

A Forrester Total Economic Impact™
Study Commissioned By MuleSoft
August 2019

The Total Economic Impact™ Of MuleSoft's Anypoint Platform

Cost Savings And Business Benefits
Enabled By Anypoint Platform

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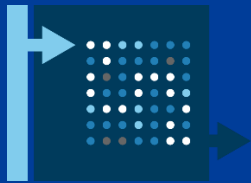
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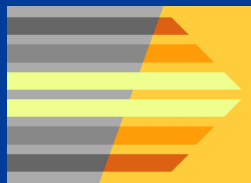
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Benefits And Costs



Increase in API reuse value through Anypoint Platform:
\$4,252,033



Incremental revenue from contributions to projects:
\$740,195



Anypoint Platform license and support costs:
\$1,428,740

Executive Summary

Businesses are working nonstop to keep up with the digital transformation of day-to-day tasks. Whether it's the automation of business processes, increased mobile app functionality, or offline activities moving to digital, APIs provide an underlying foundation of application connectivity and business agility for addressing the need for constant change.

Effective API development and integration practices are critical for accelerating the delivery speed of new applications and digital transformation projects. Development teams often lose time by recreating business logic for applications or integrations that had already been created for previous projects. Similarly, trying to implement APIs without an API management solution, that's providing full visibility and access to an organization's existing APIs, can result in lost time. To gain cross-project leverage from API development, organizations will benefit from upgrading their infrastructure and processes with full API lifecycle management that promotes effective reuse in a marketplace for APIs.

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

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed several customers with years of experience using Anypoint Platform.

Prior to using Anypoint Platform, the interviewees' organizations were either just beginning to build APIs in-house or seeking to enhance and scale their API development and deliver more integration solutions. The interviewees considered several API management platforms that either improved API development and management or had integration technology to build APIs, however, Anypoint Platform was their chosen platform to effectively address both needs.

Since ramping up usage of Anypoint Platform at their organization, interviewees were able to produce more API-led high-value projects through increased reuse of APIs and delivery of a higher number of integration solutions. One interviewee explained, "Anypoint Platform is better for building APIs because many of our APIs will be built with integration technology, and the solution has both API management — including API design — and integration technology."

Based on four customer interviews, Forrester created a composite organization to illustrate the benefits and costs associated with an investment in MuleSoft's Anypoint Platform.

Key Findings

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



ROI
445%



Benefits PV
\$7.8 million



Costs PV
\$1.4 million



NPV
\$6.4 million

- › **The number of projects worked on quadrupled over three years.** Interviewed application solution managers said that Anypoint Platform helped to shift mindsets around API creation and integrations at their organization. Coding can significantly vary in complexity based on the ask of the API, with some code often being used for one project alone. Because Anypoint Platform allows developers to quickly plug in and reuse APIs for projects, developers began writing more code with the intention for reuse. The change in API usage created a time savings for developers to dedicate toward working on more projects within a given year.
- › **Anypoint Platform helped in providing an API-led foundation for projects worth millions of dollars.** Since adopting Anypoint Platform, organizations focused more of their project planning around API creation. Both internal and external projects made use of APIs created on the platform, leading to modernized organizational processes and growth opportunities for businesses.
- › **The reuse rate of organizations' APIs reached 75%.** Alongside an increased number of APIs built, the total reuse for APIs grew as well. Developers began identifying more opportunities for API-based integration and how API designs could be simplified for further reuse. As a result, some APIs were reused frequently and even others that would go unused for a year or more were eventually reused later for other projects.
- › **Organizations improved development speed toward creating new APIs by 20%.** A combination of fewer solutions needed for API production, alongside a user-friendly interface and a variety of creation tools, helped organizations to save time when building new APIs.
- › **Developers were able to cut 90% of the time they previously spent maintaining APIs and integrations.** Interviewees relayed that since they had to conduct fewer integrations on a per project basis, they didn't have to allocate as much time to maintaining integrations. Anypoint Platform's single pane view of all APIs and integrations and greater visibility over policy management helped to provide additional maintenance-related time savings.
- › **Fewer technologies needed for API building, reuse, and integrations.** Interviewees were able to retire primarily integration tools that had a limited set of functions since Anypoint Platform provided developers with collaborative tools to design, build, validate, and operate APIs and integrations. Both internal and external API users were enabled to oversee and engage on each phase of the software development lifecycle (SDLC).

Unquantified benefits. The interviewed organizations experienced the following benefits, which are not quantified for this study:

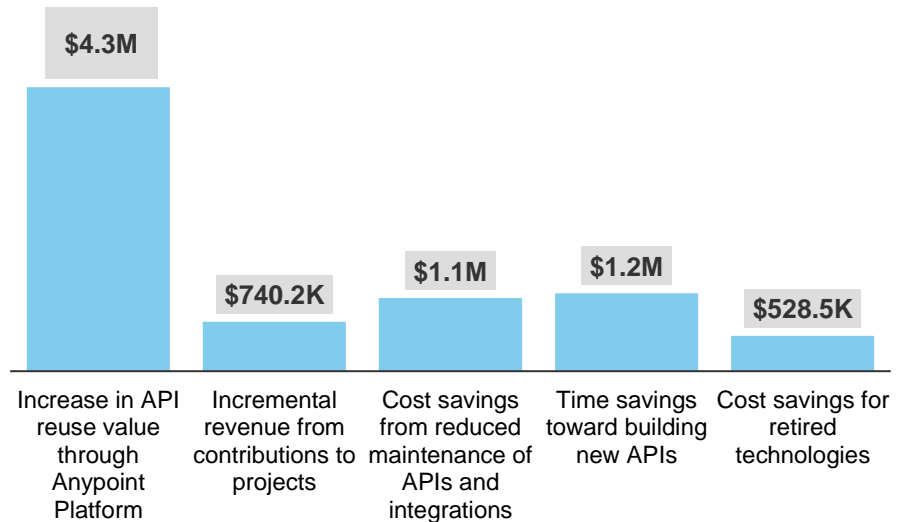
- › **Potential for improved project velocity.** For some application and integration projects, velocity increased due to reduced time spent writing code. However, all projects weren't delivered faster, even though the APIs and integrations were built quickly it did not mean that they were immediately used as the wait for other project pieces could delay delivery.

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

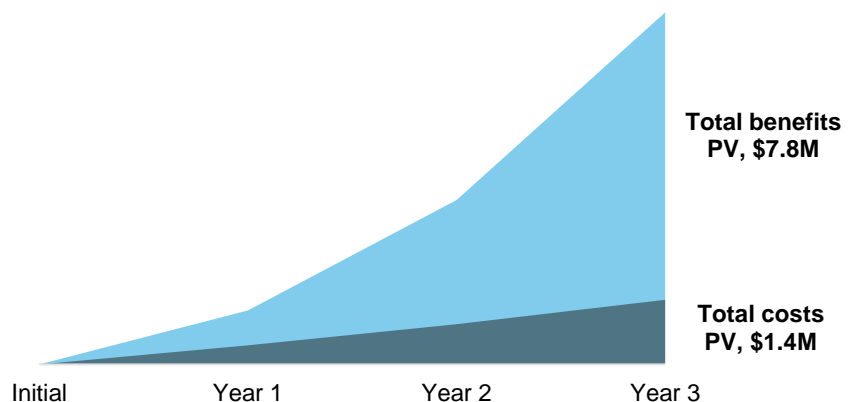
- › **License and support costs for Anypoint Platform.** Pricing for Anypoint Platform license is based on the number of cores on which the platform will run, alongside a base subscription and API manager and analytics costs. The price scales annually based on increased subscription costs. For the composite organization, running Anypoint Platform on three 10-core servers incurred costs of \$287,600 in Year 1, \$420,600 in Year 2, and \$651,700 in Year 3. One developer also dedicates 50% of its time to managing Anypoint Platform.

Forrester's interviews with four existing customers and subsequent financial analysis found that an organization based on these interviewed organizations experienced benefits of \$7,783,171 over three years versus costs of \$1,428,740, adding up to a net present value (NPV) of \$6,354,431 and an ROI of 445%.

Benefits (Three-Year)



Financial Summary



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

TEI Framework And Methodology

From the information provided in the interviews, Forrester has constructed a Total Economic Impact™ (TEI) framework for those organizations considering implementing MuleSoft's Anypoint Platform.

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 Anypoint Platform can have on an organization:



DUE DILIGENCE

Interviewed MuleSoft stakeholders and Forrester analysts to gather data relative to Anypoint Platform.



CUSTOMER INTERVIEWS

Interviewed four organizations using Anypoint Platform 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 Anypoint Platform'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 MuleSoft 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 MuleSoft's Anypoint Platform.

MuleSoft 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.

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

The Anypoint Platform Customer Journey

BEFORE AND AFTER THE ANYPOINT PLATFORM INVESTMENT

Interviewed Organizations

For this study, Forrester conducted four interviews with Anypoint Platform customers. Interviewed customers include the following:

INDUSTRY	REGION	INTERVIEWEE	API DEVELOPMENT TEAM SIZE
Financial services	Headquartered in North America	VP, director of architecture and strategy	15 (excluding contractors)
Insurance	Headquartered in North America	Corporate VP	13
Healthcare	Headquartered in North America, global presence	Director, enterprise application integration services	25
CPG	Headquartered in North America, global presence	Director, IT global operational business solutions	6

Key Challenges

Interviewees identified key challenges that they hoped MuleSoft's Anypoint Platform would resolve.

- › **API creation was scattered across multiple platforms and storage solutions.** The VP, director of architecture and strategy at a financial services company said, "With our previous solution, we didn't really have a unified strategy between running cloud and on-premises storage solutions for our APIs. We needed a solution that could be in a private or public cloud, on-premises, or any in between, and you have visibility to manage all our APIs."

According to the director of enterprise application integration services at a healthcare company, "We made note of the challenge of managing multiple integration technologies. To reduce this dynamic, when we started looking at API management solutions, we decided to focus on vendors that could provide both API management and integration in one product."

- › **API and integration code did not lend itself to reuse.** "We used multiple technologies to create APIs. Each of them served different purposes to projects, including on the management integrational side," said the corporate VP of an insurance company. "Between all of these platforms, the way the APIs were created were mostly project- or product-specific, leaving the APIs nearly unusable for later projects."

The director of IT global operational business solutions at a CPG company said, "We looked at it in terms of a growing area of needs for real-time integration and how we could position ourselves to address that. The amount of time it took to write APIs was already taking a lot of development time."

"Our previous solutions siloed APIs from each other, which limited reuse or integrations between projects. We needed a platform to help us with making API usage more customizable."

VP, director of architecture and strategy at a financial services company



Key Results

The interviews revealed that key results from the Anypoint Platform investment include:

- › **Realization of projects that had previously stalled or were difficult to stand up.** Anypoint Platform's full API lifecycle management and integration capabilities helped organizations to push forward projects with reusable APIs and integrations where development was lagging. The director of enterprise application integration services at a healthcare company said, "When we're dealing with external partners, we don't necessarily have the same methodologies or tooling, which can lead to more work when conducting integrations. With Anypoint Platform, for an early project we were able to provide an integration of a source system that uses APIs to supply data to internal and external users. So now, instead of taking a traditional one-off approach for integrations, we were able to design architecture to support scalable sources of data for sharing."
- › **Comprehensive visibility into the organizations' APIs.** Since adopting Anypoint Platform, developers were able to locate and use APIs for projects at a faster pace. The VP, director of architecture and strategy at a financial services company explained, "Everything became kind of ubiquitous when we switched to Anypoint Platform. It didn't matter where you are running the workload or whether it was in the cloud or on-premises. It grouped everything in one location so you can find an API and then use it."
- › **Improved API reuse across projects.** Businesses saw an increase in API reuse, helped by improved visibility and Anypoint Platform's monitoring of API performance. "We've been very successful in increasing our API reuse. We've been planning to connect and tie together internal and external systems. With Anypoint Platform, we've been able to manage and capture analytics on API performance, encouraging API reuse among developers across projects," said the director of enterprise application integration services at a healthcare company.
- › **Reduced time spent on creation and maintenance of APIs and integrations.** Organizations are spending less development time on APIs because of Anypoint Platform driving a shift in mindset on API creation. The director of IT global operational business solutions at a CPG company said, "For every case we now take the approach to think beyond the needs of that project. We consider what other projects would benefit from the data that's gathered and how can we expose that data through APIs so we don't have to rewrite it again."
- › **Fewer integration technologies needed.** The corporate VP at an insurance company said, "We wanted to decommission old legacy systems and use systems that fit into our business modernization plan. Anypoint Platform's ability to scale integrations enabled us to retire old platforms that couldn't measure up in functionality."

"The level of integration and scalability that Anypoint Platform has in terms of creating the APIs and managing them is helping to modernize and accelerate our app development."

Corporate VP, insurance



"Anypoint Platform's assistance with reuse saves us from having to reinvent the wheel or dedicate labor to development. It allows more self-service use of APIs to take advantage of what's available."

Director of IT global operational business solutions, CPG



Composite Organization

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

organization that Forrester synthesized from the customer interviews has the following characteristics:

Description of composite. The composite organization is a global insurance company with annual revenues totaling \$10 billion. The organization has 10,000 employees, of which 15 developers will use MuleSoft's Anypoint Platform for building and managing APIs and integration, and one will be tasked with the maintenance of APIs on the platform. The organization will run the application across 10 cores on three servers. API production at the company has been limited thus far, however, they want to scale development. The organization planned to deploy Anypoint Platform for the following key use cases:

- A digitized, omnichannel front-end experience for end users.
- A single source for data and scalable, automated business capabilities through API-led connectivity across internal systems.

Deployment characteristics. The organization planned to ramp up usage of Anypoint Platform over the course of its first three years using a hybrid storage infrastructure. In Year 1, the business will work on four different projects and increase the number to eight in Year 2 and 16 in Year 3. The business will be able to increase its workload as they conduct fewer integrations per project while reusing more APIs, code fragments, connectors, and templates. Developers plan to build an equally distributed mix of APIs with high, medium, and low complexity code.



Key assumptions:

- 15 developers using Anypoint Platform
- 30 new APIs per project in Year 1
- Equal mix of low, medium, and high complexity code

Analysis Of Benefits

QUANTIFIED BENEFIT DATA AS APPLIED TO THE COMPOSITE

Total Benefits

REF.	BENEFIT	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Atr	Increase in API reuse value through Anypoint Platform	\$508,939	\$1,547,381	\$3,341,520	\$5,397,840	\$4,252,033
Btr	Incremental revenue from contributions to projects	\$120,000	\$240,000	\$576,000	\$936,000	\$740,195
Ctr	Cost savings from reduced maintenance of APIs and integrations	\$165,240	\$440,640	\$771,120	\$1,377,000	\$1,093,737
Dtr	Time savings toward building new APIs	\$308,448	\$514,080	\$616,896	\$1,439,424	\$1,168,750
Etr	Cost savings for retired technologies	\$212,500	\$212,500	\$212,500	\$637,500	\$528,456
Total benefits (risk-adjusted)		\$1,315,127	\$2,954,601	\$5,518,036	\$9,787,764	\$7,783,171

Increase In API Reuse Value Through Anypoint Platform

Interviewed customers sought out Anypoint Platform to improve their reuse rate of APIs. Key goals for their API reuse included assisting in creating new revenue channels, increasing operational efficiency, and refining customer experiences. Previously, APIs were primarily produced exclusively for individual projects that required them. Either the developers' prior API tooling did not streamline the process for API reuse and integrations, or developers didn't bother to create APIs with the forethought for repurposing.

Through Anypoint Platform, customers are writing API code and applying it to projects throughout the same platform, encouraging the reuse of APIs. Interviewees stated that they now consider which API code will be written specifically for certain projects and which API code has potential for reuse in other projects. "Now we can build APIs and more easily supply them to projects where they can be used. Whereas we previously had to consider what APIs were needed for projects, APIs now exist on a more on-demand basis for reuse," said the director, enterprise application integration services at a healthcare company.

The benefit of API reuse is that you can quickly generate value for a business depending on its use case. A director of IT global operational business solutions at a CPG organization said, "We recently did something very simple where we had to write data into our big data lake. Whereas we'd previously write it each time for 27 plants, we've been able to write it once and keep using it. For us, that one API would cost about \$17,000 to create on average. Remove that cost across the 27 plants and you start to see the savings."

For the composite organization, Forrester assumes the following:

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 nearly \$7.8 million.



As organizations created more APIs that were applicable to different projects, the reuse rate of APIs quickly scaled.

- › Due to the growing reliance on API reuse from earlier years, the number of new APIs built per project decreases from 30 in Year 1, to 25 in Year 2, and 15 in Year 3.
- › The number of projects increases from four in Year 1, to eight in Year 2, and 16 in Year 3. Developers at the organization become more efficient reusing APIs, code fragments, and other existing templates, creating time savings to carve out time to work on an increasing number of projects. In addition, the organization becomes more reliant on Anypoint Platform for all of their API development and management, following the decommissioning of other integration platforms and tools.
- › The percentage of total reuse of APIs rises from 33% in Year 1, to 50% in Year 2, and 75% in Year 3. The rate of reuse increases through the years as the developers identify more opportunities to reuse code or help conduct integrations, while taking advantage of their growing inventory of APIs. The percentage accounts for APIs that are reused more than once, a key driver of growth.

The percentage also accounts for all APIs created for each project as potentially reusable, however, some are kept private for given teams and are not available to be shared. Meanwhile, not every API created will be reused upon initial creation, but they can be shared for later usage.

- › The average time spent creating each API took approximately 168 hours.
- › The fully burdened cost (including all benefits and taxes) for developers is \$90 per hour.

The following risks can affect the estimated API reuse value:

- › The benefit will vary for enterprises based on different integration scenarios and needs for APIs. These differences can alter the assumptions and parameters in the analysis.

To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of \$4,252,033.



**In Year 1, 120 APIs are available for reuse.
By Year 3, 560 APIs are available.**

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.

Incremental Revenue From Contributions To Projects: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
A1	Number of new APIs built per project	Interviews	30	25	15
A2	Number of projects	Interviews	4	8	16
A3	Total number of APIs available for reuse	A1*A2+ previous year	120	320	560
A4	Percentage of reuses of APIs per year	Interviews	33%	50%	75%
A5	Time spent creating each API (hours)	Assumption	168	168	168
A6	Developer fully loaded hourly compensation		\$90	\$90	\$90
At	Increase in API reuse value through Anypoint Platform	Year 1: A3*A4*A5*A6 Year 2: Succeeding year (A3*A4)- prior year (A3-A4)*A5*A6	\$598,752	\$1,820,448	\$3,931,200
	Risk adjustment	↓15%			
Atr	Increase in API reuse value through Anypoint Platform (risk-adjusted)		\$508,939	\$1,547,381	\$3,341,520

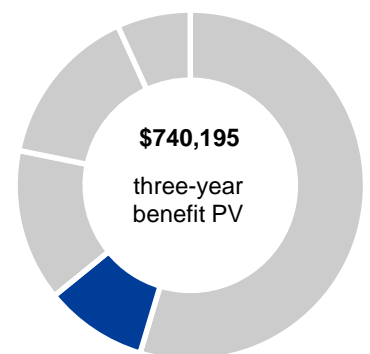
Incremental Revenue From Contributions To Projects

Anypoint Platform helped the organizations to create projects they had struggled to get off the ground. “One of our core APIs for our security master, we had planned to stand up two-plus years ago. The security masters contained tables of data that were passed around from team to team, and that required a lot of time,” said the VP, director of architecture and strategy at a financial services company. “Once we got Anypoint Platform we were able to stand it up in three months, and that was a huge win to deliver on that complexity and performance so quickly.”

According to the director of IT global operational business solutions at a CPG company, the APIs contributed to projects which varied in goals. “Internal uses of Anypoint Platform were more geared toward transactional, business continuity processes and keeping different teams aligned in capabilities. Whereas external uses are more focused on our growth strategy and opening our applications to engage with technologies. So the value for our internal use cases are a little more defined than external use cases.”

Examples of Anypoint Platform helping to create APIs to expedite time-consuming operations were common among the interviewees. However, gauging Anypoint Platform’s contributions to the final product wasn’t always simple. “APIs play a very strong role in getting us to the finish line on applications and products, but we can’t attribute all of that success to APIs as there are a lot of pieces to the puzzle,” said the Corporate VP of an insurance company. They continued, “It’s clear that Anypoint Platform is important to operations, but we have to generalize the scale of Anypoint Platform’s contributions to projects.”

Meanwhile, the IT director at the CPG company noted, “Our mission



from contributions to projects: **9%** of total benefits

critical processes run through other platforms. Anypoint Platform is fairly new for us, but it is gaining importance the more we use it.”

The financial services company created their own workaround for attributing success to Anypoint Platform: “Data is important to our organization and teams are always harboring to get access to it. So we started gauging our success by the number of data concepts enabled by APIs, and then associated value with access to those data sets. These created numbers for us to prove the platform’s value.”

For the composite organization, Forrester assumes that:

- › The value of projects using APIs and integrations through Anypoint Platform increases as the volume of projects increase, raising the total value from \$2,000,000 in Year 1, to \$8,000,000 in Year 3.
- › Amongst the various solutions used for projects, the organization attributes 25% of the total value to Anypoint Platform.
- › Its operating margin is 30%.

Incremental profit from integration initiatives will vary based on:

- › The organization’s dedication to leveraging Anypoint Platform for projects.
- › The business value and financial outcome of each project.
- › The operating margin will vary by industry.

To account for these risks, Forrester adjusted this benefit downward by 20%, yielding a three-year, risk-adjusted total PV of \$740,195.



Anypoint Platform’s value toward project completion is driven by the importance of APIs and integrations in the project.

Incremental Revenue From Contributions To Projects: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
B1	Value of projects worked on	Assumption	\$2,000,000	\$4,000,000	\$8,000,000
B2	Contribution of Anypoint Platform toward project value	Interviews	25%	25%	30%
B3	Operating margin		30%	30%	30%
Bt	Incremental revenue from contributions to projects	$B1*B2*B3$	\$150,000	\$300,000	\$720,000
	Risk adjustment	↓20%			
Btr	Incremental revenue from contributions to projects (risk-adjusted)		\$120,000	\$240,000	\$576,000

Cost Savings From Reduced Maintenance Of APIs And Integrations

Businesses using Anypoint Platform have been able to reduce maintenance efforts toward APIs and integrations since adopting the platform. Previously, developers had to conduct several integrations with APIs to make their applications. With Anypoint Platform, and its ability to achieve more effective API reuse, developers reduced the number of integrations created per project. As a result, developers had fewer integrations to maintain and were able to save time on maintenance. Interviewees spoke to the benefits they saw from the reduced maintenance of APIs they’ve witnessed since adoption of Anypoint Platform:

- › “I think what puts Anypoint Platform at the top is that it has API development features built on an integration platform, so it’s not just pure API management,” said the VP, director of architecture & strategy at a financial services business. “We build a lot of applications to meet client needs and it helps that we can build APIs and conduct integrations in a scalable way, but we don’t have to rewrite customized code or take more development hours because of its ease of integration.”
- › According to the corporate VP at an insurance company, “We have developed several APIs to address a particular need that was coming from a business line. Our architecture team discussed the solution across all business lines and it was realized that that exact same need existed in all of the other business lines, it just hadn’t been prioritized yet. This resulted in one team creating an API and three other business lines being able to leverage that API for usage.”

Developers also benefited from Anypoint Platform’s single pane view of all APIs and integrations and the greater visibility it provided over policy management, while also alerting developers to potential application errors related to code. With the platform, developers can identify any integration issues with an API used across projects and quickly prevent application downtime. The director of enterprise application integration services at a healthcare company explained, “Our ability to proactively monitor APIs reused across projects with Anypoint Platform’s alerting capabilities has led to a 30% reduction in issues related to integrations and API usage. That’s significant for us as we have a relatively small team and we need to stay efficient.”

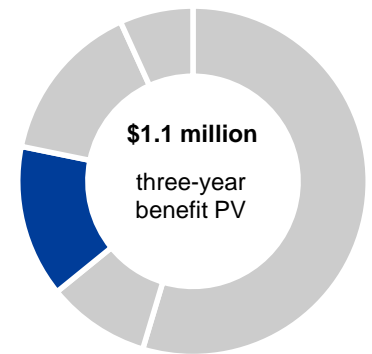
For the composite organization, Forrester assumes that:

- › The number of APIs and integrations for maintenance will increase from 40 in Year 1, to 160 in Year 2, and then 420 in Year 3. The growth will be driven by an increasing number of projects that required integrations.
- › The average time spent maintaining each API integration per year totaled 20 hours.
- › Developers save on average 90% of the time they would have spent on the maintenance of APIs and integrations, in large part because those who reuse an API do not need to maintain it. Alongside there being fewer integrations per project to maintain, Anypoint Platform’s features for monitoring integrations and policies helped to contribute to time savings.
- › The fully burdened cost (including all benefits and taxes) for developers is \$90 per hour.

The following risks can affect this benefit estimate:

- › The size of the benefit will vary based on businesses’ anticipated scale of integrations and their efficiency realized with current integration platforms and tools.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$1,093,737.



Cost savings from reduced maintenance of APIs and integrations: 14% of total benefits



Developers reduced time spent maintaining APIs and integrations by 90%.

Cost Savings From Reduced Maintenance Of APIs And Integrations: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
C1	Number of APIs and integrations to maintain	A3	120	320	560
C2	Time spent maintaining API integrations per year (hours)	Assumption	20	20	20
C3	Reduction in effort toward maintaining API integrations	Interviews	90%	90%	90%
C4	Developer fully loaded hourly compensation		\$90	\$90	\$90
Ct	Cost savings from reduced maintenance of APIs and integrations	$C1 \times C2 \times C3 \times C4$	\$194,400	\$518,400	\$907,200
	Risk adjustment	↓15%			
Ctr	Cost savings from reduced maintenance of APIs and integrations (risk-adjusted)		\$165,240	\$440,640	\$771,120

Time Savings Toward Building New APIs

In addition to helping developers save development time through the reuse of APIs and integrations, Anypoint Platform assisted in saving time toward the creation of new APIs and integrations. The director of enterprise application integration services at a healthcare company said, “We’ve been able to reduce the number of technologies we use for API management and implementation. There are also more capabilities provided in Anypoint Platform that we didn’t have to custom build, which is all helping us to build new APIs faster.”

The ability to reuse APIs and integrations also enabled developers to be more forward-thinking when planning to build new APIs and save time as a result. The VP, director of architecture and strategy at a financial services company noted, “The one telling sign is the change from some teams being resistant to using APIs, to now they see use of APIs and where they can be worked in. Right now our biggest challenge is the demand for building APIs is outstripping our capacities for building them.”

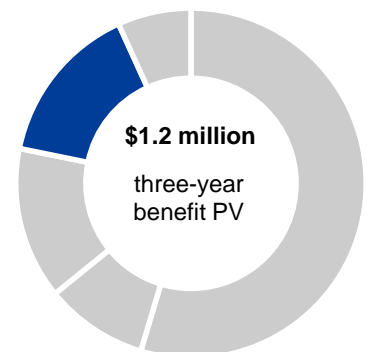
For the composite organization, Forrester assumes that:

- › The number of new APIs created by the organization will climb from 120 in Year 1 to 240 in Year 3.
- › The average time spent creating each API took approximately 168 hours. Since adopting Anypoint Platform, development speed toward building APIs improved by 20%.
- › The fully burdened cost (including all benefits and taxes) for developers is \$90 per hour.

The following risks can affect this benefit estimate:

- › Previous solutions were already contributing to API creation time savings.
- › The average complexity of the APIs built can influence time spent in development.

To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of \$1,168,750.



Time savings toward building new APIs: 15% of total benefits

Time Savings Toward Building New APIs: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
D1	Number of new APIs	A1*A2	120	200	240
D2	Time spent creating each API	A5	168	168	168
D3	Increased development speed toward building per API	Interviews	20%	20%	20%
D4	Developer fully loaded hourly compensation	Assumption	\$90	\$90	\$90
Dt	Time savings toward building new APIs	D1*D2*D3*D4	\$362,880	\$604,800	\$725,760
	Risk adjustment	↓ 15%			
Dtr	Time savings toward building new APIs (risk-adjusted)		\$308,448	\$514,080	\$616,896

Cost Savings For Retired Technologies

Interviewed organizations were able to consolidate the number of integration technologies and applications used once they deployed Anypoint Platform. Several of the interviewees had been using multiple integration technologies to build APIs and conduct integrations, but Anypoint Platform's ability to conduct an increased number of integrations on its platform removed the need for these other tools. Interviewees were also able to shift some of their processes from on-premises servers to a cloud infrastructure, eliminating costs for maintenance and improving network performance.

"It's driven down costs significantly by helping us to eliminate a log of legacy platforms in niche areas of API management or enterprise service buses. In all, we consolidated down from five platforms to one," said the director of enterprise application integration services at a healthcare company.

The corporate VP at an insurance company spoke to Anypoint Platform, being at least one contributor that was decommissioning legacy platforms, "It depends on the legacy system and how it contributes to projects overall. For example, for some platforms we can reduce costs by taking away some functionality. MuleSoft helps with integrations, so we can reduce usage of that function with another platform."

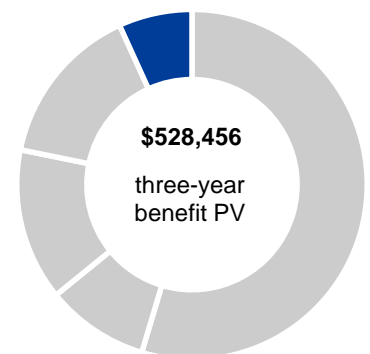
The retirement process was not immediate as APIs had to be carried over to Anypoint Platform and interviewees wanted to see what benefits they could see from using Anypoint Platform to extract value from legacy platforms with existing APIs.

For the composite organization, Forrester assumes that:

- › The organization reduces spending on annual software licensing, hardware, and maintenance fees by \$250,000 annually.

The following risks can affect this benefit estimate:

- › Interviewees noted that it was difficult to directly attribute the retirement of several platforms to their usage of Anypoint Platform, rather decommissioning was a result of multiple approaches and technologies working in concert with each other.



Annual software licensing, server, and maintenance fees for retired technologies: 7% of total benefits

- › Organizations that may be just starting to create infrastructure for building APIs and integrations will not have as many tools to potentially retire, resulting in a smaller benefit.

To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of \$528,456.

Cost Savings For Retired Technologies: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
E1	Annual software licensing, hardware, and maintenance fees for retired technologies	Interviews	\$250,000	\$250,000	\$250,000
Et	Cost savings for retired technologies		\$250,000	\$250,000	\$250,000
	Risk adjustment	↓ 15%			
Etr	Cost savings for retired technologies (risk-adjusted)		\$212,500	\$212,500	\$212,500

Unquantified Benefits

Potential for improved project velocity. Interviewee's reuse of APIs to improve the development timelines for application and integrations varied widely on a project basis between companies. Developers that became more efficient with their time spent on projects with Anypoint Platform were able to open up time in their schedules to handle more projects. "In the past, our apps involved a lot of cycles of data back and forth. Now through APIs we've able to expose a lot of that security and position data to move that process along," said the VP, director of architecture and strategy at a financial services company. "Since building around those APIs we've been able to increase the number of projects they were integrated with from six to 30, over the course of two years."

Project velocity varied for interviewees based on whether the projects were for integrations with internal or external systems. The corporate VP at an insurance company noted, "API projects are 100% internal for us. Of those projects, roughly 20% are integrated with external vendors. We'll create APIs over two to three sprint cycles, and a project may not be ready to go on the other end, but the APIs are ready for when it needs to be delivered."

The director of IT global operational business solutions at a CPG organization said, "It's been a little sporadic because we don't have a good picture of upcoming demand in many cases, which actually makes us rely on API reuse more because we don't always have time to write new code. But on average, we've dropped two and a half weeks from the timeline per integration per project."

Flexibility

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



Project velocity accelerated for developers thanks to an increasing number of APIs for reuse through Anypoint Platform.

- › **Expanding API use to partners and customers.** Many organizations build APIs for internal use and only later discover that they are useful for streamlining processes outside the organization. Anypoint Platform allows an existing internal API to be published externally with a different set of security policies and usage limits, creating new value streams and higher customer satisfaction.
- › **Consolidating and controlling the organization's use of other providers' APIs.** Once Anypoint Platform is in place, its use can be extended to managing APIs that are created by others. When an organization wants to use a partner's API or APIs from a software-as-a-service (SaaS) application, they can be routed through Anypoint Platform so that the organization's internal developers have consistent, controlled, secure access to the APIs. Additionally, these external APIs will appear in the API marketplace right alongside internal APIs — users of the APIs need not even know that some are providing internally and others externally.

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

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.

Analysis Of Costs

QUANTIFIED COST DATA AS APPLIED TO THE COMPOSITE

Total Costs

REF.	COST	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Ftr	Anypoint Platform license and support costs	\$0	\$462,660	\$568,150	\$716,870	\$1,747,680	\$1,428,740
	Total costs (risk-adjusted)	\$0	\$462,660	\$568,150	\$716,870	\$1,747,680	\$1,428,740

Anypoint Platform License And Support Costs

Pricing for Anypoint Platform license is based on the number of cores on which the platform will run, alongside a base subscription and API manager and analytics costs. The price scales annually based on increased subscription costs.

For the composite organization, Forrester assumes the following:

- › The composite organization purchases three on-premises servers with 10 cores each to support adoption of Anypoint Platform.
- › One FTE from the developer team will be tasked with maintenance of Anypoint Platform, dedicating 50% of its overall time to directly working on the platform.
- › The fully burdened cost of one FTE will total \$187,200 annually.

The following risk factors may affect costs incurred by organizations:

- › Anypoint Platform licensing costs vary based on the number of cores and employees that organizations will use to run and maintain the platform.

To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of \$1,428,740.

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 over \$1.4 million.

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.

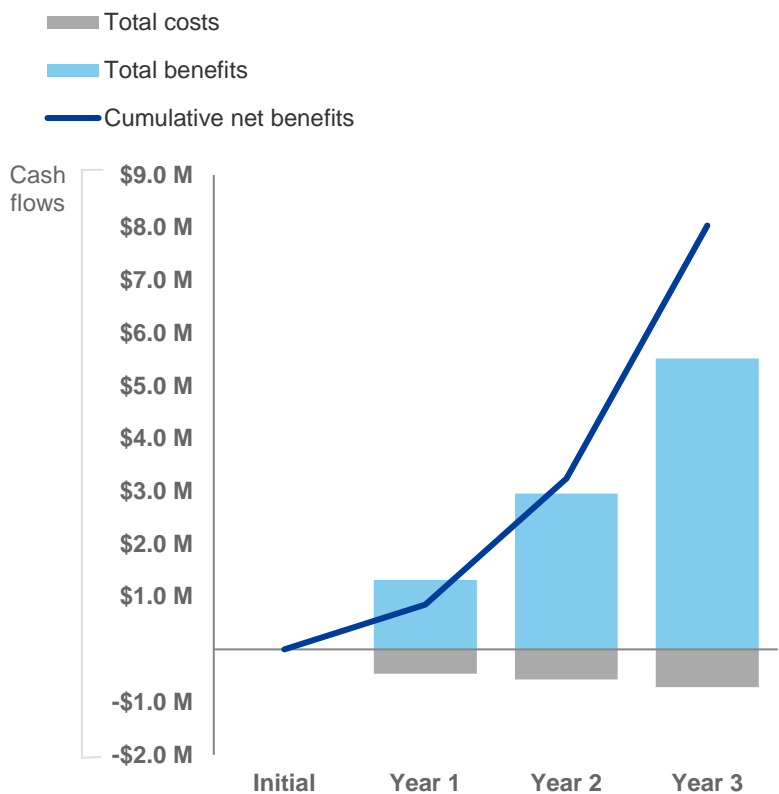
Anypoint Platform License And Support Costs: Calculation Table

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
F1	Anypoint Platform license cost			\$327,000	\$422,900	\$558,100
F2	# of team members dedicated to managing Anypoint Platform	Interviews		1	1	1
F3	Average FTE salary of member on Anypoint Platform team (fully burdened)			\$187,200	\$187,200	\$187,200
F4	% of supporting FTE bandwidth dedicated to Anypoint Platform	Assumption		50%	50%	50%
Ft	Anypoint Platform license and support costs	$F1 + (F2 * F3 * F4)$	\$0	\$420,600	\$516,500	\$651,700
	Risk adjustment	↑10%				
Ftr	Anypoint Platform license and support costs (risk-adjusted)		\$0	\$462,660	\$568,150	\$716,870

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 and NPV values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

Cash Flow Table (Risk-Adjusted)

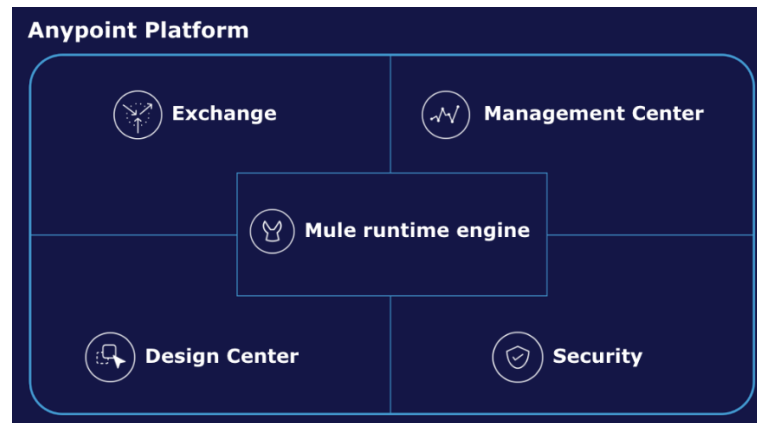
	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Total costs	\$0	(\$462,660)	(\$568,150)	(\$716,870)	(\$1,747,680)	(\$1,428,740)
Total benefits	\$0	\$1,315,127	\$2,954,601	\$5,518,036	\$9,787,764	\$7,783,171
Net benefits	\$0	\$852,467	\$2,386,451	\$4,801,166	\$8,040,084	\$6,354,431
ROI						445%

MuleSoft's Anypoint Platform: Overview

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

Anypoint Platform

MuleSoft's Anypoint Platform™ is the leader for designing, developing, and managing both APIs and integrations. Uniquely built as a single solution, Anypoint Platform can be deployed anywhere to reliably address any use cases.



Start From Anypoint Exchange

Anypoint Exchange is the marketplace of APIs and integration best practices for Anypoint Platform, filled with hundreds of **Anypoint Connectors**, **Anypoint Templates**, and examples from MuleSoft and our ecosystem of partners and developers. Organizations can also curate their own Exchange, allowing them to share and encourage the reuse of organization-specific best practices.

With Anypoint Exchange, users can also:

- Access API documentation and use a mocked service to test APIs.
- Generate interactive tutorials with API Notebooks.
- Create simple portals to share APIs with internal, external, or select users.
- Customize portals and nurture developer and partner ecosystems with **API Community Manager**, an extension of Exchange.

Design And Build APIs And Integrations

Anypoint Design Center provides a comprehensive set of development tools that make it easy to design, test, and build APIs and integrations. With Design Center, you can:

- Design and test RAML and OAS-based APIs visually or using code with API Designer.
- Quickly build integration flows using a guided, web interface using Flow Designer. Perfect for non-technical users, Flow Designer also provides machine learning-based, data mapping recommendations.
- Use Anypoint Studio, our desktop integrated development environment (IDE), to build APIs and integrations graphically or with code. Within Studio, you can:
 - Build integrated and unit tests automatically with MUnit, the Mule application testing framework.
 - Transform and map data of any format using DataWeave.
 - Integrate into your existing CI/CD pipeline with support for Maven and Jenkins.
 - Build your own connectors or Mule components using Mule SDK.

Run APIs And Integrations On Mule

Mule is the single runtime engine for deploying APIs and integrations on Anypoint Platform. It can be used to deploy in the cloud, on-premises, or both. Mule can:

- Run anywhere, on a small device like a Raspberry Pi to any major public cloud provider.
- Scale flexibly to meet peak loads without degrading performance.
- Support any architecture or patterns, such as ESB, pub/sub, or microservices.

Deploy Anywhere And Centrally Manage

Anypoint Management Center provides a single web interface to manage all aspects of Anypoint Platform. Within Anypoint Management center, you can:

- Deploy APIs and integrations both in the cloud and on-premises with Runtime Manager.
 - CloudHub is MuleSoft-managed cloud infrastructure for deploying Mule runtimes. CloudHub handles over 60 billion transactions per month with 99.99% uptime, across 12 regions globally.
 - Anypoint Runtime Fabric is a Docker and Kubernetes-based container service for simplifying the deployment of Mule runtimes to any private IaaS or data center.
- Gain a real-time, holistic view of all running APIs and integrations and how they're connected with Anypoint Visualizer.
- Identify issues, monitor application health, and view logs in a single unified interface with Anypoint Monitoring.
- Manage user access to resources and functionality using Access Management.
- Manage, proxy, version control and secure APIs with API Manager.

Secure Your APIs And Integrations

Anypoint Platform provides security by default, compliant with industry standards such as ISO 27001, SOC 1, SOC 2, PCI DSS, GDPR and FedRAMP.

In addition, you can apply security in layers with Anypoint Security by applying:

- OOTB or customized policies to APIs automatically.
- Edge protection around deployment environments hosting APIs.
- Vaultless tokenization to protect PCI/PHI/PII data in transit and in storage.

Appendix A: Total Economic Impact

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

Total Economic Impact Approach



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



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



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



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

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



Present value (PV)

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



Net present value (NPV)

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



Return on investment (ROI)

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



Discount rate

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



Payback period

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

Appendix B: Supplemental Material

Related Forrester Research

“Keep API Strategy On Track With An API Taxonomy,” Forrester Research, Inc., May 16, 2017.

“APIs Underpin A Digital Business Platform,” Forrester Research, Inc., January 28, 2016.

“Monetizing APIs: Help Execs Think Bigger, And Drive More Revenue,” Forrester Research, Inc., September 21, 2015.

“How APIs Reframe Business Strategy,” Forrester Research, Inc., June 1, 2015.

“Product APIs Create Distinct Customer Value And Opportunity,” Forrester Research, Inc., June 20, 2014.