A Forrester Total Economic Impact™ Study

Commissioned By

Microsoft

Project Director:
Jonathan Lipsitz

Project Contributor
Adrienne Capaldo

March 2015

The Total Economic Impact™ Of Microsoft Internet Explorer 11

Streamlined Upgrade And Cost Savings Position Companies For The Future

FORRESTER®

Table Of Contents

ABOUT FORRESTER CONSULTING

Forrester Consulting provides independent and objective research-based consulting to help leaders succeed in their organizations. Ranging in scope from a short strategy session to custom projects, Forrester's Consulting services connect you directly with research analysts who apply expert insight to your specific business challenges. For more information, visit forrester.com/consulting.

FORRESTER®

Executive Summary

Microsoft commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by upgrading from Internet Explorer 8 (IE8) to Internet Explorer 11 (IE11). The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of IE11 on their organizations to reduce IT costs, improve user productivity, and work more closely with customers and partners.

To better understand the benefits, costs, and risks associated with an IE11 implementation, Forrester interviewed several customers that have upgraded to IE11 and also conducted a broader industry survey in order to better understand the current market impact, attitudes, and behaviors with regards to the implementation of IE11.

Prior to upgrading to IE11, customers were typically on IE8 and also using other browsers. This resulted in higher technology costs as well as reduced productivity for business users and application developers. With IE11, the interviewed companies can now run all of their web apps, as well as those from third-party vendors, in a single environment. This has reduced technology upgrade, application development, and application testing costs. It has also reduced the level of effort required to support the browser environment. One company said: "IE11 Enterprise Mode enables us to move faster than before. There are a lot of our software providers out there that cannot keep up with our pace. Enterprise Mode meant we could move forward without worrying about them."

INTERNET EXPLORER 11 REDUCES TECHNOLOGY COSTS AND INCREASES BUSINESS AGILITY

Our interviews with four existing customers, an online survey of 150 customers, and subsequent financial analysis found that a composite organization (multinational financial services company with 125,000 employees) based on these interviewed organizations experienced the risk-adjusted ROI benefits and costs shown in Figure 1.[1] See Appendix A for a description of the composite organization.

The composite organization analysis points to benefits of $9.9 million versus costs of $1.4 million, resulting in a net present value (NPV) of $7 million.

FIGURE 1
Financial Summary Showing Three-Year Risk-Adjusted Results

Source: Forrester Research, Inc.

› **Benefits.** The composite organization experienced the following risk-adjusted benefits that represent those experienced by the interviewed companies and that could be quantified for this study:

- **Upgrading from IE8 to IE11 was 1.8 times faster than expected because of Enterprise Mode.** Based on a previous upgrade to IE8, the composite organization would have expected the deployment to take 119 months of effort for testing, planning, implementation, rollout, etc. Because of Enterprise Mode and other capabilities within IE11, the deployment took only 66 months of effort. This resulted in a cost savings of $498,200 and meant that the business-related benefits of IE11 could be realized that much faster.
- **The effort to rewrite applications to modern browser standards was reduced by 75%.** The composite organization had many web apps that did not meet modern browser standards. By the composite organization running these applications in Enterprise Mode, they did not need to be rewritten. They could be replaced over time as part of their natural refresh/replacement cycle instead of the composite organization undertaking additional work. Fifty-one months of application development effort were saved, which equates to $507,600.
- **Ongoing browser support costs and critical application testing were significantly reduced.** The number of employees required to support multiple browser environments and test browser upgrades was reduced from 3.5 full-time equivalent (FTE) employees to 1.5. Additionally, 800 days of effort that would have been required for quarterly testing of mission-critical applications have been removed. Together, $586,560 in annual IT support costs have been eliminated.
- **Many business users have seen improved productivity by not having to navigate multiple browsers.** Five percent of the composite organization's employees had grown accustomed to working in multiple browsers. This resulted in wasted time remembering in which system to do what activity, and then navigating around. By saving 6 minutes per day, the productivity gain — after being discounted by 50% — was $2,738,906 per year, which is equivalent to reducing headcount by 31 FTEs.

› **Costs.** The composite organization experienced the following risk-adjusted costs:

- **IE11 implementation effort of $712,800.** Sixty-six months of effort were spent across three phases – initial technology testing, application testing, and global rollout. All of this effort was internal, and there was practically no need for professional services.
- **Web application redevelopment costs of $194,400.** Out of the 450 applications the composite organization had, it decided to redevelop 50 of the applications because of new business requirements, even though the apps would have worked as is in Enterprise Mode. Another 150 applications were not redeveloped, and this associated benefit was discussed above. Each application, on average, required 60 hours of effort, for a total savings of 3,000 work hours.
- **Ongoing browser support of $185,400 per year.** After the upgrade to IE11, 1.5 FTEs work to support browser deployments, upgrades, and testing. This is significantly less than previously, when multiple browser environments were supported, and this associated benefit is covered in the Benefits section of the study.

Disclosures

The reader should be aware of the following:

› The study is commissioned by Microsoft 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 Microsoft IE11.

- Microsoft 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.
- Microsoft provided the customer names for the interviews but did not participate in the interviews or have any input into which companies participated in the survey.

TEI Framework And Methodology

INTRODUCTION

From the information provided in the interviews, Forrester has constructed a Total Economic Impact (TEI) framework for those organizations considering upgrading to Microsoft Internet Explorer 11. The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision, to help organizations understand how to take advantage of specific benefits, reduce costs, and improve the overall business goals of winning, serving, and retaining customers.

APPROACH AND METHODOLOGY

Forrester took a multistep approach to evaluate the impact that Microsoft IE11 can have on an organization (see Figure 2). Specifically, we:

- Interviewed Microsoft marketing, sales, and engineering personnel, along with Forrester analysts, to gather data relative to IE11 and the marketplace for web browsers.
- Interviewed four organizations currently using Microsoft IE11 to obtain data with respect to costs, benefits, and risks.
- Conducted an online survey of 150 organizations in the US, UK, Germany, and Japan that have implemented IE11. The study was conducted in January 2015.
- Designed a composite organization based on characteristics of the interviewed organizations (see Appendix A).
- Constructed a financial model representative of the interviews using the TEI methodology. The financial model is populated with the cost and benefit data obtained from the interviews as applied to the composite organization.
- Risk-adjusted the financial model based on issues and concerns the interviewed organizations highlighted in interviews. Risk adjustment is a key part of the TEI methodology. While interviewed organizations provided cost and benefit estimates, some categories included a broad range of responses or had a number of outside forces that might have affected the results. For that reason, some cost and benefit totals have been risk-adjusted and are detailed in each relevant section.

Forrester employed four fundamental elements of TEI in modeling the Microsoft IE11 solution: 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 B for additional information on the TEI methodology.

FIGURE 2

TEI Approach

Source: Forrester Research, Inc.

The Current State Of Internet Explorer 11 In The Marketplace

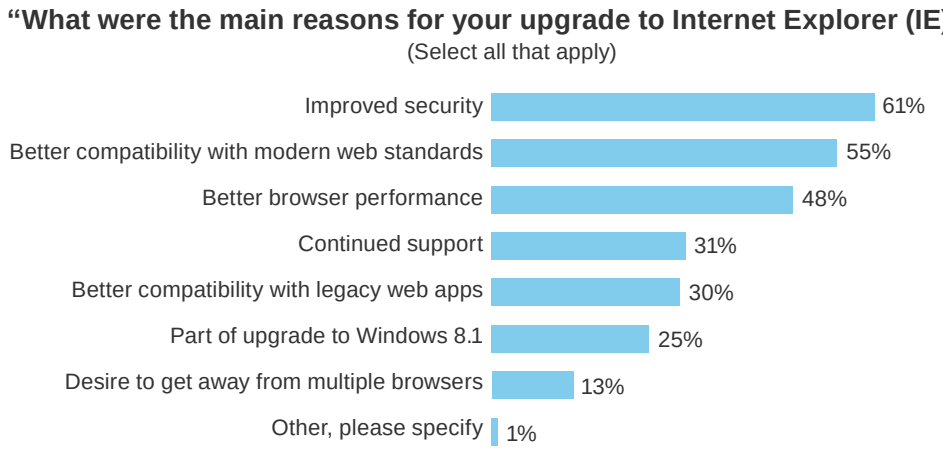
In order to better understand the current market impact, attitudes, and behaviors with regards to the implementation of Internet Explorer 11, Forrester conducted an online survey of 150 organizations in the US, UK, Germany, and Japan that have implemented IE11. Survey participants included IT professionals who are involved in the decisions related to web browsers from firms with 1,000 or more employees. The online survey focused on organizations' behavior and their attitudes about the adoption of Internet Explorer 11, understanding the effort involved in the upgrade to Internet Explorer 11, and what benefits these organizations gained from their adoption of Internet Explorer 11.

From the survey, we discovered:

› **The majority of organizations surveyed have at least half their organization on IE11 and plan to increase the number of users.** On average, 77% of an organization's employee base has already been upgraded to IE11. In addition, 66% of organizations plan to increase the number of users on IE11 over the next year. IT professionals have the desire to bring the benefits of IE11 to the rest of their organization.

› **Organizations upgraded to Internet Explorer 11 for improved security, modern web standards, and increased performance.** Forrester's survey found that 61% of organizations upgraded to IE11 due to its improved security features. Fifty-five percent of these organizations adopted IE11 because it provided better compatibility with modern web standards. This compatibility feature is significantly more important for responding organizations in Europe than our other countries. For 48% of organizations, the increased performance of the browser was a key reason for the upgrade. These key features are important for both IT and business users. Figure 2 highlights these reasons.

FIGURE 2
Reasons For Upgrade To IE11

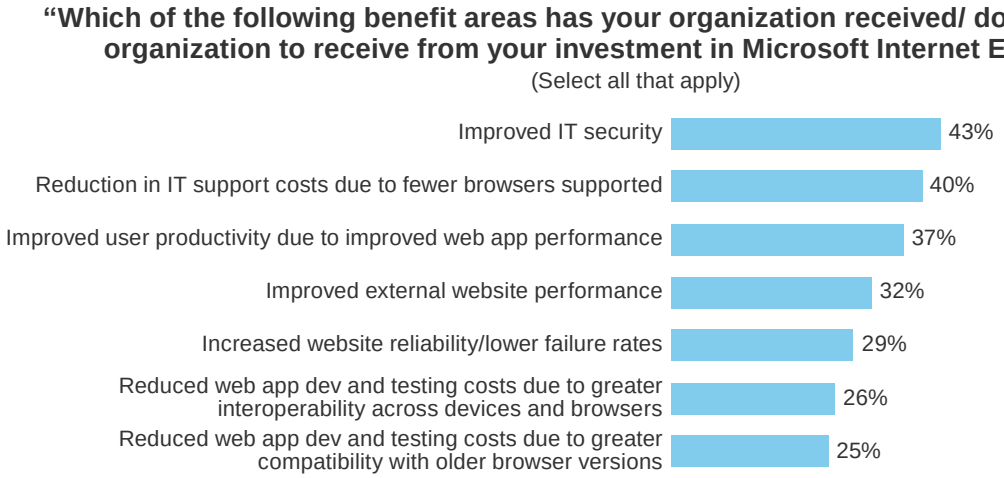


Base: 150 organizations that have Microsoft IE11 deployed
Source: Forrester Research, Inc.

› **Organizations reported a number of benefits from investment in IE11, with improved IT security and reduced IT support costs at the top of the list.** Forty-three percent of organizations reported improved IT security as a benefit of their upgrade to IE11; this benefit was even greater for organizations with 20,000 or more employees. Forty percent of organizations reported a reduction in IT support costs, commonly due to the fact that their IT organization needed to support fewer browsers. Additionally, over a third of organizations reported improved user productivity, thanks to the

improved web app performance. Figure 3 highlights these and other benefits the organizations received from upgrading their company to IE11.

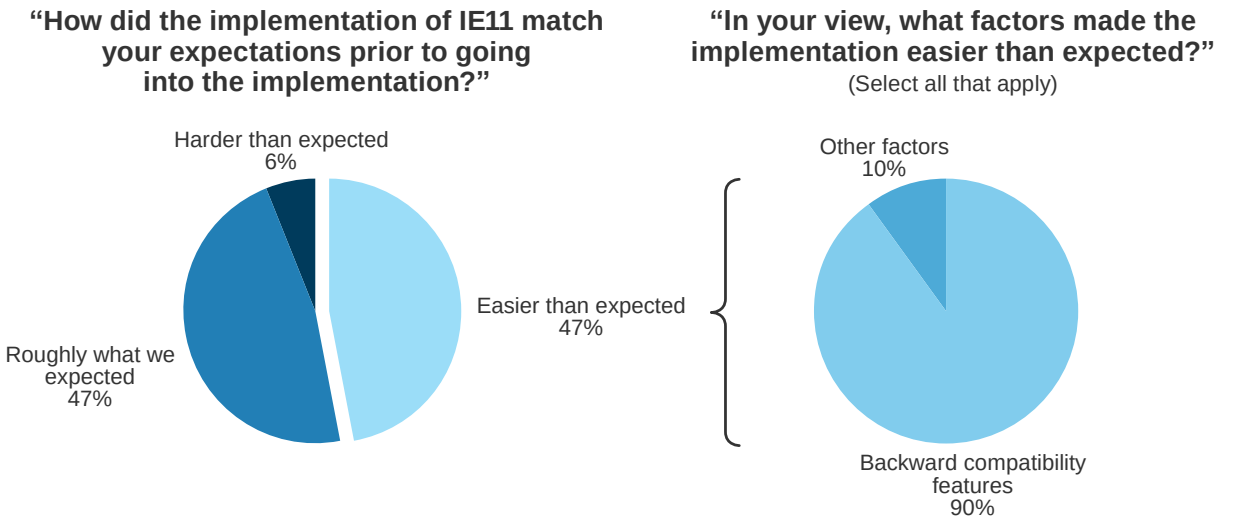
FIGURE 3
Top Benefits From IE11 Investment



Base: 150 organizations that have Microsoft IE11 deployed
Source: Forrester Research, Inc.

› **Backward compatibility features made for an easier-than-expected implementation and greater benefits.** When asked how the implementation of IE11 matched their expectations, 47% of organizations said they found the implementation easier than expected. Of those respondents, 90% of organizations said the ease of migration was due to IE11's backward compatibility features, such as Enterprise Mode. The respondents who used these features were more likely to report a reduction in IT support costs and improved user productivity than other organizations.

FIGURE 4
Enterprise Mode Makes Upgrading Easier



Base: 150 organizations that have Microsoft IE11 deployed

Source: Forrester Research, Inc.

› **Out of 150 respondents, only nine said that the implementation was harder than expected.** When asked what factors led to the difficult implementation, survey respondents told us they did not have enough time or resources working on the upgrade, or that they did not leverage backward compatibility. For these nine respondents, this often led to a smaller implementation than average, with 50% or less of their organizations upgrading to IE11. In order to avoid these pitfalls, organizations should make the case that assigning an adequate number of resources to the team and leveraging the included backward compatibility features will ensure that their organization can take full advantage of the benefits received from IE11.

Analysis

COMPOSITE ORGANIZATION

For this study, Forrester conducted a total of four interviews with representatives from the following companies, which are Microsoft customers based in the US and Europe:

- Global professional services organization.
- Major automobile manufacturer distribution division.
- Insurance company.
- Energy exploration and production company.

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 that Forrester synthesized from these results represents an organization with the following characteristics:

- US-based financial services company with operations across North America, Europe, and Asia.
- 125,000 employees.
- Upgrading from IE8 to IE11.

> *"Moving to IE11 is a much easier and smoother experience. With Enterprise Mode, it is like working with a safety net. It is such a relief. You know you can enable URLs even if it wouldn't work natively in the browser."*
>
> ~ IT operations manager

INTERVIEW HIGHLIGHTS

The composite organization, much like the interviewed and surveyed companies, was long overdue to upgrade its primary web browser to one that supported modern browser standards and better positioned the organization for deploying future technologies. Additionally, starting January 12, 2016, only the most recent version of Internet Explorer will be supported; on Windows 7, only Internet Explorer 11 will continue receiving security updates and technical support. In this light, the IE11 migration was viewed as a "must-do" activity as opposed to a "nice-to-have" upgrade.

The migration was delayed because of legacy internal and external web applications that were written for older browsers. Some of these dated back to IE5. External applications were an especially large headache, since some vendors were not ready to upgrade their applications when the composite organization needed them to. Also, the composite organization had customers whose legacy web applications needed to work in the internal portal environment. By using Enterprise Mode for Internet Explorer, the composite organization eliminated these challenges. Forrester heard from one interviewee that they were "constantly facing challenges when asked to use client portals and data collaboration tools written for the latest browsers. It forced [them] to create pocket solutions and have multiple browser estates to support external customers."

> *"IE11 being part of the baseline makes the Windows 8.1 upgrade very attractive."*
>
> ~ Infrastructure manager

Additionally, the composite organization wanted to better adhere to an N-1 technology strategy. "We are on a mission to stay current with technology," said another interviewee. "We want to make sure that our user community has the latest and greatest tools." Being on IE11 meant they were on the latest browser technology and could run the latest internal and external web applications. Even more

importantly, moving to IE11 was seen as the first step in an upgrade to a newer Windows operating system, either Windows 8.1 or Windows 10. An IT manager said: "IE11 is tied into the OS. It is crucial for moving to Windows 10. A lot of the donkey work we are doing now will smooth the way to Windows 10."

One of the interviewed companies shared its internal rationale for moving to Internet Explorer 11. The main reasons included: "[IE11] aligns with our mobile-first design and development direction, provides agility to keep pace with faster browser production/platform upgrades, and allows the flexibility to leverage newer vendor products that require the latest browser versions." All of this will "enable platform flexibility, allowing users to access web applications through a variety of platforms [laptops, tablets, phones]."

> *"A better experience for our users improves [our IT organization's] reputation and makes us appear cutting-edge."*
>
> ~ IT director

Some of the specific features within IE11 that were called out as being the most helpful included:

- Enterprise Mode.
- Compatibility View.
- HTML5 support.
- Better international support (localization).
- Developer tools.

The survey results discussed earlier in the study present a wide range of benefits that organizations can experience by upgrading to IE11. The financial analysis focuses on a subset of those benefits, and these were described in the Executive Summary. The interviewed companies experienced other benefits that are also worth mentioning and include:

- **External company image is improved for customers and partners.** Being on a modern browser and providing good user experience is very important in today's competitive landscape. "IE11 makes us look professional," said one interviewee. "It helps us to win and retain business. A well-run desktop reflects a well-run company."
- **Web application and web page performance are improved.** Improved performance makes for a better user experience. It can also increase user productivity by reducing the time to render, deliver query results, etc. One interviewee said, "With improved performance, people can be more efficient — do everything in less time. Web application benchmarking is now about 10% faster with IE11." Another interviewee said that stability was improved and that "the browser is less sensitive to what is happening in the application."

> *"Clients feel more secure about us and have a better impression if there is a single, consistent platform."*
>
> ~ IT administrator

- **IT security is improved.** No longer having to patch and support multiple browsers means that vulnerabilities are fixed faster. IE11 is more secure "out-of-the-box" than previous versions of IE. "Security will be better even though we no longer keep things so locked down," said one IT executive.
- **Rationalizing the IT estate increases staffing flexibility.** There no longer needs to be parallel support desks to handle different technologies. Additionally, having fewer web application performance issues will reduce help desk calls and allow those help desk resources to work in multiple areas. "Having a unified browser will make it easy to train and bring in new support people. Additionally, we expect to get fewer help desk calls on an ongoing basis," one interviewee said.

BENEFITS

The composite organization experienced a number of quantified benefits in this case study:

- Reduced implementation effort.
- Reduced application development effort
- Reduced ongoing support and application development testing.
- Increased business user productivity.

Reduced Implementation Effort

The time it took the composite organization to migrate to IE11 was significantly less than the time that was required for previous Internet Explorer upgrades. This is consistent with what the interviewed companies reported. The main reason cited was that Enterprise Mode greatly reduced, and in some cases eliminated, the need for extensive testing of web applications before and during the migration. The actual global rollout of IE11 to the 125,000 employees was also faster due to greater automation. Some time savings examples provided by the interviewed companies include:

- "Our plan for IE10 had three months of system testing, and a variety of application teams doing parallel testing. For IE11, it was reduced to one month. Some of the savings is money we would have paid to an outside vendor."
- "We could move very quickly to IE11 compared with the jump to IE8 and the jump to IE10."
- "For our UK operations, we spent one week going through GPO settings and one week building out the environment. It only required one resource. In the past it would have taken two FTEs two months. This really adds up since we have 40 locations around the world."
- "For the IE11 deployment, we needed 2.5 FTEs for five months. With IE8, it was four FTEs."
- "What was reduced because of Enterprise Mode was application testing for going to IE11. The upgrade to IE8 was a huge deal, and it would have been for IE10 as well."

For this benefit, Forrester looked at what the testing and deployment effort would have looked like for previous versions of IE versus what it took to complete for IE11. The deployment was broken into three phases, which are described in more detail in the Costs section of the study. Without IE11 and Enterprise Mode, we estimate that the full deployment — including application and system testing, configuration/setup, and rollout to 125,000 users — would have taken 17 months and seven FTEs for a total of 119 months of effort. The actual deployment of IE11 only took 66 months of effort with an elapsed time of 12 months, which represents a 45% reduction in effort.

Interviewed organizations provided a range of time and effort to deploy IE11 and the estimated time to deploy without Enterprise Mode. Forrester normalized these data points to adjust for different organization sizes. To further compensate, this benefit was risk-adjusted and reduced by 6%. The risk-adjusted total benefit was $498,200. See the section on Risks for more detail.

TABLE 1
Implementation Effort Was Reduced By 45%

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
A1	Estimated months effort without Enterprise Mode		17			
A2	Estimated FTEs without Enterprise Mode		7			
A3	Estimated total # of months of effort	A1*A2	119			
A4	Monthly fully burdened cost	$120,000/12 months	$10,000			
A5	Estimated implementation costs without Enterprise Mode	A3*A4	$1,190,000			
A6	# of months of effort for actual implementation	=E7	66			
A7	Actual implementation labor costs	A4*A6	$660,000			
At	Reduced implementation effort	A5-A7	$530,000			
	Risk adjustment		↓ 6%			
Atr	Reduced implementation effort (risk-adjusted)		$498,200			

Source: Forrester Research, Inc.

Reduced Application Development Effort

Perhaps the biggest benefit described by companies was that all of the existing web applications that are not compatible with IE11 and other modern browsers did not have to be rewritten. These include applications written by third parties over which the composite organization has little control. Some of them may have never been updated, which would make moving to a modern browser extremely complex and expensive. We heard from companies that:

- "If we were to recode rather than use applications in Enterprise Mode, we would spend millions of pounds in recoding. Some of the applications were out of support by our vendors, so to get them working we would need to buy special support contracts. To be honest, Enterprise Mode is a godsend."
- "Some of our applications would have needed a lot of effort to make them work. I think it would have cost tens of millions [of dollars] to bring all the apps up to date."
- "All the business applications would need to be upgraded. It would cost millions [of dollars]. Otherwise, users would have to stay on their old browsers."
- "We will save on our third-party web development contracts with large consulting companies."

The composite organization has 450 web applications that potentially could be affected by the browser upgrade. Of those, 200 would have needed to be redeveloped without Enterprise Mode. Instead, this work could be put off until they were due for natural, life-cycle redevelopment efforts in the future as business requirements changed. Additionally, some would never need to be upgraded since they would be retired at some point.

The composite organization decided to upgrade 50 of these applications because business requirements had changed since the last development effort. The current version of the applications would have worked fine in

IE11 with Enterprise Mode. This effort is described in the Costs section of the study, and the net benefit is eliminated development effort for 150 web applications at an average development time of 60 hours per application.

Forrester risk-adjusted this benefit by 6% to account for the range of values we heard as to the total number of existing web applications and the proportion of them that would need to be redeveloped. The risk-adjusted total benefit was $507,600.

TABLE 2
Application Redevelopment Effort Was Reduced By 75%

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
B1	# of apps that would need redevelopment		200			
B2	Average # of hours effort		60			
B3	Anticipated app development time (hours)	B1*B2	12,000			
B4	Cost per hour	$120,000/2,000 hours	$60			
B5	Total anticipated application development costs	B3*B4	$720,000			
B6	Actual application development hours	=F3	3,000			
B7	Actual application development costs	B4*B6	$180,000			
Bt	Reduced application development effort	B5-B7	$540,000			
	Risk adjustment		🡻 6%			
Btr	Reduced application development effort (risk-adjusted)		$507,600			

Source: Forrester Research, Inc.

Reduced Ongoing Support And Application Testing

In addition to upfront IT effort savings, there are also ongoing savings. Companies spoke of several areas, two of which are included in the ROI analysis — ongoing support and ongoing application testing. For ongoing support, consolidating onto one browser reduces the amount of IT effort needed for system testing, applying cumulative security updates, compatibility remediation, user support, etc. Interviewees reported:

- "Operational support is much easier with only one browser. We used to run two group policy objects and multiple versions of software updaters to make sure patches were in place. This should save four work days per month in each of our 40 locations."
- "We were getting at least 5,000 calls per year worldwide to remediate application compatibility issues."
- "Some of our IT staff is getting redeployed from support to newer, higher value activities."
- "We did some analysis and we did see a reduction in help desk call volume from people who were having application problems. Especially from those using external web apps to do their work."

For the composite organization, the number of FTEs required to complete these activities is reduced from 3.5 to 1.5. This benefit is realized in all three years of the study.

The composite organization also saw reduced ongoing testing of mission-critical applications. Interviewed companies undertook quarterly testing of their mission-critical applications, which required manual effort. Some examples include:

- "We now have to do less ongoing testing. A global test takes four to six weeks, and with multiple browsers it would take twice as long."
- "We save 15 workdays per test and have to test 30 applications on a quarterly basis."
- "Some of the hours built into our application maintenance and support contracts can now be used for activities other than ongoing testing."

For the composite organization, there are 20 web applications that are tested on a quarterly basis. By only having to test for one browser, each test is reduced by 10 days of effort. In total, 800 workdays (3.2 FTEs) are saved in each year of the study.

Forrester risk-adjusted this benefit by 6% because the amount of effort reduction varies based on the size of the overall organization, including the number of users and number of web applications that need to be tested on an ongoing basis. The risk-adjusted total benefit was $1,759,680 over three years.

TABLE 3
Ongoing Labor Savings For IT Support And Application Testing Is 5.2 FTEs (Two Support And 3.2 Testing)

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
C1	# of support FTEs that would be required			3.5	3.5	3.5
C2	Actual # of FTEs required	=G1		1.5	1.5	1.5
C3	Annual fully burdened cost			$120,000	$120,000	$120,000
C4	Total reduced support costs	(C1-C2)*C3		$240,000	$240,000	$240,000
C5	Number of workdays saved per application test			10	10	10
C6	# of mission-critical app annual tests	20 apps * 4 quarters		80	80	80
C7	Fully burdened daily cost	$120,000/250 days		$480	$480	$480
C8	Total avoided testing costs	C5*C6*C7		$384,000	$384,000	$384,000
Ct	Reduced ongoing support and application testing	C4+C8		$624,000	$624,000	$624,000
	Risk adjustment			↓ 6%		
Ctr	Reduced application development effort (risk-adjusted)			$586,560	$586,560	$586,560

Source: Forrester Research, Inc.

Increased Business User Productivity

So far, we have discussed technology savings associated with IE11. The benefits associated with increased business user productivity, better alignment internally as well as with customers and partners, and greater process efficiency are worth much more than the technology benefits. The interviewed companies talked about many of these business benefits. Forrester only included one example in this study so as to not overwhelm the results. A sampling of things the interviewees said include:

- "We are rolling out a new intranet to get our various business units better aligned. This will have huge benefits and help us with competitive pressures. Improved performance with IE11 will increase user adoption and deliver additional benefits."
- "We have many customer-facing applications. Rolling out IE11 internally will give employees the same view as customers which will improve interactions."
- "Faster web application performance has made employees more productive. Our application performance is now approximately 10% better."
- "Most employees spend some time every day in our intranet, maybe as much as 10% of the day. Some groups spend 100% of their day in these web applications. Increased application performance makes their work easier."
- "We will have better user productivity because they won't click on things that don't work. It will be a massive savings for us. We have [over 100,000] employees who spend a couple of hours a day in these systems. When things don't work, some of them file help tickets and others try a second browser."
- "Fourteen thousand employees no longer have to go through an emulator to get to the timesheet app. Each of them saves 5 minutes per week."

For the composite organization, Forrester included an example in which 5% of employees previously had to work in multiple browsers because some external applications they needed required a more modern browser than IE8. On average, they spent 6 minutes per day navigating between browsers and losing productivity because of the break in workflow. This lost time was eliminated because all apps could now be run in a single browser — IE11. Because not all productivity gains translate into additional value-add work, Forrester discounted this benefit by 50%. This benefit is consistent with the findings in a Thought Leadership Paper by Forrester Consulting commissioned by Microsoft showing that IT organizations are embracing "desktop modernization efforts to boost worker productivity, flexibility, and experiences."[2]

Additionally, Forrester risk-adjusted this benefit by 13% because the level of productivity gained will vary based on the number of users and the actual use cases. The risk-adjusted total benefit was $7,136,719 over three years.

TABLE 4
Viewing All Applications In One Browser Reduces Business User Downtime

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
D1	# of employees using multiple browsers	125,000 employees * 5%		6,250	6,250	6,250
D2	Average hours per day of lost productivity			0.10	0.10	0.10
D3	Daily hourly fully burdened cost	$70,000 / 2,000 hours		$35.00	$35.00	$35.00
D4	Total lost productivity from switching between browsers	D1*D2*D3*250 days		$5,468,750	$5,468,750	$5,468,750
D5	% of benefit realized			50%	50%	50%
Dt	Increased business user productivity	D4*D5		$2,734,375	$2,734,375	$2,734,375
	Risk adjustment			↓ 13%		
Dtr	Increased business user productivity (risk-adjusted)			$2,378,906	$2,378,906	$2,378,906

Source: Forrester Research, Inc.

Total Benefits

Table 5 shows the total of all quantified benefits across the four areas listed above, 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 nearly $8.4 million.

TABLE 5
Total Benefits (Risk-Adjusted)

Ref.	Benefit	Initial	Year 1	Year 2	Year 3	Total	Present Value
Atr	Reduced implementation effort	$498,200	$0	$0	$0	$498,200	$498,200
Btr	Reduced application development effort	$507,600	$0	$0	$0	$507,600	$507,600
Ctr	Reduced ongoing support and application testing	$0	$586,560	$586,560	$586,560	$1,759,680	$1,458,688
Dtr	Increased business user productivity	$0	$2,378,906	$2,378,906	$2,378,906	$7,136,719	$5,915,988
	Total benefits	**$1,005,800**	**$2,965,466**	**$2,965,466**	**$2,965,466**	**$9,902,199**	**$8,380,476**

Source: Forrester Research, Inc.

COSTS

The composite organization experienced a number of costs associated with the IE11 upgrade, all of which were offset by corresponding benefits discussed previously:

- Internal implementation.
- Application development.
- Ongoing support.

Internal Implmentation

The interviewed companies were all very large, and therefore had fairly large migration efforts. This effort, however, was much less than would have been expected based on previous IE upgrades as was discussed in the Benefits section of this study. The implementation was broken into three phases — preliminary IT testing, single location pilot and global web application testing, and global rollout.

In each phase, many different roles were involved. These included project management, application development to do testing, system administrators, help desk administrators, business analysts, security administrators, and communication/change management specialists. For the composite organization, the total elapsed time was 12 months, and the implementation required 66 work months of effort.

The level of effort varied greatly based on the size of the organization and the number of applications that needed to be tested. To compensate, this cost was risk-adjusted up by 8%. The risk-adjusted cost was $712,800.

TABLE 6
Internal Implementation

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
E1	Preliminary IT testing — # of months		2			
E2	Preliminary IT testing — # of FTEs		3			
E3	Pilot and app testing — # of months		5			
E4	Pilot and app testing — # of FTEs		7			
E5	Global rollout — # of months		5			
E6	Global rollout — # of FTEs		5			
E7	Total number of months of effort	E1*E2+E3*E4+E5*E6	66			
E8	Monthly fully burdened salary	$120,000/12 months	$10,000			
Et	Internal implementation	E7*E8	$660,000			
	Risk adjustment		↑ 8%			
Etr	Internal implementation (risk-adjusted)		$712,800			

Source: Forrester Research, Inc.

Application Devlopment

Of the 450 in-house web applications, the IT organization elected to redevelop 50 of them. This is significantly less than the 200 that would have required development without Enterprise Mode, and the decision was made to upgrade them because they were due for an update to meet new business requirements — such as adding new functionality, increasing performance, or reducing risk associated with older technologies — even though there were few issues with using Enterprise Mode for backward compatibility. On average, a web application required 60 hours of effort, although the time range between easy and hard coding was very large.

The number of web applications can vary widely depending on a company's desire to rely on Enterprise Mode, where their applications are in a natural life cycle, and how well they align to current business requirements. To compensate, this cost was risk-adjusted up by 8%. The risk-adjusted cost was $194,400.

TABLE 7
Application Development

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
F1	# of apps redeveloped		50			
F2	Average # of hours effort	=B2	60			
F3	Application development hours	F1*F2	3,000			
F4	Cost per hour	$120,000/2,000 hours	$60			
Ft	Application development	F3*F4	$180,000			
	Risk adjustment		↑ 8%			
Ftr	Application development (risk-adjusted)		$194,400			

Source: Forrester Research, Inc.

Ongoing Support

As with the previous two cost categories, there is a corresponding benefit or reduced effort that more than offsets these costs. There is ongoing support for the new version of IE to deal with system update testing, cumulative security patching, and any help desk queries. The level of effort is low and only requires 1.5 FTEs globally.

This cost can vary slightly based on the number of locations that need localized support and system testing. To compensate, this cost was risk-adjusted up by 3%. The risk-adjusted three-year cost was $556,200.

TABLE 8
Ongoing Support

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
G1	# of FTEs			1.5	1.5	1.5
G2	Annual fully burdened cost			$120,000	$120,000	$120,000
Gt	Ongoing support		G1*G2	$180,000	$180,000	$180,000
	Risk adjustment			↑ 3%		
Gtr	Ongoing support (risk-adjusted)			$185,400	$185,400	$185,400

Source: Forrester Research, Inc.

Total Costs

Table 9 shows the total of all costs as well as associated present values, discounted at 10%. Over three years, the composite organization expects total costs to total a net present value of a little more than $1.4 million.

TABLE 9
Total Costs (Risk-Adjusted)

Ref.	Cost	Initial	Year 1	Year 2	Year 3	Total	Present Value
Etr	Internal implementation	$712,800	$0	$0	$0	$712,800	$712,800
Ftr	Application development	$194,400	$0	$0	$0	$194,400	$194,400
Gtr	Ongoing support	$0	$185,400	$185,400	$185,400	$556,200	$461,062
	Total costs	$907,200	$185,400	$185,400	$185,400	$1,463,400	$1,368,262

Source: Forrester Research, Inc.

FLEXIBILITY

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for some 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. There are multiple scenarios in which a customer might choose to implement IE11 and later realize additional uses and business opportunities.

The interviewed customers described how much faster the deployment was, as detailed in this study. They also said that having made this investment will make the upgrade to Windows 8.1 or Windows 10 go faster and more smoothly with less expense. IE11 also enables them to adapt more quickly to changing business and technology requirements, because all modern browser standards are in place. One interviewee said, “IE11 makes us more agile because of Enterprise Mode.”

Another customer spoke of how using IE11 makes them more responsive to changing customer requirements. They said, “Having IE11 has brought consistency to our environment. We can articulate to our customers how we operate, and we can integrate them more quickly. This is especially so with our international customers.”

None of these flexibility benefits are included in the ROI analysis.

RISKS

Forrester defines two types of risk associated with this analysis: “implementation risk” and “impact risk.” Implementation risk is the risk that a proposed investment in IE11 may deviate from the original or expected requirements, resulting in higher costs than anticipated. Impact risk refers to the risk that the business or technology needs of the organization may not be met by the investment in IE11, resulting in lower overall total benefits. The greater the uncertainty, the wider the potential range of outcomes for cost and benefit estimates.

Quantitatively capturing implementation risk and impact risk by directly adjusting the financial estimates results provides more meaningful and accurate estimates and a more accurate projection of the ROI. In general, risks affect costs by raising the original estimates, and they affect benefits by reducing the original estimates. The risk-adjusted numbers should be taken as “realistic” expectations since they represent the expected values considering risk.

Table 10 shows the values used to adjust for risk and uncertainty in the cost and benefit estimates for the composite organization. Readers are urged to apply their own risk ranges based on their own degree of confidence in the cost and benefit estimates.

TABLE 10
Benefit And Cost Risk Adjustments

Benefits	Adjustment
Reduced implementation effort	↓ 6%
Reduced application development effort	↓6%
Reduced ongoing support and application testing	↓ 6%
Increased business user productivity	↓13%

Costs	Adjustment
Internal implementation	↑ 8%
Application development	↑ 8%
Ongoing support	↑ 3%

Source: Forrester Research, Inc.

Financial Summary

The financial results calculated in the Benefits and Costs sections can be used to determine the ROI and NPV for the composite organization's investment in IE11.

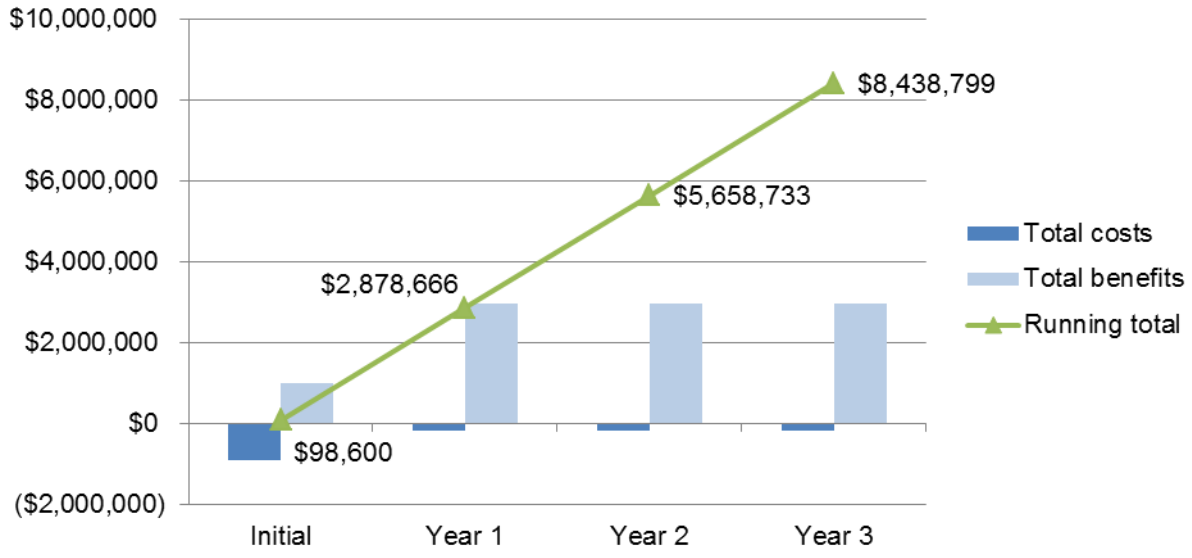
Table 11 below shows the risk-adjusted ROI and NPV values. These values are determined by applying the risk-adjustment values from Table 10 in the Risks section to the unadjusted results in each relevant cost and benefit section.

TABLE 11
Cash Flow (Risk-Adjusted)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Costs	($907,200)	($185,400)	($185,400)	($185,400)	($1,463,400)	($1,368,262)
Benefits	$1,005,800	$2,965,466	$2,965,466	$2,965,466	$9,902,199	$8,380,476
Net benefits	$98,600	$2,780,066	$2,780,066	$2,780,066	$8,438,799	$7,012,213
ROI	512%					

Source: Forrester Research, Inc.

FIGURE 5
Cash Flow Chart (Risk-Adjusted)



Source: Forrester Research, Inc.

Microsoft Internet Explorer 11: Overview

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

Microsoft offers innovative and transformational services for a mobile-first and cloud-first world, so you can do more and achieve more; Internet Explorer is core to this vision. In today's digital world, billions of people use Internet-connected devices, powered by cloud-service-based applications, spanning both work and life experiences. Running a modern browser is more important than ever for the fastest, most secure experience on the latest websites, connecting anytime, anywhere, and on any device.

To help customers do more and achieve more, the latest version of Internet Explorer has increased performance, improved security, better backward compatibility, and support for the modern web technologies that power today's sites and services. Enterprise Mode for Internet Explorer 11 offers better backward compatibility for sites designed for older versions of Internet Explorer; IT pros can administratively force any site into any document mode, without changing a single line of code. Features like Enterprise Mode can help customers upgrade and stay up-to-date with the latest software and updates.

Additionally, Windows 10 includes an improved version of Internet Explorer 11 that's great for large organizations. It's more secure than ever and always up-to-date for modern sites, with Enterprise Mode compatibility for existing web apps. Customers on Windows 7 can upgrade to Internet Explorer 11 now to more easily migrate to Windows 10.

Appendix A: Composite Organization Description

For this TEI study, Forrester has created a composite organization to illustrate the quantifiable benefits and costs of upgrading to IE11 from IE8. The composite company is intended to represent a multinational financial services company with 125,000 employees and is based on characteristics of the interviewed customers. The employees are located in 15 countries across North America, Europe, and Asia, and they work across several divisions.

The vast majority of employees use Windows 7 machines, and IE8 is the corporate standard browser. Some individuals, predominantly application developers, use alternative browsers if they need them for web app testing and other specific activities. The company uses internally developed web apps, as well as web apps provided by third-party vendors. These web apps are used by employees and provided to customers and partners. In total, there are about 450 web applications of varying complexity and mission criticality.

In upgrading to IE11, the composite company has the following objectives:

- Provide a single browser that delivers all modern standards and capabilities.
- Reduce IT costs — operations and web app development.
- Adhere to an N-1 strategy for all technologies.
- Smooth the way for a future upgrade from Windows 7 to Windows 10.
- Reduce recoding for existing web applications.
- Continue receiving security updates and technical support after January 12, 2016.
- Improve IT security.

Because of these objectives, the migration from IE8 to IE11 was viewed as something that was required as opposed to a “nice-to-have” system upgrade.

Appendix B: Total Economic Impact™ Overview

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. TEI assists technology vendors in winning, serving, and retaining customers.

The TEI methodology consists of four components to evaluate investment value: benefits, costs, flexibility, and risks.

BENEFITS

Benefits represent the value delivered to the user organization — IT and/or business units — by the proposed product or project. Often, product or project justification exercises focus just on IT cost and cost reduction, leaving little room to analyze the effect of the technology on the entire organization. The TEI methodology and the resulting financial model place 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. Calculation of benefit estimates involves a clear dialogue with the user organization to understand the specific value that is created. In addition, Forrester also requires that there be a clear line of accountability established between the measurement and justification of benefit estimates after the project has been completed. This ensures that benefit estimates tie back directly to the bottom line.

COSTS

Costs represent the investment necessary to capture the value, or benefits, of the proposed project. IT or the business units may incur costs in the form of fully burdened labor, subcontractors, or materials. Costs consider all the investments and expenses necessary to deliver the proposed value. In addition, the cost category within TEI captures any incremental costs over the existing environment for ongoing costs associated with the solution. All costs must be tied to the benefits that are created.

FLEXIBILITY

Within the TEI methodology, direct benefits represent one part of the investment value. While direct benefits can typically be the primary way to justify a project, Forrester believes that organizations should be able to measure the strategic value of an investment. Flexibility represents the value that can be obtained for some future additional investment building on top of the initial investment already made. For instance, an investment in an enterprise-wide upgrade of an office productivity suite can potentially increase standardization (to increase efficiency) and reduce licensing costs. However, an embedded collaboration feature may translate to greater worker productivity if activated. The collaboration can only be used with additional investment in training at some future point. However, having the ability to capture that benefit has a PV that can be estimated. The flexibility component of TEI captures that value.

RISKS

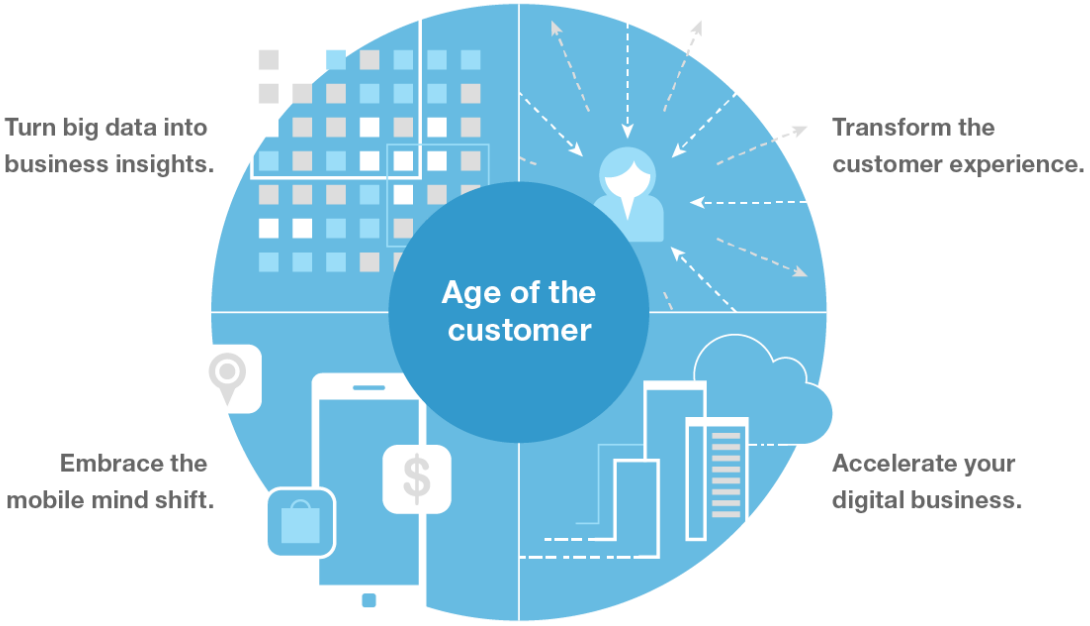
Risks measure the uncertainty of benefit and cost estimates contained within the investment. Uncertainty is measured in two ways: 1) the likelihood that the cost and benefit estimates will meet the original projections, and 2) the likelihood that the estimates will be measured and tracked over time. TEI risk factors are based on a probability density function known as "triangular distribution" to the values entered. At a minimum, three values are calculated to estimate the risk factor around each cost and benefit.

Appendix C: Forrester And The Age Of The Customer

Your technology-empowered customers now know more than you do about your products and services, pricing, and reputation. Your competitors can copy or undermine the moves you take to compete. The only way to win, serve, and retain customers is to become customer-obsessed.

A customer-obsessed enterprise focuses its strategy, energy, and budget on processes that enhance knowledge of and engagement with customers and prioritizes these over maintaining traditional competitive barriers.

CMOs and CIOs must work together to create this companywide transformation.



Forrester has a four-part blueprint for strategy in the age of the customer, including the following imperatives to help establish new competitive advantages:

Transform the customer experience to gain sustainable competitive advantage.

Accelerate your digital business with new technology strategies that fuel business growth.

Embrace the mobile mind shift by giving customers what they want, when they want it.

Turn big data into business insights through innovative analytics.

FORRESTER®

Appendix D: Glossary

Discount rate: The interest rate used in cash flow analysis to take into account the time value of money. Companies set their own discount rate based on their business and investment environment. Forrester assumes a yearly discount rate of 10% for this analysis. Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult their respective organizations to determine the most appropriate discount rate to use in their own environment.

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.

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.

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.

Return on investment (ROI): A measure of a project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits minus costs) by costs.

A NOTE ON CASH FLOW TABLES

The following is a note on the cash flow tables used in this study (see the example table below). The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1. Those costs are not discounted. All other cash flows in years 1 through 3 are discounted using the discount rate (shown in the Framework Assumptions section) at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations are not calculated until 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.

TABLE [EXAMPLE]
Example Table

Ref.	Metric	Calculation	Year 1	Year 2	Year 3

Source: Forrester Research, Inc.

Appendix E: Endnotes

[1] Forrester risk-adjusts the summary financial metrics to take into account the potential uncertainty of the cost and benefit estimates. For more information, see the section on Risks.

[2] "The Business Case for Standardizing on a Single Modern Browser in the Enterprise," Forrester Consulting report prepared for Microsoft Corporation, Microsoft website, December 2012 (http://www.microsoft.com/en-us/download/details.aspx?id=36051).