

A Forrester Total Economic Impact™  
Study Commissioned By Google  
November 2017

# The Total Economic Impact™ Of Accelerated Mobile Pages (AMP)

Cost Savings And Business Benefits From  
Building Fast, High Performing Mobile  
Experiences With AMP

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# Executive Summary

## Key Benefits



Profit growth from a 20% increase in conversion rate:  
**\$676,822**



Profit growth from a 10% increase in AMP site visitors:  
**\$328,625**



“AMP is the content delivery method of the future because it’s fast, verifiable, and secure.”

*Chief executive officer,  
eCommerce vendor*

The convergence of shrinking customer attention spans and the seemingly interminable appetite for better content and website monetization have created a plethora of poor mobile experiences, characterized by slow, unresponsive pages, and obtrusive ads that damage the customer experience. Google commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study to examine the potential return on investment (ROI) organizations may realize by building fast, higher performing mobile experiences using Accelerated Mobile Pages (AMP). The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of using AMP.

AMP is an open source framework that allows organizations to easily create fast, engaging, and high-performing web pages with their existing developer skill sets and minimal additional training. To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed four companies with experience using AMP.

Prior to building AMP experiences for their customers, interviewees were plagued by dismal page load times, poor responsiveness, and stark performance inconsistencies across their desktop and mobile sites. Using AMP, the eCommerce vendors and publishers interviewed for this study improved site viewability, customer engagement, and site monetization.

## Key Findings

**Quantified benefits.** The following risk-adjusted present value (PV) quantified benefits are representative of those experienced by eCommerce companies interviewed for this study. The ROI figure included in this analysis is based on a composite organization representative of existing AMP eCommerce vendors interviewed for the study:

- › **Profit growth from a 20% sales conversion rate increase.** A/B testing conducted by the eCommerce vendors interviewed for this study demonstrated a 20% increase in conversion rate of site visitors to completed purchases from their AMP pages, driving increased profit of \$676,822 over three years.
- › **Profit growth from a 10% year-over-year increase in AMP site traffic.** Both the publishers and eCommerce organizations that were interviewed for the study indicated that they were able to increase site traffic volume using their AMP pages. Site traffic increases compounded the value of conversion rate increases experienced by AMP eCommerce sites, driving \$328,625 in profit growth over three years.

### **Unquantified benefits for publishers and eCommerce organizations.**

The interviewed organizations experienced several benefits of AMP that were not directly quantified nor included in the return on investment (ROI) calculation for this study:

- › **Improved discoverability and site traffic by 10%.** While increased site traffic is included in the ROI for this study, from the perspective of an eCommerce site, publishers also benefit from higher site traffic volumes.
- › **Improved customer and reader engagement.** Once on the AMP site, publishers and eCommerce interviewees indicated that site visitors better engaged with their content and products. Interviewees experienced a 60% increase in pages per visit, 0.3% increase in return visitors, while time spent on page per visit increased twofold.



**ROI**  
**377%**



**Benefits PV**  
**\$1 million**



**NPV**  
**\$794,620**



**Payback**  
**<6 months**

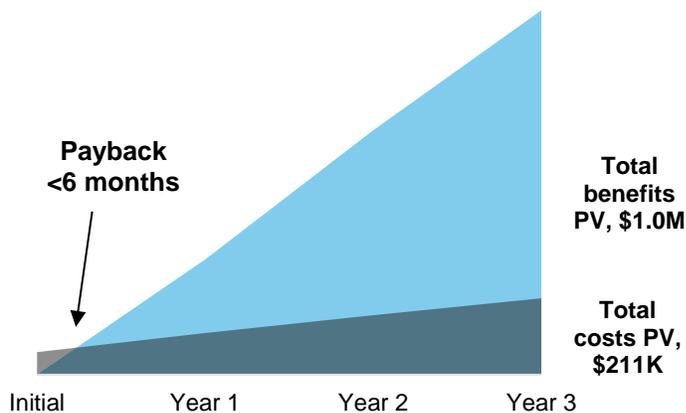
- › **Improved page load time.** Runtime performance failures plagued the legacy pages of most organizations interviewed for this study, with this impact being particularly pronounced in areas with poor bandwidth. Interviewees eliminated slow render-blocking scripts and used AMP's prerendering mechanisms, cached pages, and other performance boosters to reduce page load times in AMP by over 80%.
- › **Reduced customer support costs.** One interviewee saw a reduction in customer service requests as a result of its improved AMP experience. While this effect was only measured by one interviewee, it is possible that other organizations could achieve similar results.
- › **Better advertising performance.** A publisher interviewed for the study indicated that it saw a 20% increase in its ad placement click-through rate (CTR). While this effect was only measured by one interviewee, it is possible that other organizations could achieve similar results.

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

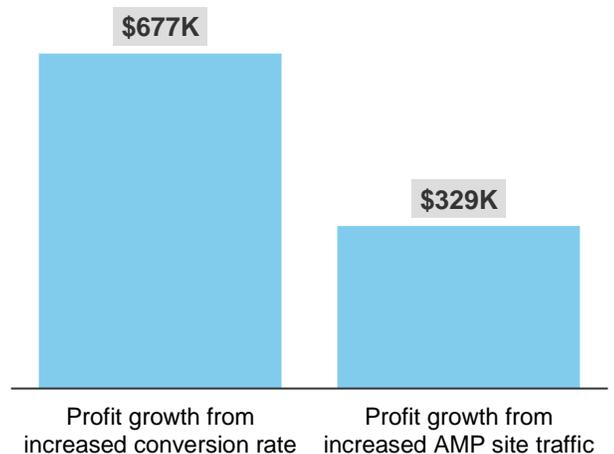
- › **AMP pilot and proof of concept (PoC).** These are the resource costs for developer, designer, analyst, and executive oversight needed to build an AMP pilot page and conduct A/B testing for the PoC.
- › **AMP training and ramp up.** These are the resource costs for developers to train and familiarize themselves with AMP components.
- › **AMP design, development, and maintenance.** These are the resource costs for developer, designer, and executive oversight needed for the full AMP page development and ongoing site maintenance effort.
- › **AMP performance testing, analysis, and reporting.** This cost is for an internal data analyst resource to conduct ongoing AMP page performance testing, analysis, and reporting.

Forrester's interviews with four companies that have built AMP experiences and subsequent financial analysis found that a composite organization based on these interviewed companies experienced benefits of \$1,005,447 over three years versus costs of \$210,827, adding up to a net present value (NPV) of \$794,620 and an ROI of 377%.

### Financial Summary



### Benefits (Three-Year)



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

## TEI Framework And Methodology

From the information provided in the interviews, Forrester has constructed a Total Economic Impact™ (TEI) framework for those organizations considering building AMP sites.

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 AMP can have on an organization:



### **DUE DILIGENCE**

Interviewed Google stakeholders and Forrester analysts to gather data relative to AMP.



### **CUSTOMER INTERVIEWS**

Interviewed four organizations using AMP 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 AMP's impact: benefits, costs, flexibility, and risks. Given the increasing sophistication that enterprises have regarding ROI analyses related to IT investments, Forrester's TEI methodology serves to provide a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

## DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Google 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 building AMP mobile web pages.

Google 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.

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

# The AMP Journey

## BEFORE AND AFTER THE BUILDING AMP MOBILE EXPERIENCES

### Interviewed Organizations

For this study, Forrester conducted four interviews with brands using AMP to build fast, high-performing experiences for their customers and readers. As seen in the table below, interviewed brands included both eCommerce companies and publishers. While the key performance indicator (KPI) uplift objectives and business value outcomes of AMP users varied across eCommerce and other publishing use cases, interviewees shared a similar set of mobile experience challenges and solution requirements in making their decision to build out AMP experiences.

AMP USE CASE	REGION	INTERVIEWEES	KEY METRICS
eCommerce	USA	Chief executive officer Head of operations and R&D	4M to 5M unique monthly visitors 100K AMP pages 70% mobile visitors <100 employees
eCommerce / brand websites	EMEA	Senior manager, digital analytics	370 distinct websites 80% mobile visitors 100K+ employees
Publisher	Global	Lead product manager Senior product manager	100M unique monthly visitors 1,000 daily AMP articles 55% mobile visitors 10K+ employees
Publisher	Global	Chief product officer	200M unique monthly visitors 1,500 daily AMP articles 750 employees

### Key Challenges

Prior to building AMP mobile web pages for their buyers and readers, interviewees shared a number of challenges and pain points with their mobile experience that diminished reader engagement and hurt the customer experience. These challenges included:

- › **Poor page load times and high bounce rates.** Interviewees indicated that their non-AMP mobile web pages were bogged down by distracting JavaScript, resulting in terrible page load times, runtime errors, and high visitor bounce rates.
- › **Disparity across interviewed brand's desktop and mobile user experiences.** Several interviewees indicated that they historically focused on the desktop experience, doing very little in terms of mobile web optimization. All interviewees noted that from leadership on down, their organizations knew they were missing an opportunity and were eager to try new platforms to improve their mobile experience.
- › **Inability to engage mobile visitors with their content, products, and brand through mobile channels.** Slow page load times created poor mobile experiences, high bounce rates, and low user engagement levels. As one publisher put it, "AMP has made us think harder about how to make our own mobile site faster, because we have seen a direct relationship between site performance and engagement."

"We see how quick our AMP experience is, and so when we click on our old mobile web pages, we realize, 'Damn, that's slow.'"

*Chief product officer,  
publisher*



"Leadership was excited and interested in exploring AMP — they are eager to try new platforms."

*Senior manager,  
publisher*



## Solution Requirements

The interviewed organizations searched for a solution that could deliver the following business outcomes:

- › **Ability to maintain design and layout flexibility while concurrently improving speed and mobile performance.** While interviewees desperately needed to improve the speed and performance of their mobile web sites, this could not be done at the expense of their unique brand style, analytics tracking capabilities, ad placement, and robust site features that encourage deeper funnel interactions with their sites and brands.
- › **Simplicity to build and experiment with using existing organizational resources.** Organizations were looking for a solution that they could quickly pilot and test against their current mobile web sites. Interviewees were attracted to AMP's simplicity and readymade resources and templates, as they were able to quickly build, test, and iterate on their AMP sites to drive performance improvements.
- › **Rapidly impact site traffic, engagement, retention, and clicks.** Given the growing strategic importance of high speed mobile web to both publishers and eCommerce vendors, interviewees were looking for a solution that could generate rapid business results without massive incremental investment requirements.

"With the new changes to AMP, it's becoming almost turnkey to build [new pages]."

*Chief executive officer,  
eCommerce vendor*



## Key Results: eCommerce

eCommerce vendors interviewed for the study revealed the following key results from their investment in building AMP mobile experiences:

- › **Improved page speed, better customer engagement, and an enhanced customer experience.** eCommerce vendors interviewed for the study experienced an over 80% reduction in their page load time, a 60% increase in page views per user visit, and a twofold increase in time spent on page. When speaking about the impact of its AMP business-to-consumer (B2C) content marketing pages on its channel sales, one vendor also provided anecdotal evidence of improving its click-through to e-retailer rate, although it was not able to quantify this metric at the time of the interview.
- › **Increased AMP traffic volume and improved sales conversions.** More responsive, higher-performing mobile web experiences improved site monetization, including a 20% increase in sales conversions on site visits. The performance and search benefits of AMP drove a 10% increase in overall site traffic.
- › **Delivery of fast, verifiable, and secure mobile experiences.** In the face of diminishing consumer attention spans and hyper-competition for mobile consumers' share of wallet, AMP helped organizations stay competitive with fast, compelling, and secure eCommerce experiences, ultimately driving measurable revenue growth.

"AMP is the content delivery method of the future because it's fast, verifiable, and secure."

*Chief executive officer,  
eCommerce vendor*



## Key Results: Publishers

Our interviews with publishers revealed the following key results from their investment in building AMP mobile experiences. While these key results were not included in the ROI or benefit calculations highlighted in the Executive Summary or Financial Analysis sections of this case study, publishers indicated that they benefited from their investment in building AMP mobile experiences in the following ways:

- › **Improved content discoverability and performance.** Publishers' AMP pages were fast and highly responsive, with interviewees revealing nearly 90% reductions in their page load times. As a result, publishers saw reduced bounce rates and significant increases in site traffic, with one interviewee indicating that they were receiving 5 million to 8 million additional article clicks each week on their AMP pages.
- › **Measurable improvements in reader engagement.** One of the key catalysts for adopting and building AMP sites was the desire to better engage mobile readers on publisher sites. As one interviewee put it, "AMP has made us think harder about how to make our own mobile site faster, because we have seen a direct relationship between performance and engagement." Following the development of their AMP pages, publishers reported material increases in page views per visit, time spent on page, and return visitors.
- › **Improved advertising performance and enhanced monetization opportunities.** One publisher reported a 20% increase in ad placement click-through rate (CTR). When ad placements generate more clicks for advertisers, those placements become more valuable — driving increased revenue for the publisher. While this interviewee wasn't monetizing clicks under a cost per thousand impressions (CPM) or pay per click (PPC) model, other publishers could reasonably expect to grow advertising revenue by monetizing any CTR improvement.

"AMP allows our editorial content to shine. It loads quickly, it's very stable, images and videos render nicely — it's ultimately a good experience for our users that allows us to end up on top."

*Chief product officer,  
publisher*



"AMP has made us think harder about how to make our own mobile site faster, because we have seen a direct relationship between performance and engagement."

*Lead product manager,  
publisher*



## eCommerce Composite Organization

Based on the interviews, Forrester constructed a TEI framework, a composite eCommerce organization, and an associated ROI analysis that illustrates the areas financially affected. The composite organization is representative of the two eCommerce companies that Forrester interviewed and is used to present the aggregate financial analysis in the next section. Forrester also leveraged inputs from interviewed publishing companies to better understand the nuances of consumer engagement, site discoverability, and page performance on AMP sites relative to their non-AMP mobile web counterparts. The composite organization that Forrester synthesized from the customer interviews has the following characteristics:

- › **Composite organization overview.** The organization is a US-based eCommerce vendor with over \$20 million in annual sales. The vendor has been in business for three years and has 10 employees.
- › **Content platforms and distribution channels.** The composite partner receives an average of 4 million unique site visitors per month prior to building its AMP pages, 70% of which is mobile traffic. Ninety percent of all mobile traffic lands on an AMP page, accounting for 63% of total visits to the composite organization's site.
- › **Customer characteristics.** While most of the organization's current sales were from US-based transactions, an increasing share of its business mix was from global sales. The organization had an average conversion rate of on-site visits of 1%, average order values (AOV) of \$50, and an average operating profit margin on sales of 10%.
- › **AMP environment.** The composite organization built 30 AMP pages using six custom AMP templates.



### Key assumptions

- 4 million site visits/month
- 1% pre-AMP conversion rate
- \$50 average order value
- 10% profit margin

# Financial Analysis

## QUANTIFIED BENEFIT AND COST DATA AS APPLIED TO THE COMPOSITE

### Total Benefits

REF.	BENEFIT	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Atr	Profit growth from increased conversion rate	\$272,160	\$272,160	\$272,160	\$816,480	\$676,822
Btr	Profit growth from increased AMP site traffic	\$77,112	\$159,082	\$169,104	\$405,298	\$328,625
	Total benefits (risk-adjusted)	\$349,272	\$431,242	\$441,264	\$1,221,778	\$1,005,447

### Profit Growth From Increased Conversion Rate

In the face of growing mobile device traffic, mobile web performance was of mounting strategic importance for the composite organization. Despite dedicating significant time and resources towards building a responsive mobile experience for its customers, the organization found that its site was still bogged down by heavy JavaScript and obstructive ads, resulting in poor responsiveness, slow page load times, high bounce rates, and frequent runtime errors. These mobile experience issues materially impacted its customer's experience, increasing the likelihood of cart abandonment prior to transaction completion.

To better capitalize on the composite organization's growing mobile web segment, its leadership decided to build out and test AMP experiences for both the product landing pages and all the subsequent pages following the customer buying journey. Interviewed organizations stated an importance for using AMP deeper in the sales funnel (beyond product landing pages) to achieve the best business outcomes, with one interviewee stating: "Our users don't convert on our landing page. We try to keep the customer in the AMP site throughout the customer buying journey." If a customer starts off on a fast landing page but the next page is sluggish, the opportunity to provide a better customer experience has been ruined.

As a result of building and implementing a series of sequential AMP pages across the mobile customer journey, the composite organization was able to improve its conversion rate by 20% for customers who accessed its AMP site relative to its legacy responsive mobile web site. This increase in conversions significantly increased revenue and directly impacted the composite organization's bottom line.

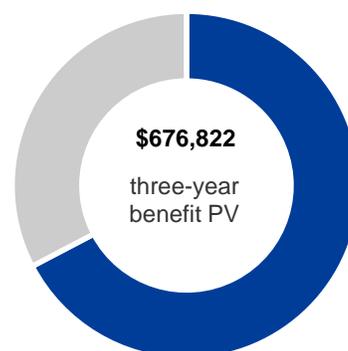
In modeling the impact of AMP in increasing the composite organization's conversion rate, revenue, and profitability, Forrester made the following assumptions:

- › The organization had 4 million unique visitors per month, with 63% of these accessing AMP mobile web pages.
- › Prior to adopting AMP, the organization had a 1% conversion rate on site visits.
- › The AOV of transactions made on the site was \$50.
- › The composite organization had an operating profit margin of 10%.

The table above shows the total of all benefits across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total benefits to be a PV of more than \$1 million.

"Our users don't convert on our landing page. We try to keep the customer in the AMP site throughout the customer buying journey."

Chief executive officer,  
eCommerce



Profit growth from increased conversion rate:  
**67% of total benefits**

Forrester realizes that conversion rate increases and the associated profit impact will vary significantly across companies, countries, and industry verticals. Specific risk considerations include:

- › Conversion rate increases will vary depending on each organization's existing mobile web maturity, product and solution portfolio, and industry.
- › Average transaction sizes and profit margins will vary significantly across companies, industries, and regions. Forrester advises potential AMP adopters to consider their current business metrics within the provided TEI model in calculating the profit impact of AMP on their own organizations.

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

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of \$676,822.

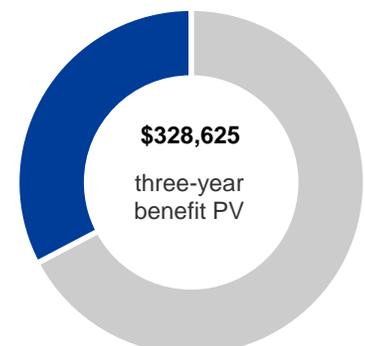
### Profit Growth From Increased Conversion Rate: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
A1	Unique visitors per month		4,000,000	4,000,000	4,000,000
A2	Percentage of visitors accessing AMP pages		63%	63%	63%
A3	Months per year		12	12	12
A4	Annual AMP page visitors	$A1 * A2 * A3$	30,240,000	30,240,000	30,240,000
A5	Conversion rate prior to AMP		1%	1%	1%
A6	Increase in conversion rate from AMP		20%	20%	20%
A7	Average transaction size		\$50	\$50	\$50
A8	Profit margin		10%	10%	10%
At	Profit growth from increased conversion rate	$A4 * (A5 * A6) * A7 * A8$	\$302,400	\$302,400	\$302,400
	Risk adjustment	↓10%			
Atr	Profit growth from increased conversion rate (risk-adjusted)		\$272,160	\$272,160	\$272,160

### Profit Growth From Increased AMP Site Traffic

In addition to improving the conversion rate that eCommerce vendors attained on their AMP mobile web visits, interviewees also revealed that they were able to significantly grow traffic to their AMP pages relative to their legacy non-AMP mobile web pages. Site traffic increases compounded the profitability impact of AMP, as end customers converted at a higher rate on eCommerce vendors' AMP sites relative to their legacy, non-AMP counterparts. Interviewees identified improved site discoverability, faster load times, and reduced bounce rates as some of the key attributes of AMP pages in contributing to the increase in site traffic reported by AMP site owners.

In calculating the impact of AMP in driving higher site traffic, along with the corresponding revenue and profitability implications, Forrester made the following assumptions for the composite organization:



Profit growth from increased AMP traffic: **33%** of total benefits

- › The organization's AMP sites realized a 5% year-over-year increase in site traffic in Year 1 of the analysis while it tested and finetuned the performance of its site. It experienced 10% year-over-year increases in AMP site traffic in years 2 and 3 of the analysis.
- › The post-AMP conversion rate of 1.2%, which represents a 20% increase from the composite organization's baseline conversion figure, is applied to net new site traffic in calculating the profit uplift associated with AMP.
- › The AOV on transactions made through the site was \$50.
- › The composite organization had an operating profit margin of 10%.
- › Year-over-year increases in site traffic compound and increase the number of unique site visitors the composite organization has each year of the analysis. Since customers may use different platforms and devices when reengaging and making subsequent visits to an eCommerce site, we made no assumptions regarding each customer's propensity to visit an AMP site specifically, as seen in row B1 below.

Our interviews revealed that AMP site owners experienced a range of site traffic increases. Furthermore, Forrester realizes that increases in site traffic can be impacted by myriad factors outside the use of AMP. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year risk-adjusted total PV of \$328,625.

#### Profit Growth From Increased AMP Site Traffic: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
B1	Baseline unique visitors per year	$B1_{PY} + B4_{PY}$	48,000,000	49,512,000	52,631,256
B2	Percentage of visitors accessing AMP pages		63%	63%	63%
B3	Increase in site traffic from AMP pages		5%	10%	10%
B4	Increase in annual AMP site visitors	$B1 * B2 * B3$	1,512,000	3,119,256	3,315,769
B5	Post-AMP conversion rate		1.2%	1.2%	1.2%
B6	Average transaction size		\$50	\$50	\$50
B7	Profit margin		10%	10%	10%
Bt	Profit growth from increased AMP site traffic	$B4 * B5 * B6 * B7$	\$90,720	\$187,155	\$198,946
	Risk adjustment	↓15%			
Btr	Profit growth from increased AMP site traffic (risk-adjusted)		\$77,112	\$159,082	\$169,104

## Flexibility

The value of flexibility is clearly unique to each website owner, and the measure of its value varies from organization to organization. There are multiple scenarios in which a content producer might choose to implement AMP and later realize additional uses and business opportunities, including:

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

› **Content producers will pair AMP landing pages with progressive web applications (PWA) to deliver highly interactive experiences without sacrificing performance.** Consumers can be resistant to downloading too many dedicated mobile applications, and as a result, organizations are turning to PWAs to deliver the rich, interactive experiences that are on par with dedicated mobile applications, such as shopping carts or subscription-only content. As one publisher shared with Forrester: “When users land on the AMP page, it actually downloads the shell for our PWA. By the time they get to the PWA page, it’s even faster than if they had come directly from Google to the PWA.” First movers identify that developing this pairing is still in its initial stages and is not yet formally documented, but they project significant benefits by leveraging the symbiotic combination of AMP’s speed with PWA’s interactivity.

“When users land on [our] AMP page, it actually downloads the shell for our PWA. By the time they get to the PWA page, it’s even faster than if they had come directly from Google to the PWA.”

*Lead product manager,  
publisher*



› **Constant development of capabilities and documentation will enable website owners to leverage AMP throughout an increasing portion of their funnel.** AMP’s open source nature combined with backing from Google has resulted in constant, speedy development of new features enabling pages rich in design and interactivity. For example, an eCommerce site may soon be able to implement AMP pages as the backbone of the core shopping cart, checkout, and payment pages. Developers can also leverage the growing availability of templates and documentation to build and release these new capabilities quickly throughout their website’s funnel.

› **Website owners see the potential eliminating their existing mobile websites, to instead leverage AMP pages for 100% of their mobile traffic.** While all interviewees for this study currently utilize paired mobile website and AMP pages for their content, several are looking forward with the goal in mind of completely dissolving their legacy mobile website in favor of the one built with AMP. They identified deeper-funnel interactivity and complete analytics integration as inhibitors for relying solely on AMP at this time; however, they expect these feature sets to mature and ultimately see significant cost savings by eliminating their mobile web pages to reduce development, hosting, and maintenance costs. Not all ad platform tracking codes are yet supported, so as one eCommerce interviewee explained, “We still need [our legacy] responsive website because AMP doesn’t support all the analytics tracking yet . . . but ultimately, we envision only having an AMP site.”

“We still need [our legacy] responsive website because AMP doesn’t support all the analytics tracking yet. . . but ultimately, we envision only having an AMP site.”

*Chief executive officer  
eCommerce*



› **Content producers aim to leverage ads built in AMP HTML on their pages in order to improve user experience and drive increased ad revenue.** More and more advertisers are creating AMP-optimized ads, which ensure that ads render with the same speed as the other page content — ultimately driving a better user experience. Interviewees felt that it’s likely that reducing loading times for advertisements would result in more traffic to their advertisers and improved KPIs, such as CPM.

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

## Total Costs

REF.	COST	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Ctr	Pilot/proof-of-concept costs	\$8,146	\$0	\$0	\$0	\$8,146	\$8,146
Dtr	Training and ramp-up costs	\$12,058	\$0	\$0	\$0	\$12,058	\$12,058
Etr	Site development and maintenance costs	\$41,990	\$3,118	\$3,212	\$3,308	\$51,629	\$49,966
Ftr	Performance testing, analysis, and reporting	\$0	\$55,000	\$56,650	\$58,350	\$170,000	\$140,657
	Total costs (risk-adjusted)	\$62,194	\$58,118	\$59,862	\$61,658	\$241,833	\$210,827

### Pilot/Proof-Of-Concept Costs

These are the internal resource costs for developer, designer, analyst, and executive oversight needed to build an AMP pilot page and conduct A/B testing for the PoC.

- › Content producers found that an initial pilot was an effective way to trial AMP. One interviewee recommended to “build a proof of concept in two days for one of your page types; spend another day to make it look, feel, and interact similarly to the legacy experience; and then spend time on the harder decisions — like if, when, and how to deploy. Don't belabor [building AMP Pages] and stall your work.”
- › Interviewees identified that developers found the process to build an AMP page to be faster than building a comparable mobile website page, due to its simplicity and the reduced usage of JavaScript.
- › The AMP Project also now makes prebuilt templates available across a variety of page types, which can enable a developer to mock up a page in only hours rather than days.

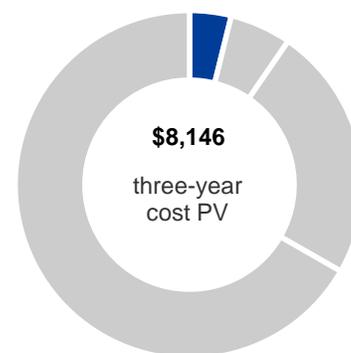
The composite organization piloted AMP pages by building an initial proof of concept, involving a cross functional team of a developer, a designer, an analyst, and an executive team member.

- › Forrester projected that the composite organization was able to build the initial proof of concept over one week, with a web developer and data analyst devoting their entire effort to the project while a designer and executive team member each devoted approximately half of their effort. This should be seen as a very conservative estimation of the required labor, as companies could likely build their proof-of-concept much faster — in only one or two days — by utilizing the extensive templates, samples, and documentation available online for AMP.
- › Forrester utilized the fully loaded salary for each of these positions with a 25% burden rate to calculate the overall costs.

Forrester recognizes that organizations may have differing architectural or design requirements that may affect the expense of creating a pilot. However, with the context that AMP is very easy to learn for an HTML developer and the understanding that a proof of concept should not be belabored nor made overly complex, this risk was deemed to be minimal.

To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year risk-adjusted total PV of \$8,146.

The table above shows the total of all costs across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total costs to be a PV of more than \$210,000.



**Pilot/PoC:**  
4% of total costs

“Don't belabor [building AMP Pages] and stall your work.”

*Chief executive officer,  
eCommerce*



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.

## Pilot/Proof-Of-Concept Costs: Calculation Table

REF.	METRIC	CALC.	INITIAL
C1	Senior web developer hours to build out pilot/proof of concept		40
C2	Data analyst hours for pilot/PoC phase		40
C3	Designer hours for pilot/PoC phase		20
C4	Executive team member hours for oversight and approval		25
C5	Senior developer fully loaded hourly rate	25% burden rate	\$68.51
C6	Data analyst fully loaded hourly rate	25% burden rate	\$48.08
C7	Designer fully loaded hourly rate	25% burden rate	\$42.07
C8	Executive fully loaded hourly rate	25% burden rate	\$90.14
Ct	Pilot/proof-of-concept costs	$(C1 \times C5) + (C2 \times C6) + (C3 \times C7) + (C4 \times C8)$	\$7,758
	Risk adjustment	↑5%	
Ctr	Pilot/proof-of-concept costs (risk-adjusted)		\$8,146

## Training And Ramp-Up Costs

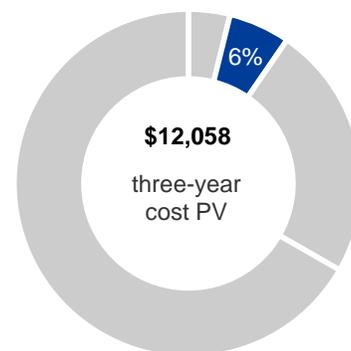
This category accounts for the resource costs for internal training of developers to fully utilize AMP's features and style.

AMP is based off standard HTML code, and interviewees noted that it is very simple to learn for a front-end developer with existing HTML and CSS knowledge. Extensive documentation is available through the AMP Project, github, and a variety of sources for a developer to quickly learn the necessary elements and rules. This documentation and related templates are free and open source for anyone to access.

Forrester's model assumes that four developers each take one week to train and ramp up on AMP at a fully loaded amortized salary of \$69 per hour.

Some organizations may face more difficult challenges due to their systems, ad partners, or interactivity needs and consequently may need to stretch AMP further than others. The interviewees for this study noted that there are some features that can be implemented in AMP and learning to implement those technologies may take more training. Over time, these features are becoming a core part of AMP, but websites that wish to push the envelope may face additional costs to be on the bleeding edge.

To account for this risk, Forrester adjusted this cost upward by 10%, yielding a three-year risk-adjusted total PV of \$12,058.



Training and  
ramp-up costs:  
6% of total costs

## Training And Ramp-Up Costs: Calculation Table

REF.	METRIC	CALC.	INITIAL
D1	Training hours and ramp-up time per developer		40
D2	Number of senior web developers trained on AMP		4
D3	Senior developer fully loaded hourly rate	25% burden rate	\$68.51
Dt	Training and ramp-up costs	$D1 * D2 * D3$	\$10,962
	Risk adjustment	↑10%	
Dtr	Training and ramp-up costs (risk-adjusted)		\$12,058

## Site Development And Maintenance Costs

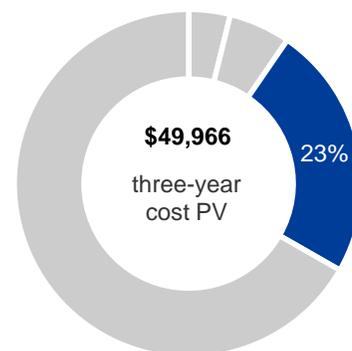
This category accounts for the resource costs to develop the AMP pages, implement them within the CMS, and maintain them for the long term.

To implement AMP across an entire website, the organization needs to develop AMP page templates within its CMS. As they populate new pages of content, such as dynamic product listings and news articles, the CMS system automatically generates a AMP page of that content. This organization has chosen to generate “paired” AMP pages alongside the desktop and legacy mobile website versions, though it plans to eventually dissolve its legacy mobile website templates in favor of AMP. Interviewees identified several key elements to the process:

- › It was key to involve a cross-functional team of developers, designers, ad-tech specialists, data analysts, and leadership during the development process. It was essential that these experts worked together to build AMP pages to avoid sacrificing design goals, analytics tracking, or advertisement placement.
- › Ultimately, Forrester’s interviewees were very happy with their ability to create AMP pages that mirrored the design goals of their mobile and desktop versions. The lead product manager at a major publisher noted: “I wouldn’t say there were any major design sacrifices. We were able to get our [legacy and AMP pages] very close in design . . . and as AMP has evolved, it can support even more of the content that we create.” The chief executive officer at an eCommerce business shared the sentiment, noting that: “Our AMP pages look almost identical to our mobile responsive pages. . . . And with the new changes to AMP, it’s becoming almost turnkey to build them.”

This model includes the initial effort of four senior web developers, one designer, and one executive to build out the AMP page templates for the organization over a three-week period, with the developers devoting 100% of their time and the designer and executive devoting one-third of their time to the project. After initial launch, occasional updates were made to keep the website up to date with new AMP features and adjust to new integration, content, or design needs that arose over time.

Forrester’s analysis did identify some risks, however: interviewees noted that it could be challenging to effectively leverage AMP when pursuing features beyond the official specifications, such as for deeper-funnel interactivity or certain ad-tech integrations. As one interviewee noted: “Building [AMP pages] is the easiest part. Learning how to leverage AMP



### Site development and maintenance: 23% of total costs

“We were able to get our [legacy and AMP pages] very close in design . . . and as AMP has evolved, it can support even more of the content that we create.”

*Lead product manager, publisher*



“Our AMP pages look almost identical to our mobile pages. . . . And with the new changes to AMP, it’s becoming almost turnkey to build them.”

*Chief executive officer, eCommerce*



effectively is where the real effort lies.” However, AMP is progressing quickly, and the interviewees noted that most of the challenges they faced were due to early adoption — new documentation, templates, and features that have been added to AMP during the past six months have drastically reduced these challenges.

To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year risk-adjusted total PV of \$49,966.

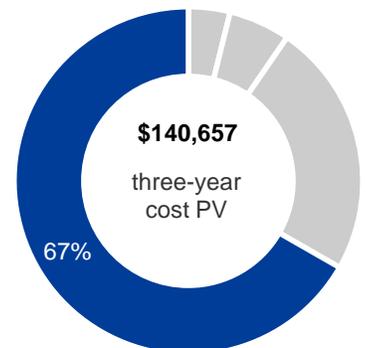
Site Development And Maintenance Costs: Calculation Table						
REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
E1	Number of senior web developers to build and maintain AMP portfolio		4	1	1	1
E2	Senior developer hours to build out AMP portfolio		120			
E3	Senior developer hours spent on ongoing AMP page maintenance and augmentations			30	30	30
E4	Designer hours spent on building AMP portfolio and augmentations		40	8	8	8
E5	Executive team member hours for oversight and approval		40	4	4	4
E6	Sr. developer fully loaded hourly rate	3% annual increase	\$68.51	\$70.57	\$72.68	\$74.86
E7	Designer fully loaded hourly rate	3% annual increase	\$42.07	\$43.33	\$44.63	\$45.97
E8	Executive fully loaded hourly rate	3% annual increase	\$90.14	\$92.84	\$95.63	\$98.50
Et	Site development and maintenance costs	$(E1*(E2+E3)*E6)+(E4*E7)+(E5*E8)$	\$38,173	\$2,835	\$2,920	\$3,008
	Risk adjustment	↑10%				
Etr	Site development and maintenance costs (risk-adjusted)		\$41,990	\$3,118	\$3,212	\$3,308

## Performance Testing, Analysis, And Reporting

Page performance is essential to both publishers and eCommerce in their pursuit of increased revenue. While AMP is uniquely skilled at improving page speed and user experience, it is essential that organizations invest in careful testing and analysis of other KPIs on their AMP pages, such as conversion rates and advertisement CPM.

Careful analysis was needed, as one customer identified, because AMP performance is not apples to apples with their normal web page. For example, “we’re getting more visits [due to our placement in Google’s AMP carousel], but the pages per session is not higher because it’s really easy to [swipe to different articles on the same topic] from a user perspective.” They found that render time was significantly better, and so even in cases where bounce rate was not lower, their analysis identified that this had a positive impact on their user’s time spent actually reading their articles and on their search engine optimization (SEO).

The model organization devoted 50% of one data analyst’s time to the ongoing monitoring and improvement of its AMP pages. However, it



Performance testing, analysis, and reporting: **67%** of total costs

could take more or less effort than expected to integrate and measure the performance differences between AMP, the mobile web, and desktop versions potentially resulting in increased resource cost.

To account for this risk, Forrester adjusted this cost upward by 10%, yielding a three-year risk-adjusted total PV of \$140,657.

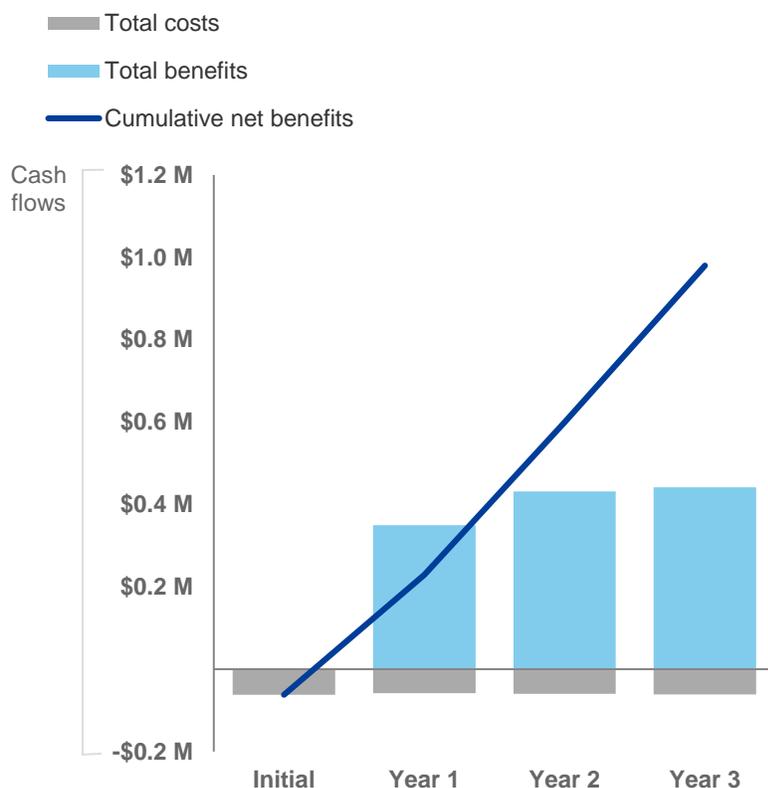
**Performance Testing, Analysis, And Reporting: Calculation Table**

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
F1	Ongoing data analyst resource for A/B testing and AMP page analytics			0.50	0.50	0.50
F2	Data analyst fully loaded annual salary			\$100,000	\$103,000	\$106,090
Ft	Performance testing, analysis, and reporting	F1*F2		\$50,000	\$51,500	\$53,045
	Risk adjustment	↑10%				
Ftr	Performance testing, analysis, and reporting (risk-adjusted)		\$0	\$55,000	\$56,650	\$58,350

# 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 Table (Risk-Adjusted)

	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Total costs	(\$62,194)	(\$58,118)	(\$59,862)	(\$61,658)	(\$241,833)	(\$210,827)
Total benefits	\$0	\$349,272	\$431,242	\$441,264	\$1,221,778	\$1,005,447
Net benefits	(\$62,194)	\$291,154	\$371,380	\$379,606	\$979,945	\$794,620
ROI						377%
Payback period						<6 months

# AMP: Overview

The following information is provided by Google. Forrester has not validated any claims and does not endorse AMP, Google, or any of Google's offerings.

## Higher performance and engagement

Web pages and ads built with the open source AMP library load near instantly, giving users a smooth, engaging experience across devices.

## A collaborative effort

AMP is built thanks to a deep collaboration with thousands of developers, publishers and websites, distribution platforms, and tech companies. More than 4 billion AMP pages have been published to date and 100+ leading analytics, ad tech, and CMS providers support the AMP format.

## Flexibility and results

AMP provides flexibility for websites across many verticals, letting them decide how to present their content and what technology vendors to use, all while maintaining and improving key performance indicators.

For more information about the AMP Project and to learn how to get started with AMP, visit [ampproject.org](http://ampproject.org) or follow @amphtml on Twitter.

The AMP Project is an open source initiative aiming to make the web better for all. The project enables the creation of websites and ads that are consistently fast, beautiful, and high-performing across devices and distribution platforms.

# 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.