A Forrester Total Economic Impact™
Study Commissioned By CA
Technologies
May 2017

The Total Economic Impact™ Of CA API Management

Cost Savings And Business Benefits Enabled By CA API Management

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ABOUT FORRESTER CONSULTING

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

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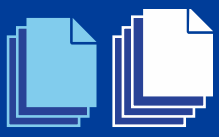
Benefits And Costs

Reduced time to construct API policies:
$7,786,584



Reduced time to deploy and scale CA API Management:
50%

Faster time to market:
$148,770

Executive Summary

CA Technologies provides a secure and efficient full life-cycle API management solution that helps its customers support corporate initiatives that require opening their data and applications to developers, partners, mobile apps, and cloud services. CA Technologies commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying CA API Management. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of CA API Management on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed several customers and partners with years of experience using CA API Management. They described how the solution increased their full life-cycle API management productivity while also increasing the revenue impact of the initiatives it supports. In addition to the financial gains, the user experience — both that of the API developers and the end customers who interact with the applications they build — was markedly improved. Those customers who used partners for their implementation were able to speed their time to selection and implementation for the solution and valued the strategic insights provided by partners around digital transformation.

Prior to CA API Management, customers had a competitor's product or homegrown full life-cycle API management solution in place, but these had either come to their end of life or could not support the digital transformation objectives required by the business. Furthermore, the legacy systems lacked the functionality and speed required for the business to support mobile initiatives with short development timeframes, frequent updates, and the integration of different data sets. The customers implemented CA API Management to support the strategic move toward a web API architecture and to move data more easily between systems securely. With CA API Management, they were able to build and manage API policies more quickly, leading to faster time-to-market for initiatives that have an impact on the end customer. Said one vice president of product management: "Fundamentally, CA API Management is a core piece of our digital transformation — implementing, scaling, and governing APIs. It's more important for me for the future than the immediate ROI. Now that I have over 500 internal APIs and we look to build anything new, we have a tool that can expose those APIs to the developer community."

Key Findings

Quantified benefits. The following risk-adjusted quantified benefits are representative of those experienced by the companies and partners interviewed.

- **Policy creation: a reduction in time to construct API policies from 8 hours to 20 minutes.** The average time required to create API policies decreased by 96%, improving the productivity of the API architect. It also enabled the architects to create, adjust, and manage policies as the needs arose in the business.

- **Data transformation: a reduction in time to perform data transformations from six weeks to two days due to easier back-end integration with legacy systems.** For example, XML transformations were more difficult and time-consuming prior to CA API Management. Because the platform has lightweight ESB capabilities, these transformations are performed 94% more quickly.
- **Maintenance: easier ongoing policy maintenance and support, requiring only 50% of the time as before because of better tools.** With better error detection, searching capability, log analysis, and improved ability to surface data, those who maintain APIs can maintain them more quickly. In the past, resources with a background in networking were required to maintain APIs. However, CA API Management's underlying technology can be understood more easily by Java programmers, whose skill set is more widely available for hire.
- **Time-to-market: a 97% improvement in time-to-market for initiatives depending on APIs, from 90 days to three days.** With CA API Management, API policies can be created with short notice, thus speeding the time-to-market for the applications that require integration with multiple data sets. This resulted in recognizing revenue more quickly.
- **Time to implementation reduced by 50%.** By working with a partner, customers shorten vendor selection, implementation, and scaling of the solution by three months. Furthermore, the resources did not have to monitor internal access to APIs post implementation because of the tool.

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

- **Enable digital transformation.** Partners assist CA customers in the strategy behind digital transformation, assessing the organization's readiness for it and helping speed up the way they get to market, innovate, and enable digital transformation.
- **Help organizations mature their full life-cycle API management practices.** While organizations may want to transform the business, their practices and security may not be ready for publishing APIs and exposing them publicly. Partners can assist in assessing the readiness of companies to expose their APIs and outline the implementation and governance strategy for APIs.
- **Bring an enterprisewide perspective to full life-cycle API management.** By implementing CA API Management with a partner, customers extend beyond project-based implementations to envision how it can benefit the whole company. They can better plan for the future needs of the business and scale quickly.
- **Reduce risk of an incomplete or ineffective implementation.** By implementing CA API Management with a partner, customers get best practices examples of implementations for their industry, and those implementations can be executed by an experienced partner, enabling the company's developers to focus on building core revenue-generating products rather than API management.

> "We're all so narrowly focused in our businesses all day — it's hard to take off the blinders. I gave the partner a view of what products we have today, a view of our strategy, and a grandiose view of how we could transform everything digitally. Everything came back to moving data. That's how we got into 'let's solve something even though we don't know the future of everything.' We decided to solve some core architectural pieces — the data, hence the API."
>
> *VP of product management, healthcare technology company*

ROI
340%

Benefits PV
$7.6 million

NPV
$5.9 million

Payback
8.5 months

› **Provide industry-specific guidance on full life-cycle API management best practices.** Partners work with customers across many industries, notably in healthcare, manufacturing, retail, government, transportation/logistics, and energy, to understand how an effective API strategy can benefit them. Because they work with so many clients, they observe and can advise on best practices for implementation.

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

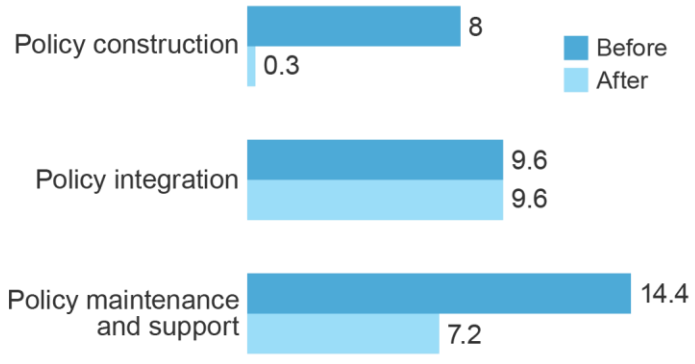
› **Licensing fees for CA API Gateway, CA Mobile API Gateway, and CA API Developer Portal.** These are one-time fees paid to CA Technologies for API gateways for development, testing, and redundancy. Each deployment stack purchased includes three portals and three gateways. Typically, two of each are in production and another one of each is in preproduction.

› **Annual maintenance fees of 20% of the licensing cost.** This is an annual, recurring fee paid to CA Technologies for continued ongoing maintenance and support for the API gateways and portals.

› **Partner implementation and ongoing support costs of around $175,000.** These costs are paid externally to partners for maturity assessments, staff augmentation for deployment, project management for implementation, and training for those using the technology. It also includes ongoing partner support. Partner costs vary widely and depend on the individual needs of the organization.

Forrester's interviews with three existing customers, three partner organizations, and subsequent financial analysis found that an organization based on these interviewed organizations experienced benefits of $7.6 million over three years versus costs of $1.65 million, adding up to a net present value (NPV) of $5.9 million and an ROI of 340%.

API policy creation and management (in hours)



Total time for API policy creation and management

Before: 32 hours

After: 17.1 hours

Total hours saved organizationwide

Year 1: 18,408

Year 2: 82,836

Year 3: 115,050

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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 CA API Management.

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 CA API Management can have on an organization:

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

DUE DILIGENCE
Interviewed CA Technologies stakeholders and Forrester analysts to gather data relative to CA API Management.

CUSTOMER INTERVIEWS
Interviewed three customers and three partner organizations using CA API Management 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 CA API Management'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.

The CA API Management Customer Journey

BEFORE AND AFTER THE CA API MANAGEMENT INVESTMENT

Interviewed Organizations

For this study, Forrester conducted interviews with three CA API Management customers and three CA API Management partners. Interviewed customers and partners include the following:

INDUSTRY	REGION	INTERVIEWEE	DESCRIPTION
Mass media	Headquartered in California	Principal technical specialist	World's second largest broadcasting and cable company in revenue, at $48 billion
Managed healthcare	Headquartered in Minnesota	Director of IT	Rated as one of Fortune magazine's top 500 companies in the country. The group serves approximately 70 million individuals nationwide and has over $128 billion in revenue.
Health information technology	Headquartered in Tennessee	VP of product management	Streamline clinical workflow, provide patient care, maximize revenue capture, and optimize administrative inefficiencies. Used by 1,100 hospitals nationwide.
Implementation partner	Headquartered in Tennessee	Principal, digital transformation	A digital strategy firm specializing in the strategy, planning, building, and executing of API management systems
Implementation partner	Headquartered in Massachusetts	Vice president of API management division	Provides expertise in deploying and supporting API management and identity and access management products
Implementation partner	Headquartered in Australia	General manager, identity and security	Provides technology transformation services for enterprise clients

Key Challenges

The companies interviewed for this study recognized a strategic need for digital transformation to keep up with competition, transform their business models, and leverage their data for maximum value to the business and their customers. They had a need to support development projects (web, mobile, IoT, kiosks) for strategic, revenue-generating projects that required applications to be built with the best security available. Because the companies had multiple development teams across business units working on projects, they needed to centralize their API management so that the APIs and their policies could be accessed quickly and easily without having to slow down work.

> "CA API Management hits that sweet spot — it allows you to manage APIs much, much faster and more easily, and actually lets the work be done by less skilled resources."
>
> *Director of IT, Fortune 500 healthcare company*

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- **Transform the business digitally.** The company knew that digital transformation was critical for long-term business success and growth, but it had many different options it wanted to explore. The company sought the assistance of an outside partner to have those strategic conversations.
- **Centralize API management with proper governance and security.** Throughout the organizations, developer teams were building APIs and managing them locally. However, the company increasingly needed to access those APIs across the organization to build new products. This required a consistent process and tool for building the policies surrounding APIs. It also wanted to expose them externally when appropriate (and potentially to build new revenue streams in the future), which required further security considerations.
- **Plan for the future of digital business.** After several discussions with a partner and a maturity assessment, the company realized that having an architecture in place to move data securely between applications was critical to its long-term success. It also enabled the organization to make the transformation from an on-premises technology architecture and mindset to a cloud-based web API architecture for internal and external applications.

Solution Requirements

The interviewed organizations were considering digital transformation and reached out to a recommended partner to discuss the possibilities:

- The organization and the partner began with a high-level discussion about where and how they wanted to transform the business digitally. That led them to the conclusion that APIs would be a core part of their future web architecture.
- The partner organization conducted a maturity assessment to determine the organization's readiness to publish APIs. From that, they determined key areas to focus for the implementation and rollout.
- The company selected CA API Management after considering several vendor products that were known by the partner (the partner was not CA-exclusive). The company chose to continue working with the partner for implementation to focus on their core goal: build software faster. Rather than taking developers off of core product development, the key stakeholder decided to rely on the external partner more.
- Implementation began with one deployment stack that included two portals and two gateways in production and one of each in preproduction for a specific development project for mobile.
- After success with the initial implementation of the first deployment for the mobile development project, the organization expanded its use of CA API Management across multiple business units.
- In the subsequent two years, the organization expanded its use of CA API Management across more business units for both internal projects and external initiatives. This included customer payment and transaction processes, internal productivity tools, customer service portals, and much more.

> "We honed in on CA because, for me, they were much further ahead with their security — I'm not willing to negotiate on security, being a healthcare technology company. CA API Management's agile API policy development was a core reason why we went with CA. The policy implementation was easy – dropping from one week or six days to two to three days."
>
> *VP of product management, healthcare technology company*

> "We are using CA API Management to take a cloud approach with all of our systems. We are driving that cloud mentality all the way back to our legacy systems on the mainframe. With this solution, our developers and partners don't need to worry about everything that's underneath because it's taken care of."
>
> *Director of IT, Fortune 500 healthcare company*

Key Results

The interviews revealed that key results from the CA API Management investment include:

- **Faster speed to implement and mature its full life-cycle API management approach.** By working with a trusted partner, the organization was able to quickly determine the right technology solution and implementation steps and execute on that vision more easily. It also avoided a failed or premature implementation or one that did not take into account the need to scale API management across other business units.
- **Efficiency of full life-cycle API management activities was improved, resulting in more opportunity to increase revenue.** The most significant benefits experienced were in reducing the time to construct API policies and provide API services to the business. This in turn led to both a cost reduction and the potential for the organization to earn revenue more quickly by getting its products to market faster.
- **The intuitive developer environment enabled developers with Java programming backgrounds to work quickly and easily.** The composite organization was able to focus its Java developers on API management activities that previously would have been completed by more-senior architects and analysts. Because the environment is similar to an interactive developer environment, the skill set required for troubleshooting errors and policy construction was lower, and these activities could be completed by less-senior team members. This freed up senior architects to focus on security strategy and to devote more time to new projects, rather than maintaining and troubleshooting existing issues.
- **The flexibility of the solution meets immediate needs while setting up the organization for future business opportunity.** The composite organization described CA API Management as an important component of its strategy to become a more-nimble company. It allows the organization to provide services and applications to internal and external partners and customers as a SaaS company would. Investment in CA API Management enabled the organization to meet the immediate corporate business objectives behind its dozens of initiatives, while also setting itself up for future business opportunity. Through templatized, reusable API policies and self-service developer portals, the company positions itself to monetize APIs should the opportunity arise.

> "Our partner had knowledge of API management products. We had great, two-way conversations around digital transformation. We learned from each other. The API tool was a core piece of our architectural direction. We decided to continue with the partner to select the product, negotiate the pricing, and apply the best practices out-of-the-box. We had a great debate on multiple solutions, but they didn't force a choice on us. We could have implemented it ourselves but didn't want to spend our core resources' time on learning something new and taking them away from product development."
>
> *VP of product management, healthcare technology company*

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 details shared by three customer and three partner 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 organization is a US-based, global

> "Just having the platform available is a time reduction and a load off of our security team's mind. We work very closely with them and report everything we see. We've got great monitors and processes in place to be exceedingly vigilant."
>
> *Principal technical specialist, multinational mass media company*

Fortune 1000 company with 20 business units and tens of thousands of employees. There are multiple internal development teams at the organization that are aligned with business units and a network of external partners. There are more than 50 initiatives at the organization that require applications and services to improve internal employee productivity or external customer experience. These applications and services include smartphones, tablets, kiosks, and wearables.

- The organization seeks to centralize its security gateway function and field requests to serve its developers and allow them to surface, create, integrate, secure, and maintain APIs.

Deployment characteristics. For the purpose of the analysis, Forrester assumes that the organization has a shared-services group that centrally manages services for APIs. It has created a dedicated team of about 15 to 20 enterprise architects, software developers, analysts, and integrators who work as a centralized team on CA API Management. Its "customers" can also be development teams of a partner organization that is external to the organization. It develops more than 40 APIs per month and about 200 policies for that number of APIs. In the next two years, the organization will develop 50 to 60 APIs per month: 480 APIs in Year 1, 540 APIs in Year 2, and 600 in Year 3.

Key assumptions

20 enterprise architects

40+ APIs developed monthly

Average number of policies per API: 5

Financial Analysis

QUANTIFIED BENEFIT AND COST DATA AS APPLIED TO THE COMPOSITE ORGANIZATION

Total Benefits

REF.	BENEFIT	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Atr	Reduced time to construct API policies	$662,688	$2,982,096	$4,141,800	$7,786,584	$6,178,781
Btr	Reduced time to perform data transformations	$43,200	$288,000	$540,000	$871,200	$682,999
Ctr	Increased productivity in ongoing API policy	$49,766	$248,832	$373,248	$671,846	$531,315
Dtr	Faster time-to-market initiatives depending on API	$49,590	$49,590	$49,590	$148,770	$123,323
Etr	Reduced time to deploy and scale CA API Management	$97,497	$7,500	$7,500	$112,497	$100,467
	Total benefits (risk-adjusted)	$902,741	$3,576,018	$5,112,138	$9,590,897	$7,616,886

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 $7.6 million.

Reduced Time To Construct API Policies

The composite organization indicated that a key benefit from the CA API Management implementation was the reduction in time to construct API policies for the purpose of exposing a service or to allow someone to consume a service. Prior to CA API Management, the composite organization had constructed API policies through a legacy or homegrown API management solution, but it lacked the breadth of functionality and ease of use to create policies quickly. With each API requiring approximately five unique policies and the rate of API creation growing every month and year, a new management tool was the only means to keep up with the demand. These policies support approximately 50 business initiatives annually, and without the right tool in place, both the internal and external applications could not be launched as quickly. Furthermore, with several deployment stacks across the organization in support of different applications, this benefit has an even greater impact. In part, this efficiency is driven by the fact that CA API Management's programming paradigm is much simpler to understand. Said one IT director of a Fortune 500 managed healthcare company, "Web APIs are the way we will integrate our applications from now on . . . so 30 per month is going to turn into 40 and 50 APIs per month over the next 12 to 18 months." The easier programming paradigm enables less-skilled resources to create API policies more quickly, keeping up with the business' demand for speed-to-market without compromising security. Furthermore, the management tool allows for reuse of existing APIs and policies, which can further reduce development time.

Following the CA API Management implementation, the composite organization reduced average completion times for API policy construction from 8 hours to 20 minutes. This efficiency gain is especially true if the organization is developing models, templates, or patterns for API policy reuse. Before CA API Management, API policy developers

had to work with clunky, difficult-to-use environments with interfaces that popped open up to a dozen windows to construct a policy. In CA API Management, the environment works more like an interactive developer environment and features drag-and-drop-style construction tools in a single window. As a result, with an annual number of API policies climbing to 250 per month, the composite organization saved over 18,408 hours in Year 1, over 20,709 hours in Year 2, and 23,010 hours in Year 3. At an average wage of $60 per hour for API architects, the total benefit resulting from the reduced time to construct API policies over three years was $12,977,640.

Interviewed organizations were using a combination of homegrown and competitive API management tools. Some organizations create nonstandard or complex API policies, requiring more development hours. In addition, organizations may have a team of architects who centrally create, integrate, and maintain API policies, or their architects could complete the work in a decentralized manner within each business unit. Depending on the model of API policy creation used within an organization, the financial benefits may vary.

To account for these risks, Forrester adjusted this benefit downward by 40%, yielding a three-year risk-adjusted total PV of $7,786,584.

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.

Reduced Time To Construct API Policies

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
A1	Labor cost per policy before CA API Management	$60	1,152,000	1,296,000	1,440,000
A2	Time to construct policy before CA API Management	8 hours	8	8	8
A3	Time to construct policy after CA API Management	20 mins (96% reduction)	0.33	0.33	0.33
A4	Labor cost per policy after CA API Management	$15.36	$16.00	$16.00	$16.00
A5	Number of policies per month (=40 APIs*5 polices per API every month)		40	45	50
A6	Annual cost for API policies to be constructed after CA API Management		47,520	53,460	59,400
A7	Percent reduction in time to construct policy	96%			
A8	Number of deployment stacks in use	96%	1	4	5
At	Reduced time to construct API policies	((A1*A5*12)-(A4*A5*12))*A8	$1,104,480	$4,970,160	$6,903,000
	Risk adjustment	↓40%			
Atr	Reduced time to construct API policies (risk-adjusted)		$662,688	$2,982,096	$4,141,800

Reduced Time To Perform Data Transformations

The composite organization indicated that a key benefit from the CA API Management implementation was a reduction in time to create data transformations. Prior to CA API Management, the composite organization would have spent six weeks to process organizational data and transform it appropriately so that it could be surfaced for both internal and external partner use. For example, it would have taken six

weeks to access the legacy data of an internal application that surfaces the location of a particular employee's seat in a large organization. Furthermore, with the previous platforms, developers would not have been able to do the transformations from a legacy or vendor service format into a web API format. With CA API Management, the labor effort for the back-end integration is reduced to two days. Because of the management tool, there are often no code changes required for the back-end system, and that absence of code changes significantly reduces the regression, functionality, and performance testing time. This time reduction also frees up the team to do the upgrading and maintenance work that they were often distracted from as these transformation requests surfaced.

Interviewed organizations provided a range of transformations that would be required to fulfill their business initiatives. Furthermore, organizations may have a team of architects who centrally create, integrate, and maintain API policies, or their architects could complete the work in a decentralized manner within each business unit. Depending on the model of API policy creation used within an organization, the financial benefits may vary. See the section on Risks for more detail. To account for these risks, Forrester adjusted this benefit downward by 40%, yielding a three-year risk-adjusted total PV of $682,999.

CA API Management can also be used for protocol mediation, for example, from HTTP to MQ. When an organization wants to modernize or "webify" its mainframe or business-to-business legacy systems that use legacy protocols (FTP, JMS, MQ), CA API Management can bridge those to clean HTTP interfaces using REST/JSON. Many organizations are unable to perform those transformations without a tool in place because it would be too complex for their development teams to code and manage. With CA API Management, it happens instantly with little resources required because the capability is included in the offering.

> "With our previous platform, we were not able to perform transformations from a legacy or vendor service into a web API set. Since implementing CA API Management, we're having extremely positive reaction on the improvement in transformation timelines."
>
> *Principal technical specialist, multinational mass media company*

Reduced Time To Perform Data Transformations

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
B1	Effort and cost of back-end integration before CA API Management				
B2	Effort and cost of back-end integration after CA API Management				
B3	Dollar savings per integration effort		6,000	6,000	6,000
B4	Number of integrations per year		12	20	30
B5	Number of deployment stacks in use		1	4	5
Bt	Reduced time to perform data transformations	B3*B4*B5	$72,000	$480,000	$900,000
	Risk adjustment	↓40%			
Btr	Reduced time to perform data transformations (risk-adjusted)		$43,200	$288,000	$540,000

Increased Productivity In Ongoing API Policy Maintenance And Support

The composite organization indicated that a key benefit from the CA API Management implementation was increased productivity in ongoing API

policy maintenance and support. Prior to CA API Management, the composite organization would have needed developer and integration resources with a background in networking (switches and firewalls) to interpret the errors produced by APIs. With CA API Management, the underlying technology is more familiar to users and can be understood by application developers such as Java programmers, whose skill set is available more widely. In addition, the technology improves logging capabilities, has better error detection and searching capability, and enables developers to better surface data. Given that API policy changes need to accompany OS updates, web browser version updates, application program updates, and IT infrastructure changes, the ability to keep up with policy maintenance and support yields a quantitative benefit. The composite organization improved its API policy maintenance and support productivity by 50%.

This policy maintenance is also critical when it comes to monitoring for security purposes. Said one principal technical specialist at a multinational mass media company: "Just having the platform available is a time reduction and a load off of our security team's mind. We work very closely with them and report everything we see. We've got great monitors and processes in place to be exceedingly vigilant."

Ongoing API Policy Maintenance and Support: Improved **50%**

Interviewed organizations have a varying number of APIs they are creating and maintaining on a monthly basis. Furthermore, organizations may have a team of architects who centrally create, integrate, and maintain API policies, or their architects could complete the work in a decentralized manner within each business unit. Depending on the model of API policy creation used within an organization, the financial benefits may vary.

To account for these risks, Forrester adjusted this benefit downward by 40%, yielding a three-year risk-adjusted total PV of $671,846.

Increased Productivity In Ongoing API Policy Maintenance And Support

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
C1	Number of APIs created monthly	40, increasing by 10 annually	40	50	60
C2	Development hours to create an app	180	180	180	180
C3	Percentage in time spent maintaining and supporting APIs	4%	4%	4%	4%
C4	Percentage of labor reduction due to CA API Management	50%	50%	50%	50%
C5	Hourly developer salary	$48	$48	$48	$48
C6	Number of deployment stacks in use		1	4	5
Ct	Increased productivity in ongoing API policy maintenance and support	(C1*12)*(C2*C3) *C4*C5	$82,944	$414,720	$622,080
	Risk adjustment	↓ 40%			
Ctr	Increased productivity in ongoing API policy maintenance and support (risk-adjusted)		$49,766	$248,832	$373,248

Faster Time-To-Market For Initiatives Depending On API Services

Another key benefit described by the composite organization was faster

time-to-market for initiatives relying on API policies to bring their services to market. As more businesses and individual developers use API-based access to data and services, for example, for cloud or mobile apps, the faster those services can be provided to them, the more quickly they can make money. Prior to CA API Management, the composite organization spent approximately three months performing the service integration work for those cloud or mobile apps. Now, it can do that work in only three days, which is 97% faster. This opens the potential for new revenue channels and opportunities. For a large business-to-consumer (B2C) organization with hundreds of millions of transactions going through mobile and cloud apps, getting that app to market faster brings revenue to the company more quickly. For a B2B organization, this could mean realizing cost savings more quickly for projects that improve employee, customer, supplier, or partner performance.

Service Integration Work: Improved **97%**

In this study, we used a conservative estimate to predict the amount of revenue per day an average organization would generate from a revenue-generating application. In an organization that has applications generating hundreds of millions per year, the annual gain could be in the millions of dollars. Said one principal technical specialist at a multinational mass media company: "We turn around our service integrations within three days, whereas it would take you three months, and we provide the value-add of being able to bring their services to market a lot sooner. We get many compliments and great accolades as part of that project and part of that delivery, and it's very exciting for the team."

Depending on the type of initiative that the API policies are supporting and their link to revenue growth or cost savings, the financial benefits may vary widely. To account for these risks, Forrester adjusted this benefit downward by 5%, yielding a three-year risk-adjusted total PV of $148,770.

Faster Time-To-Market For Initiatives Depending On API Policies

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
D1	Vaue of time-to-market (per day)	$20,000	$20,000	$20,000	$20,000
D2	Service integration work impacting time to deploy applications before CA API Management (months)	3 months	3	3	3
D3	Service integration work impacting time to deploy applications before CA API Management	90 days	90	90	90
D4	Service integration work impacting time to deploy applications after CA API Management	3 days	3	3	3
D5	Improvement in time to deploy	87 days	87	87	87
D6	Annual discount rate	12%	12%	12%	12%
D7	Monthly discount rate	1%	1%	1%	1%
Dt	Faster time-to-market — initiatives depending on API services	D1*D5(D7*D2)	$52,200	$52,200	$52,200
	Risk adjustment	↓ 5%			
Dtr	Faster time-to-market — initiatives depending on API services (risk-adjusted)		$49,590	$49,590	$49,590

Reduced Time To Deploy And Scale CA API Management

By working with a partner, the composite organization shortened vendor selection, implementation, and scaling of the solution by three months. Because the partner selected for implementation had deep expertise in API management and had assisted in multiple others across industries, the composite organization was able to shave three months off of the implementation process. Instead of a six-month implementation time frame, the organization could get up and running with CA API Management in three months.

Furthermore, the organization did not have to dedicate resources to monitor and control internal access to APIs after implementing CA API Management. In the past, different engineering teams would have had to go through a product manager or point of contact to access API policies. With CA API Management they were centralized, cutting out the time spent by the product manager and the engineer to work across project and team boundaries to access APIs. Said one VP of project management of a healthcare technology company: “No longer does one team hold the keys to the APIs. We’ve gone out and trained the other engineering team leaders to build these APIs within this orchestration. When certain teams need to move data — you don’t need me anymore — anyone in the company can go do that. We now have consistency, security, and scaleabilty without holding a project hostage.”

The total benefit resulting from the reduced time to construct API policies over three years was $112,497.

Reduced Time To Deploy And Scale CA API Management

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
E1	Time to deploy and scale CA API Management before partner	Months	6		
E2	Time to deploy and scale CA API Management after partner	Months	3		
E3	Resources involved in deployment and ongoing management		3	2	2
E4	Monthly salary	$130,000 fully loaded	$10,833	$10,833	$10,833
Et	Reduced time to deploy and scale CA API Management	(E1-E2)*E3*E4	$97,497	$7,500	$7,500
	Risk adjustment	↓ 0%			
Etr	Reduced time to deploy and scale CA API Management (risk-adjusted)		$97,497	$7,500	$7,500

Flexibility

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for some future additional investment. This provides an organization with the “right” or the ability to engage in future initiatives but not the obligation to do so. There are multiple scenarios in which a customer might choose to implement CA API Management and later realize additional uses and business opportunities. Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix B).

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 so.

There are several ways in which CA API Management could generate additional revenue or provide cost savings not captured in this study. Because the study is based on the experience of the interviewed customers and the ROI calculated in the TEI model represents the financial benefits the representative organization realized, not every possible benefit has been identified. Furthermore, all organizations have different business environments, technical infrastructures, and industry-specific needs and opportunities, so their individual results will vary depending on their unique characteristics.

The chart below highlights additional benefits that could further increase the ROI of an individual organization through revenue generation or cost savings.

Flexibility Benefits — Future Revenue Streams Or Cost Savings Made Possible By CA API Management

METRIC	POSSIBLE IMPACT ON ROI	CAUTIONS
Increased revenue through new revenue streams The CA API Developer Portal monetization capability allows an organization to generate revenue by offering subscription services to its APIs through the self-service API Developer Portal.	▲ 70%	Third parties could offer competing services or resell information to their benefit without involving the organization providing the APIs.
Reduced service provider resource cost By delegating resource-intensive tasks from the application to the CA API Gateway specialized infrastructure, resources can be freed up on the back end so that another application can be assigned or can be used to increase capacity of the back-end system.	▲ 36%	Solid infrastructure and operations team and analysis capabilities are required, along with flexibility in the infrastructure.
Reduced cost of software maintenance for replaced API management solutions The composite automation/integration capabilities and the consolidation of replaced or redundant tools allow the IT organization to realize cost savings from consolidating and retiring single-purpose or obsolete tools, thereby avoiding unnecessary replaced software maintenance renewals.	▲ 36%	Not all organizations consolidate their API management tools; some may run two in parallel.
Reduced revenue impact through improved business services availability The CA API Gateway enables IT teams to expertly manage the performance and availability of mission-critical application infrastructure resources to better assure revenue streams. Improvements in availability of mission-critical, customer-facing systems and other infrastructure preserve the integrity of the brand.	▲ 20%	Attribution of benefit can vary depending on the infrastructure in place and how the organization attributes a financial impact to this.
Reduced cost due to decreased exploitation of vulnerabilities The CA API Gateway delivers unparalleled security capabilities to prevent successful exploits that lead to expensive system damage, system downtime, customer attrition, and legal fees.	▲ 28%	The amount of impact varies based on the type of security incident and the industry affected.
Improved productivity for internal application end users The CA API Gateway is architected for high performance, scalability, reliability, and availability. API gateways can protect service providers from denial-of-service events, either intentional or unintentional, with industry-leading threat protection and traffic management (including rate limiting, SLA enforcement, and smart failover routing logic). In addition, through its alerting capabilities, the CA API Gateway minimizes downtime by enabling a faster diagnosis of the problematic component.	▲ 24%	Attribution of benefit can vary and the impact of downtime varies widely by industry and organization.

Flexibility Benefits — Future Revenue Streams Or Cost Savings Made Possible By CA API Management		
METRIC	**POSSIBLE IMPACT ON ROI**	**CAUTIONS**
Increased revenue through API Developer Portal subscriptions The CA API Developer Portal monetization capability allows an organization to generate revenue by offering subscription services to its APIs through the self-service API Developer Portal. This generates a new revenue stream for organizations.	▲ 51%	The cost and infrastructure required to run a for-profit developer portal business could vary in complexity.
Reduced costs through virtualization The CA API Gateway is available in a soft appliance form factor that can be rapidly deployed on commodity hardware or existing cloud solutions. By utilizing the CA API Gateway virtual appliance form factor, customers can reduce the cost of the hardware infrastructure supporting CA API Gateways.	▲ 3%	Organizations may run more than one API management tool (homegrown, on-premises, or cloud) at the same time, reducing the cost savings that can be realized.
Reduced costs through SaaS-based offering The CA API Developer Portal is available as a SaaS-based offering that is multitenanted and leverages Amazon's cloud infrastructure. As such, it is architected to scale appropriately, utilize a continuous integration model that enables frequent updates, and ensure failover across multiple availability zones. Because there is no software to install, maintain, or upgrade, customers experience a faster time-to-value, with the ability to immediately publish APIs and build apps. It shifts spend from capex to opex.	▲ 20%	The amount of impact varies depending on the existing architecture of the organization and the savings that can be realized by shifting to a SaaS-based offering.

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
Ftr	Licensing fees for API Gateway, Mobile API Gateway, and API Developer Portal	($250,000)	($250,000)	($500,000)	($250,000)	($1,250,000)	($1,078,325)
Gtr	Maintenance and support for API Gateway, Mobile API Gateway, and API Developer Portal	$0	($50,000)	($200,000)	($250,000)	($500,000)	($398,573)
Htr	Implementation and training fees	($175,000)	$0	($50,000)	($50,000)	($275,000)	($253,888)
	Total costs (risk-adjusted)	($425,000)	($300,000)	($750,000)	($550,000)	($2,025,000)	($1,730,785)

Licensing Fees For CA API Gateway, CA Mobile API Gateway, And CA API Developer Portal

Licensing fees for CA API Management were incurred during the initial implementation period; in subsequent years, an annual maintenance fee, calculated as a percentage of the initial licensing fee, was applied. During initial implementation, the composite organization incurred licensing fees for API Gateway, Mobile API Gateway, and Developer Portal, for a total of $250,000 in software licensing fees.

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 $1.7 million.

Licensing Fees For API Gateway, Mobile API Gateway And API Developer Portal

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
F1	Deployment stack (Includes three portals, three gateways, and three ESMs)			$250,000		
F2	Additional deployment stacks purchased by business units for other initiatives				$250,000	$500,000
Ft	Licensing fees for API Gateway, Mobile API Gateway, and API Developer Portal			$250,000	$250,000	$500,000
	Risk adjustment		0%			
Ftr	Licensing fees for API Gateway, Mobile API Gateway, and API Developer Portal (risk-adjusted)			$250,000	$250,000	$500,000

Annual Maintenance Fees

Each year, the composite organization incurred a maintenance fee for ongoing access. The maintenance fee included consists of operational assistance and technical support from CA Technologies either on the phone or online 24x7x365. It also included interactive remote diagnostic support, allowing technical support engineers to troubleshoot an incident securely through a real-time browser-based remote control feature. It can also include upgrades for the CA software that enhance core functionality and expand the range of industry-specific features. The

composite organization incurred a 20% annual maintenance fee, applied as a percentage of its initial software licensing fees ($250,000). Because the composite organization purchased additional gateways and portals over three years, the annual maintenance cost increased proportionately. For an organization, annual maintenance fees may vary slightly from year to year.

Annual Maintenance Fees

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
G1	Deployment stack (includes three portals, three gateways, and three ESMs)			$250,000	$250,000	$500,000
G2	Maintenance and support fees	20%		20%	20%	20%
G3	Maintenance for initial purchase			$50,000		
G4	Maintenance for additional purchases				$50,000	$200,000
Gt	Maintenance and support for API Gateway, Mobile API Gateway, and API Developer Portal	F3+F4	G1*G2*G3*G4	$50,000	$50,000	$200,000
	Risk adjustment		0%			

Implementation Fees

The composite organization incurred an implementation fee in its initial use of the product. Implementation services were provided by a partner and include staff augmentation for deployment, project management for implementation, and training for those using the technology. Furthermore, the organization worked with the partner to conduct a maturity assessment to determine their readiness for API management. The organization paid the partner $50,000 in years 2 and 3 for ongoing services related to the ongoing use of CA API Management. The total, three-year costs associated with implementation fees is $275,000.

The partner implementation fees can vary widely based on the needs of the maturity of the organization seeking their help. Partner costs vary by the scope of work required by the customer. Contracts with partners can range from a simple one-time maturity assessment (roughly $50,000) or putting a gateway in place ($60,000) to a large-scale deployment with multiple full-time consultants working at the customer's site (up to $1 million per year). These costs range based on the number of gateways and locations and depth of the managed services contract (response time, SLAS, etc.). As a general rule, partner services may comprise about 20% of the annual contract if an organization purchases licenses and services from the contract.

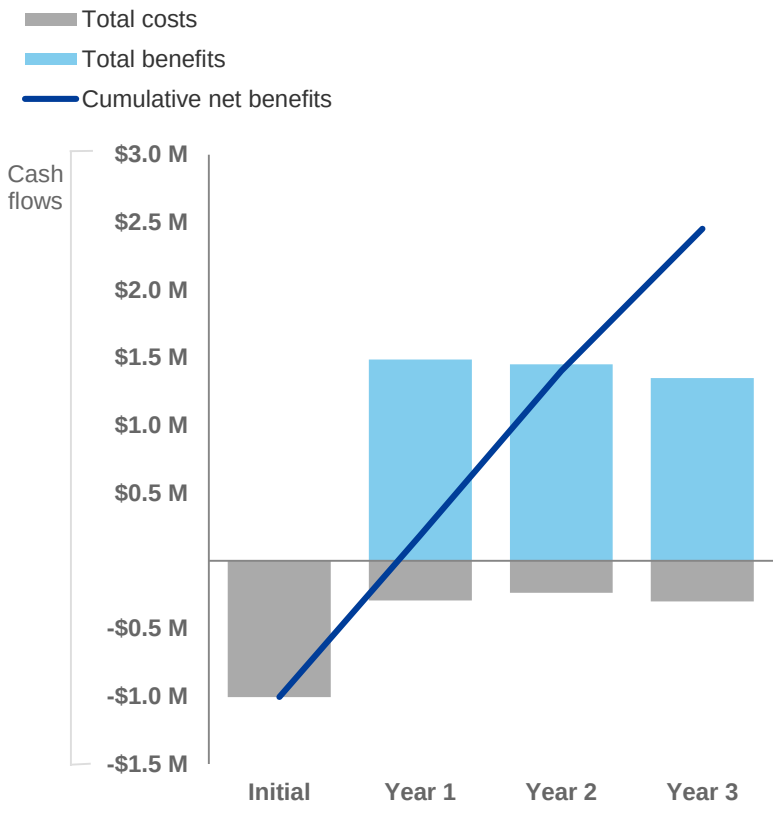
Implementation Fees

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
H1	Deployment stack (Includes three portals, three gateways, and three ESMs)		$250,000			
H2	Maturity assessment — partner service		$50,000			
H3	Training costs as a percentage of the contract value	10%	$25,000			
H4	Implementation services — partner service	20%	$100,000			
H5	Ongoing partner support				$50,000	$50,000
Ht	Implementation and training fees		$175,000	$0	$0	$0
	Risk adjustment	0%				
Htr	Implementation and training fees (risk-adjusted)		$175,000	$0	$50,000	$50,000

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	($425,000)	($300,000)	($750,000)	($550,000)	($2,025,000)	($1,730,785)
Total benefits	$0	$902,741	$3,576,018	$5,112,138	$9,590,897	$7,616,886
Net benefits	($425,000)	$602,741	$2,826,018	$4,562,138	$7,565,897	$5,886,101
ROI						340%
Payback period						8.5

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CA API Management: Overview

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

CA API Management offers unmatched flexibility, performance, and security. Available as hardware appliances or virtual machines, for deployment on-premises or as SaaS, CA API Management helps organizations securely expose enterprise data and services. CA API Management includes:

- CA API Gateway. Deploy the core functionality needed for enterprise-scale API security and management. It is available in multiple editions to meet your specific needs.
- CA Mobile API Gateway. Benefit from the power of the CA API Gateway with additional enhancements to power your mobile solution. It includes an SDK that enables enterprise-grade SSO (with integration with OAuth and OpenID Connect) and geolocation support, as well as security management of mobile devices, including Samsung KNOX integration.
- CA API Developer Portal. This centralized portal allows enterprises to engage, onboard, educate, and manage internal or external developers; publish APIs for consumption (e.g., documentation, code examples, and grouping); and provide full analytics on API usage/performance.

Key Features	
API Gateways	
API proxy	• Implement enterprise-grade threat protection and access control for APIs. • Simplify the process of API composition, orchestration, and life cycle/performance management. • Track API performance and generate an audit trail of all service interactions. • Support OAuth 1.0a, OAuth 2.0, and OpenID Connect. • Provide sample OAuth implementations that can be configured to specific needs. • All gateways include a built-in security token service (STS) that can issue and validate OAuth and SAML access tokens, optionally with HMAC or RSA signature methods and SHA-1, SHA-256, or SHA-512 encryption.
XML firewall	• Create single sign-on SSO for SaaS applications and other cloud services. • Securely integrate cloud services with on-premises IT systems. • Track usage of cloud services to ensure compliance with regulatory requirements.
SOA gateway	• Enable secure SOA integration, partner connectivity, and cross-departmental information sharing. • Compose, edit, customize, and enforce SOA governance policies from a single, central location. • Manage complex SOA architectures that span enterprise data centers and the cloud.
Mobile API gateway	• Enforce access control, firewalling, and data security for mobile apps that access enterprise resources. • Adapt and optimize complex enterprise services for bandwidth-light mobile use cases.
	• Securely integrate ent networks, and mobile
API Developer Portal	
Developer onboarding	• Support for both indiv organizations. • Ability to define regist accepted or subject to • Support for both self-
Developer resources	• Discussion and suppo • API documentation, A application reports. • API groups/plans for A built-in cloud-based m
Reporting and analytics	• API reports that track versus errors, latency • Application reports th versus errors, and mo
Content management	• Ability to define the lo portal. • Support for both stag as well as content app processes, streamlinin
Supported Standards	
XML, JSON, SOAP, REST, PCI-DSS, AJAX, XPath, XS RADIUS, SAML, XACML, OAuth 1.0a/2.0, JWT, PK FIPS 140-2, XML Signature, XML Encryption, SSL/ HTTP(S), JMS, MQ Series, Tibco EMS, Raw TCP, F Federation, WS-SecureExchange, WSIL, WS-I, WS WSecureConversation, WS-MetadataExchange, W PolicyAttachment, WS-I BSP, UDDI, WSRR, MTOM	

Appendix A: Total Economic Impact

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

Total Economic Impact Approach

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

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

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

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

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

PRESENT VALUE (PV)

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

NET PRESENT VALUE (NPV)

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

RETURN ON INVESTMENT (ROI)

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

DISCOUNT RATE

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

PAYBACK PERIOD

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

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