peer reviews.** Peer reviews can focus on bigger picture items like problem solving method, style, and streamlining code. With the previous solution, peer reviews would get bogged down by basic errors and trivial issues.

Costs. Risk-adjusted PV costs include:

- **Licensing costs of \$321,437.** Licensing costs are provided by JetBrains and total \$499/user in Year 1, \$399/user in Year 2, and \$299/user in Year 3. The composite organization has 200 users with IntelliJ IDEA licenses in Year 1, 300 users in years 2 and 400 users in Year 3.
- **System administration costs of \$428,296.** Customers noted systems administration effort associated with working with JetBrains, setting up user accounts, and providing support to users.

- **Training and customization costs of \$20,585.** Customers noted that training and customization efforts associated with IntelliJ IDEA are minimal, as the product is widely known and has an easy-to-use. Training and customization costs account for the time taken for developers to get used to the new shortcuts and interfaces.

The customer interviews and financial analysis found that a composite organization experiences benefits of \$5,610,206 over three years versus costs of \$770,318, adding up to a net present value (NPV) of \$4,839,888 and an ROI of 628%.



ROI
**\$6.28 in benefits per
\$1.00 in costs**

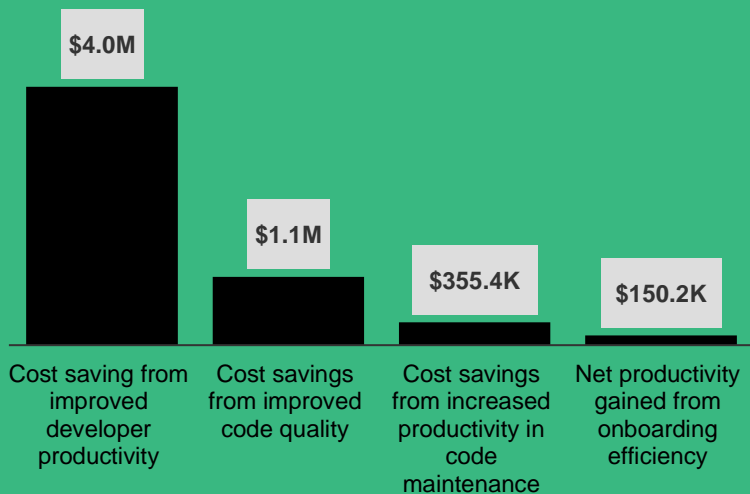


Average hours saved from code development, refactoring and code maintenance:
144 hours per user per year



Average net annual benefit per user:
\$2,027 per user per year

Benefits (Three-Year)



Improvement in code quality and developer productivity contributed to the IntelliJ IDEA solution business value for interviewed organizations

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 the IntelliJ IDEA.

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 the IntelliJ IDEA can have on an organization.

DISCLOSURES

Readers should be aware of the following:

This study is commissioned by JetBrains 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 study to determine the appropriateness of an investment in the IntelliJ IDEA.

JetBrains 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.

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



DUE DILIGENCE

Interviewed <Client> stakeholders and Forrester analysts to gather data relative to the IntelliJ IDEA.



CUSTOMER INTERVIEWS

Interviewed [x] decision-makers at organizations using the IntelliJ IDEA 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 the investment impact: benefits, costs, flexibility, and risks. Given the increasing sophistication of ROI analyses related to IT investments, Forrester's TEI methodology provides a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

The JetBrains IntelliJ IDEA Customer Journey

Drivers leading to the IntelliJ IDEA investment

Interviewed Organizations			
Industry	Region	Interviewee	Annual revenue (USD)
Hi-tech	United States	Development lead	\$487 million
Retail and logistics	United Kingdom	Chief Technology Officer	\$2.3 billion
Hi-tech	Poland	Software development lead	\$200 million
Financial services	United States	Chief Technology Officer	\$34 billion

KEY CHALLENGES

Before the investment in IntelliJ IDEA, interviewees described the following challenges with their previous solution:

- **Inefficiencies resulting in reduced developer productivity.** Customers noted that text editors and open-source IDEs resulted in significant inefficiencies that impacted developer productivity. A technical lead for a development platform stated simply, “I would forbid developers from using text editors at our organization if I could.”
- **Inability to reduce the number of bugs — with negative customer outcomes.** One of the interviewed organizations told Forrester: “We had an issue where it took us two weeks to get most of the bugs ironed out after a release. This led to a significant increase in customer churn; it was painful. And so bugs have that serious impact on the customer, that they really don’t seem to forget.”

INVESTMENT DRIVERS

- **Ease of use.** A software developer for a media company told Forrester: “It’s much easier for developers to become familiar with IntelliJ IDEA than the other alternatives out there.”

- **Number of effective features.** Customers listed IntelliJ IDEA’s features as a key differentiator, which include: multi-language support, contextual data, code completion, refactoring, debugger, and the ability to enforce a style guide. A software developer from one of the interviewed organizations told Forrester, “it’s the best IDE on the market right now.”

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 companies that Forrester interviewed and is used to present the aggregate financial analysis in the next section.

Description of composite. This composite organization is a hi-tech software and AI provider, specializing in the retail and financial services verticals. It has an annual revenue of \$3 billion with global offices across the five regions.

Deployment characteristics. The composite has 1,000 developers with up to 400 developers using the IntelliJ IDEA solution by its third year of implementation. They migrated to this solution from a previous IDE, three years ago and are seeing a gradual growth of IntelliJ IDEA adoption within their company.

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	Cost saving from improved developer productivity	\$657,696	\$1,625,825	\$2,790,999	\$5,074,519	\$4,038,481
Btr	Cost savings from improved code quality	\$282,036	\$435,745	\$598,423	\$1,316,203	\$1,066,120
Ctr	Cost savings from increased productivity in code maintenance	\$94,012	\$145,248	\$199,474	\$438,734	\$355,373
Dtr	Net productivity gained from onboarding efficiency	\$50,592	\$65,137	\$67,091	\$182,821	\$150,232
Total benefits (risk-adjusted)		\$1,084,335	\$2,271,955	\$3,655,987	\$7,012,278	\$5,610,206

COST SAVINGS FROM IMPROVED DEVELOPER PRODUCTIVITY

- IntelliJ IDEA enabled developers to work more efficiently. With better focus on specific tasks, live analysis, and real-time recommendations, developers were able to complete their work faster and with less disruption. Further, IntelliJ IDEA enabled developers to write better code — with more consistent style, fewer bugs or exceptions, better referencing of existing code base, better structure, and beyond.
- Some interviewees claimed that their code development became twice as fast with the shortcuts and auto-completion features of this solution. For this composite, we have accounted for a 20% time saving in new code development time, as a result of this capability.

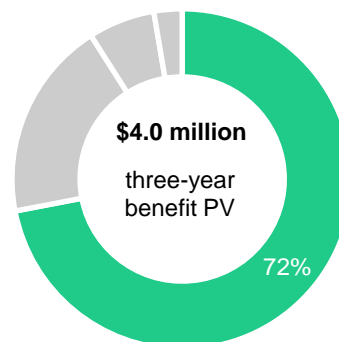
Modeling and assumptions.

- There is a gradual increase in developers using IntelliJ IDEA from 20% in Year 1, 30% in Year 2 and 40% of the developer workforce in Year 3.
- Only a 50% conversion of hours saved into productive work hours among IntelliJ IDEA users.

“I can do my tasks twice as fast, compared to my previous IDE. After learning the shortcuts and discovering the new features, IntelliJ IDEA is far more intuitive and easy for me to use.”

- Software development lead for a global hi-tech company

- Gradual benefit attributed to IntelliJ across three years, with 30% of the productivity attributed to IntelliJ in Year 1, 40% attributed in Year 2, and 50% attributed in Year 3.
- Fully burdened salary of \$62 per hour for developer staff, accounting for a 3% inflation per year.



To account for these risks and assumptions, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$4,038,481.

Cost saving from improved developer productivity

Ref.	Metric	Source	Year 1	Year 2	Year 3
A1	Number of developers	Composite	1,000	1,000	1,000
A2	Percentage of developers using IntelliJ IDEA	Composite	20%	30%	40%
A3	Number of developers using IntelliJ IDEA	A1*A2	200	300	400
A4	Baseline percent of developer time spent on developing new code	Composite	60%	60%	60%
A5	Hours spent on writing new code before IntelliJ IDEA	A3*A4*2080	249,600	374,400	499,200
A6	Percentage of developer time spent on developing new code after IntelliJ IDEA	Composite	40%	40%	40%
A7	Hours spent on writing new code after IntelliJ IDEA	A3*A6*2080	166,400	224,640	299,520
A8	Hours saved from auto-completion and enhanced productivity	A5-A7	83,200	149,760	199,680
A9	Productivity conversion	Assumption	50%	50%	50%
A10	Attribution ratio	Assumption	30%	40%	50%
A11	Average hourly rate of developers	Assumption	\$62	\$64	\$66
At	Cost saving from improved developer productivity	A7*A8*A9	\$773,760	\$1,912,735	\$3,283,528
	Risk adjustment	↓15%			
Atr	Cost saving from improved developer productivity (risk-adjusted)		\$657,696	\$1,625,825	\$2,790,999
Three-year total: \$5,074,519			Three-year present value: \$4,038,481		

COST SAVINGS FROM IMPROVED CODE QUALITY

- Interviewed organizations noted benefits in their testing and QA process, with the improved code quality from IntelliJ IDEA’s syntax highlighting and code review tools. Tester productivity improved due to improved testing plans, and reduced defect density from developers, as a result of the solution. Furthermore, developers themselves reduced the time they spent debugging and working with code during testing steps.
- Developers were able to review code easily, and saved atleast 1% of their total time in review compared to their previous IDE.
- The collaborative ability of the solution didn’t require reviews to happen one at a time, but rather helped developers become more agile in

their code reviews. This saved time spent on code review cycles by a further 12.5%.

Modeling and assumptions.

- There is a gradual increase in developers using IntelliJ IDEA from 20% in Year 1, 30% in Year 2 and 40% of the developer workforce in Year 3.
- 50% of hours saved converted into productive work hours among IntelliJ users.
- 60% of incurred benefit attributed to IntelliJ IDEA directly
- Fully burdened salary of \$62 per hour for developer staff, accounting for a 3% inflation per year.

To account for these assumptions, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$1,066,120.

Cost savings from improved code quality					
Ref.	Metric	Source	Year 1	Year 2	Year 3
B1	Number of developers using IntelliJ IDEA	A3	200	300	400
B2	Time spent on refactoring and reviews	Composite	30%	30%	30%
B3	Hours spent on refactoring and reviews	B1*B2*2080	124,800	187,200	249,600
B4	Percentage time saved from improved productivity of code quality tools	Composite	1%	1%	1%
B5	Percentage time saved from code review cycles	Composite	12.5%	12.5%	12.5%
B6	Hours saved from code quality reviews	B3*(B4+B5)	16,848	25,272	33,696
B7	Productivity conversion	Assumption	50%	50%	50%
B8	Attribution ratio	Assumption	60%	60%	60%
B9	Average hourly rate of developers	Assumption	\$62	\$64	\$66
Bt	Cost savings from improved code quality	B6*B7*B8*B9	\$313,373	\$484,161	\$664,914
	Risk adjustment	↓10%			
Btr	Cost savings from improved code quality (risk-adjusted)		\$282,036	\$435,745	\$598,423
Three-year total: \$1,316,203			Three-year present value: \$1,066,120		

COST SAVINGS FROM INCREASED PRODUCTIVITY IN CODE MAINTENANCE

Interviewed organizations noted benefits related to productivity in code maintenance, a byproduct of better code quality and reduced defect density with IntelliJ IDEA.

With developers writing better quality code, there were fewer bugs that risked slipping through QA and reduced technical debt that could lead to future issues — ultimately reducing the number of bugs that reached the production environment. With reduced bugs comes reduced need to maintain the code and fix issues when they occur.

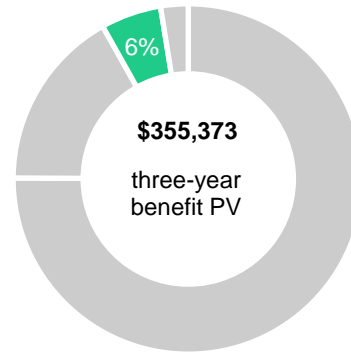
Based on the customer interviews, Forrester estimates for the composite organization:

- Developers using IntelliJ IDEA saw an 8% reduction in defect density. This saw an average 8,424 hours saved in code maintenance across the three-year horizon.
- Developers spend 18% of their time on maintenance, based on Forrester’s Global Business Technographics Developer Survey, 2018.

Modeling and assumptions.

- Productivity rate of hours saved going back into work tasks is 50%.
- 60% of incurred benefit attributed to IntelliJ IDEA directly.
- \$62 per hour IT staff hourly cost with a 3% annual inflation assumed.

To account for these risks and assumptions, Forrester adjusted this benefit downward by 10%, yielding an annual benefit ranging from \$355,373.



“I see huge benefits from the multiple integrations that IntelliJ IDEA has with our UI platforms and code development. Everything just works.”

- CEO, software automation company

Cost savings from increased productivity in code maintenance

Ref.	Metric	Source	Year 1	Year 2	Year 3
C1	Number of developers using IntelliJ IDEA	A3	200	300	400
C2	Percentage of developer time dedicated to maintenance	Composite	18%	18%	18%
C3	Reduced defect density developers using IntelliJ IDEA	Composite	8%	8%	8%
C4	Percentage of developer time dedicated to maintenance after IntelliJ IDEA	$C2*(1-C3)$	16.7%	16.7%	16.7%
C5	Hours saved from maintenance	$C1*2,080*$ $(C2-C4)$	5,616	8,424	11,232
C6	Developer staff hourly cost	Assumption	\$62	\$64	\$66
C7	Time savings from maintenance	$C5*C6$	\$348,192	\$537,957	\$738,794
C8	Productivity conversion	Assumption	50%	50%	50%
C9	Attribution ratio	Assumption	60%	60%	60%
Ct	Cost savings from increased productivity in code maintenance	$C1*C2*C3*C4$	\$104,458	\$161,387	\$221,638
	Risk adjustment	↓10%			
Ctr	Cost savings from increased productivity in code maintenance (risk-adjusted)		\$94,012	\$145,248	\$199,474
Three-year total: \$438,734			Three-year present value: \$355,373		

NET PRODUCTIVITY GAINED FROM ONBOARDING EFFICIENCY

Interviewed organizations noted a decrease in overall onboarding time for new employees with IntelliJ IDEA due to the reduced technical debt, better user interface, shared configuration files, and implementation of styles guides and templates.

Based on the customer interviews, Forrester estimates for the composite organization:

- Onboarding time for new employees reduces from 20 days to 18 days as a result of the technical debt and style guides that ease the developer on-boarding process.

- Employee churn rate of 25% has been indicated by the composite, resulting in 250 employees every year.

Modeling and assumptions.

- Productivity rate of hours saved going back into work tasks gradually increases from 40% to 50%.
- 60% of incurred benefit attributed to IntelliJ IDEA directly.
- \$62 per hour IT staff hourly cost with a 3% annual inflation assumed.

To account for these risks and assumptions, Forrester adjusted this benefit downward by 15%, yielding a three-year risk-adjusted total PV of \$150,232.

Net productivity gained from onboarding efficiency					
Ref.	Metric	Source	Year 1	Year 2	Year 3
D1	Number of developers and testers onboarded per year	A1	1,000	1,000	1,000
D2	Employee churn rate	Composite	25%	25%	25%
D3	New employees per year	D1*D2	250	250	250
D4	Number of days for initial onboarding before IntelliJ IDEA	Composite	20	20	20
D5	Number of days required for onboarding after IntelliJ IDEA	Composite	18	18	18
D6	Hours of productivity saved	(D4-D5)*8*D3	4,000	4,000	4,000
D7	Average hourly developer staff cost	Assumption	\$62	\$64	\$66
D8	Productivity factor	Assumption	40%	50%	50%
D9	Attribution ratio	Assumption	60%	60%	60%
Dt	Net productivity gained from onboarding efficiency	D6*D7*D8	\$59,520	\$76,632	\$78,931
	Risk adjustment	↓15%			
Dtr	Net productivity gained from onboarding efficiency (risk-adjusted)		\$50,592	\$65,137	\$67,091
Three-year total: \$182,821			Three-year present value: \$150,232		

UNQUANTIFIED BENEFITS

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

- Trust and confidence with IntelliJ IDEA solution.** Developers using the solution are more confident in the code they are submitting with all the automated quality controls, recommendations that the solution provides. This makes their code simplified and clearer for review and release.
- Enhanced collaboration.** Developers can more easily share and understand each others' code thanks to the improved code quality and consistency resulting from live analysis, code completion.
- Elevated peer reviews.** Peer reviews can focus on bigger picture items like problem solving

method, style, and streamlining code. With the previous solution, peer reviews would get bogged down by basic errors and syntax.

“Really wanted to consolidate the licenses across my development teams and distribution mechanisms. Pretty quickly reached out to IntelliJ IDEA and they were super helpful in taking an organizational ownership of licenses running and how we can better consolidate.”

- CTO, financial services company in US

FLEXIBILITY

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

- Ability to scale across the broader development team, with bundled pricing and one system of process.
- Availability of plug-ins from the marketplace and language support beyond Java (e.g., Scala).
- Ability to develop in-house plug-ins.
- Reduced support cost for bugs — fewer bugs also reduce the likelihood of support calls from customers.

“Especially during COVID, our developer team needs to work closely together in a remote environment. Having the ability to collaborate straight on the platform helped with that a lot.”

- *Development lead for a Poland-based hi-tech company*

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

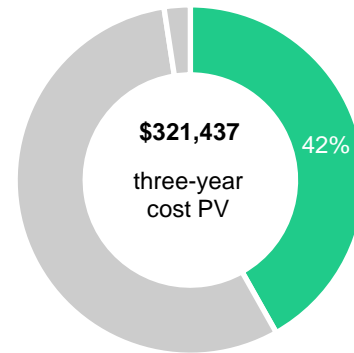
Analysis Of Costs

■ Quantified cost data as applied to the composite

Total Costs							
Ref.	Cost	Initial	Year 1	Year 2	Year 3	Total	Present Value
Ctr	Licensing	\$0	\$114,770	\$137,655	\$137,540	\$389,965	\$321,437
Dtr	Systems administration	\$0	\$172,224	\$172,224	\$172,224	\$516,672	\$428,296
Etr	Training and customization	\$0	\$7,130	\$8,813	\$9,077	\$25,020	\$20,585
Total costs (risk-adjusted)		\$0	\$294,124	\$318,692	\$318,841	\$931,657	\$770,318

LICENSING COST

- Licensing costs are provided by JetBrains and total \$499/user in Year 1, \$399/user in Year 2, and \$299/user in Year 3.
- Licensing costs can vary due to the exact number of users; therefore Forrester adjusted this cost upward by 15%, yielding a three-year risk-adjusted total PV of \$321,437.



Licensing cost						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
E1	Number of developers using IntelliJ IDEA	A3		200	300	400
E2	Annual license cost	Composite		\$499	\$399	\$299
Etr	Licensing cost	E1*E2	\$0	\$99,800	\$119,700	\$119,600
	Risk adjustment	↑15%				
Etr	Licensing cost (risk-adjusted)		\$0	\$114,770	\$137,655	\$137,540
Three-year total: \$389,965				Three-year present value: \$321,437		

SYSTEM ADMINISTRATION COST

Customers noted minimal systems administration effort associated with working with JetBrains, setting up user accounts, and providing support to users along with creating style guides and templates. Based on the customer interviews, Forrester estimates for the composite organization:

- Two full-time equivalents (FTEs) spend 30% of their time on system administration tasks such as creating and updating training guides, maintaining relationship and the like.
- Fully burdened system administrator salary of \$120/hour considering more senior staff that would be responsible for style guides, and administration management.

This benefit can vary due to uncertainty related to required effort for system administration and employees' fully burdened salary.

To account for these risks and assumptions, Forrester adjusted this cost upward by 15%, yielding a three-year risk-adjusted total PV of \$428,296.

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.

Systems administration cost						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
F1	Number of FTEs involved in administering JetBrains, creating style guides and templates, and supporting users	Composite		2	2	2
F2	Percentage of time dedicated to JetBrains administration	Composite		30%	30%	30%
F3	Administrator hourly salary	Assumption		\$120	\$120	\$120
Ft	Systems administration cost	$F1 \cdot F2 \cdot F3 \cdot 2080$	\$0	\$149,760	\$149,760	\$149,760
	Risk adjustment	↑15%				
Ftr	Systems administration cost (risk-adjusted)		\$0	\$172,224	\$172,224	\$172,224
Three-year total: \$516,672			Three-year present value: \$428,296			

TRAINING AND CUSTOMIZATION COST

- Customers noted that training and customization efforts associated with IntelliJ IDEA are minimal, as the product is widely known and has an easy-to-use interface, and configuration files, which have been previously created for employees, can be shared across machines.
- Based on the customer interviews, Forrester estimates for the composite organization:
- 50% of IT staff’s time was spent on learning new shortcuts and customizations, but this reduced to 40% in Year 2 and 30% in Year 3, considering that developers get used to the interface over time.

- This implied that a total of 340 hours were spent on training and customization over the three-year horizon.
- \$62 per hour IT staff hourly cost with a 3% annual inflation assumed.

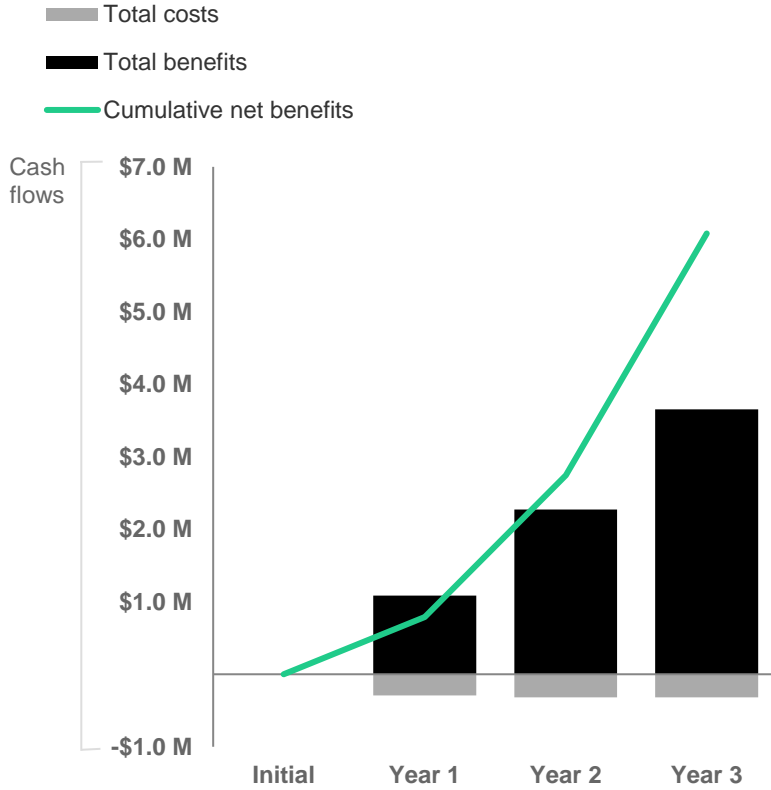
This benefit can vary due to uncertainty related to required initial setup and recurring training and employees’ fully burdened salary.

To account for these risks, Forrester adjusted this cost upward by 15%, yielding a three-year risk-adjusted total PV of \$20,585.

Training and customization cost						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
G1	Number of IntelliJ IDEA users	A3		200	300	400
G2	Percentage of time taken for training on IntelliJ IDEA	Composite		50%	40%	30%
G3	Number of hours taken for learning new shortcuts and customization in a year	G1*G2		100	120	120
G4	Hourly developer cost	Assumption		\$62	\$64	\$66
Gt	Training and customization cost	G2*G3	\$0	\$6,200	\$7,663	\$7,893
	Risk adjustment	↑15%				
Gtr	Training and customization cost (risk-adjusted)		\$0	\$7,130	\$8,813	\$9,077
Three-year total: \$25,020			Three-year present value: \$20,585			

Financial Summary

CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS



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	\$0	(\$294,124)	(\$318,692)	(\$318,841)	(\$931,657)	(\$770,318)
Total benefits	\$0	\$1,084,335	\$2,271,955	\$3,655,987	\$7,012,278	\$5,610,206
Net benefits	\$0	\$790,211	\$1,953,263	\$3,337,146	\$6,080,621	\$4,839,888
ROI						628%
Payback						<3 months

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.

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