The Total Economic Impact™ Of SAP Cloud Platform API Management

Cost Savings And Business Benefits Enabled By SAP Cloud Platform API Management
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ABOUT FORRESTER CONSULTING

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Executive Summary

SAP provides a Cloud API Management service that helps its customers to easily and securely provision data. SAP commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying SAP Cloud Platform API Management. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of the SAP Cloud Platform API Management on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed two customers with experience using SAP Cloud Platform API Management. The service enables customers to make data available internally and externally in multiple ways in order to improve efficiency, facilitate application development, explore new business models, and exchange information securely, reliably, and accurately.

Prior to using SAP Cloud Platform API Management, one of the interviewed customers used alternative methods, including exchanging data files manually. However, this was inefficient and resulted in costly data errors and inaccuracies. The other customer supported the use of APIs with an on-premises software platform, but this was costly to manage and maintain.

Key Findings

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

› **Significant cost savings from the elimination of errors through data exchange automation.** The first live API enabled the organization to automatically exchange data with an important client, a process which was previously performed manually on a near daily basis. By automating these data exchanges, data inaccuracies and errors can be eliminated, thus avoiding the resulting costs. Over the 3 year period the organization automated its data exchange services with more and more clients and suppliers, saving a total of €376,000.

› **Shorter mobile development times.** By providing data through APIs, the development of mobile applications is greatly facilitated. In particular developers can focus on the user interface, saving a lot of time on application security testing. Prebuilt APIs and elements thereof can be reutilized, further saving time. On average the organizations expected a 30% reduction in mobile development time, bringing forward the revenues they create, which, over the period, amount to €77,000. Furthermore, easier mobile development attracts developers and so fosters ecosystem growth.

› **Data exchange automation efficiency savings.** By replacing the manual exchange of data with an automated process, staff save time. As data exchange automation is implemented with more clients and suppliers, more efficiency savings are made. Overall a full FTE is saved for every 10 live partners exchanging data. Over the period, Forrester calculated that this would result in total savings of €166,000.
Unquantified benefits. The interviewed organizations experienced the following benefits, which have not quantified in this study:

› Transitioning from an on-premises platform to a cloud-based API management service reduces costs and increases agility. While the key driver for one of the organizations to retire its on-premises software platform was part of a broader policy to increase its agility and be able to react quickly to changing circumstances, it also benefits from associated savings in software, hardware, and maintenance costs.

› API management enables secure data provisioning. By galvanizing the system of records and abstracting the provisioning of data, significantly fewer firewall holes need to be managed. This not only reduces security costs, but it also makes data more readily available for potential partners.

› Improved monitoring and reporting capabilities. The organization is able to access reports and analytics to monitor all data exchanges in detail.

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

› Implementation and upfront costs of €24,000. Planning, design, and implementation of the Cloud API Management service required half the time of two FTEs over a 2-month period.

› Operations costs totaled €80,000 over the 3 year period. As the workload of the API Management service increases, the resources required to monitor and operate it also increase. Some APIs, such as those exchanging information as part of tight supply chains, need closer monitoring, for instance.

› Service subscription fees total €50,000. SAP charges customers based on the monthly volume of API calls.

Forrester’s interviews with two existing customers and subsequent financial analysis found that an organization based on these interviewed customers experienced benefits of €619,000 over three years versus costs of €154,000, adding up to a net present value (NPV) of €465,000 and an ROI of over 300%.
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 SAP Cloud Platform 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 SAP Cloud Platform API Management can have on an organization:

- **DUE DILIGENCE**
  Interviewed SAP stakeholders and Forrester analysts to gather data relative to Cloud Platform API Management.

- **CUSTOMER INTERVIEWS**
  Interviewed two organizations using Cloud Platform 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 SAP Cloud Platform 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.

DISCLOSURES

Readers should be aware of the following:

This study is commissioned by SAP 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 SAP Cloud Platform API Management.

SAP 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.

SAP provided the customer names for the interviews but did not participate in the interviews.
The Cloud Platform API Management Customer Journey

BEFORE AND AFTER THE CLOUD PLATFORM API MANAGEMENT INVESTMENT

Interviewed Organizations

For this study, Forrester conducted two interviews with SAP Cloud Platform API Management customers, both global enterprises:

<table>
<thead>
<tr>
<th>INDUSTRY</th>
<th>REGION</th>
<th>INTERVIEWEE</th>
<th>NO. OF EMPLOYEES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare</td>
<td>US</td>
<td>Team leader, digital platforms</td>
<td>~70,000</td>
</tr>
<tr>
<td>Food and beverages</td>
<td>Europe</td>
<td>Team leader, adaptive integration</td>
<td>~300,000</td>
</tr>
</tbody>
</table>

Key Challenges

› **Incessant pressures on costs.** All businesses, and particularly large enterprises, are looking for opportunities to improve efficiencies and lower costs all the time.

› **Demand for faster reaction times.** Both consumers and internal clients are putting increasing demands on IT resources. While new applications have to be taken on with minimal delay, existing ones need immediate fixing and upgrade.

› **High costs and inflexibility of on-premises software platforms.** Agility and flexibility are increasingly important in dynamic and competitive consumer markets, but internally managed software platforms require significant maintenance and cannot quickly be changed or upgraded.

Key Results

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

› **There are significant opportunities for cost reductions and efficiency improvements.** APIs enabling automated data exchange not only result in time savings for employees, but they also eliminate data errors and inaccuracies, thus avoiding associated costs, which can be significant in tight supply chains.

› **Transitioning from on-premises platforms to cloud-based services lowers costs.** Not only are software, hardware, and the associated maintenance costs eliminated by opting for a cloud-based service, but this also enables IT to be more responsive and flexible.

› **A 30% reduction time in mobile projects.** By provisioning data via online portals, developers are able to focus their time on creating the best user experience and no longer need to spend so much of their time integrating with back ends systems and testing security. Not only does this bring forward associated revenues from the projects, but it also attracts more developers and partners as their costs have come down.

“Accurate and reliable data is key for product labeling and ingredient information in the healthcare industry.”

*Digital platforms team leader, healthcare*
Two Different Customer Journeys

Forrester constructed a TEI framework and an associated ROI analysis based largely on the case of a global healthcare enterprise in order to illustrate the areas financially affected. The Key Cost and Benefit categories were detailed in this “greenfield” deployment of SAP’s Cloud API Management Platform. This analysis was supported by the case of a global nutrition enterprise which had already deployed an on-premises API management software platform, but transitioned to SAP’s cloud-based service. While the journeys were therefore very different, there are significant overlaps in terms of the costs and benefits identified.

Global Manufacturer And Distributor Of Healthcare

**Description:** The financial model is largely built around this global manufacturer and distributor of pharmaceutical and animal health products. It produces over 10,000 different product size finishes across both internal and external (partner) manufacturing sites which are then delivered through ~80 distribution centers around the world. One of the key strategic focus areas for the company is to bring down manufacturing costs by reducing underutilized capacity, increasing site efficiency, and improving supply performance.

**Deployment characteristics.** SAP’s Cloud API Management service was implemented as part of an extension to the core enterprise resource planning (ERP) platform. The initial trigger came from marketing, who proposed to facilitate the development of mobile apps through APIs and a number of other use cases were discussed, but in the end, the first API to be implemented was a data exchange connection with an important client. More clients will follow, and a similar API will be used for automating data exchange with suppliers. In terms of mobile projects, the organization expects that between five and 10 mobile projects will benefit from the provision of data through APIs in the first year alone.
Global Food And Beverages Manufacturer

**Description:** This enterprise manufactures a large number of consumer food, drinks, petcare, and healthcare products. It operates more than 400 factories around the world and manages a portfolio of many hundreds of consumer brands, which are globally distributed. Agility, creativity, and discipline are key to innovating and renovating this wide range of products, which constantly changes, due to changing consumer trends, through acquisition, combination, and disposal methods. Digital disruption is a key part of these changes, impacting not only consumers, but also partners and suppliers. Digital innovation is an important competitive advantage which will form a cornerstone of the company’s future development.

**Deployment characteristics.** API management has long been used to support a variety of use cases using an on-premises software platform. However, managing the life cycles of the platform internally was difficult and, as part of a broad-based policy of becoming more agile and lean, this software platform was retired and the organization transitioned to SAP’s Cloud API Management service in a co-innovation approach. Several APIs, such as the product description and nutrition data repositories, which partner eCommerce sites can access, are live.
Financial Analysis

QUANTIFIED BENEFIT AND COST DATA AS APPLIED TO THE ORGANIZATION

Total Benefits

<table>
<thead>
<tr>
<th>REF.</th>
<th>BENEFIT</th>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
<th>TOTAL</th>
<th>PRESENT VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atr</td>
<td>Incremental revenue from external mobile projects</td>
<td>€23,520</td>
<td>€26,880</td>
<td>€30,240</td>
<td>€80,640</td>
<td>€77,213</td>
</tr>
<tr>
<td>Btr</td>
<td>Supplier data automation efficiency savings</td>
<td>€24,000</td>
<td>€48,000</td>
<td>€48,000</td>
<td>€120,000</td>
<td>€113,766</td>
</tr>
<tr>
<td>Ctr</td>
<td>Client data automation efficiency savings</td>
<td>€4,800</td>
<td>€19,200</td>
<td>€43,200</td>
<td>€67,200</td>
<td>€52,688</td>
</tr>
<tr>
<td>Dtr</td>
<td>Savings from elimination of data inaccuracies</td>
<td>€72,000</td>
<td>€168,000</td>
<td>€228,000</td>
<td>€468,000</td>
<td>€375,597</td>
</tr>
<tr>
<td></td>
<td>Total benefits (risk-adjusted)</td>
<td>€124,320</td>
<td>€262,080</td>
<td>€349,440</td>
<td>€735,840</td>
<td>€619,265</td>
</tr>
</tbody>
</table>

Benefit 1: Incremental Revenue From External Mobile Projects

Both the interviewed organizations highlighted that API management greatly reduces the time required to develop mobile applications, bringing forward the revenue created by them. Here we calculate the incremental revenue enabled by shorter development times; however, this also supports the development of the ecosystem as new partners are attracted by lower costs.

› Development partners of the organizations no longer need to implement and test security requirements of mobile applications, enabling them to focus on the user interface. Furthermore, developers have access to existing APIs they can reuse, or elements of them which they can build on, again saving time and resources. Provisioning data in this way also attracts more developers as their costs are reduced.

› By saving developer’s time and resources, they are able to bring applications to market sooner. A reduction of at least 30% in the time to develop applications was estimated by the organizations.

Each mobile project takes on average seven months to develop and generates €10,000 on a monthly basis.

› The organization’s partners develop 5 to 10 mobile applications per year, and each has a profit margin of ~20%.

› As a result, the total incremental revenue generated from mobile projects coming online sooner amounted to €100,800 over the three years.

Due to the inherent uncertainty in estimating monthly revenue, time reduction and profit margin of mobile projects, which can vary depending on the type of application and the number of users, Forrester has applied a risk adjustment of 20%, yielding a three-year risk-adjusted total PV of €77,200.
Benefit 2: Supplier Data Automation Efficiency Savings

Prior to implementing SAP API Cloud Management, the organization exchanged data with suppliers using excel files sent manually. This took place on a near daily basis, ensuring that suppliers would send the right amount and type of production materials, which are delivered daily as part of just-in-time supply chains. Electronic data interchange (EDI) connections were too costly an option for automating this data transfer. API management not only facilitates the automation of the procedure, but the same API can be used by multiple suppliers. In so doing, staff time is saved from this process (and data inaccuracies are eliminated, see Benefit 4). The organization estimated that for every 10 live suppliers, a full FTE is saved.

For the organization, Forrester assumes that:

- Five suppliers automate data exchange in the first year, growing to 10 in the following year. There were only 10 suppliers in total.
- The annual cost per full time internal resources is €120,000 in Europe.
- For every supplier automating their data exchange, there is a 10% FTE time saving, but that only half of this productivity saving is actually recoverable.

The improvement in supplier data efficiency savings will vary with:

- The amount and nature of data exchanged per supplier.
- The frequency with which data is exchanged per supplier.

To account for these risks, Forrester adjusted this benefit downward by 20%, yielding a three-year risk-adjusted total PV of €113,766.
Benefit 3: Client Data Automation Efficiency Savings

The same argument as supplier data automation efficiency savings applies to client data automation: API management replaces the manual exchange of data with clients through excel files in an affordable way. One of the interviewed organizations stated that for every 10 clients using automated data exchange a full FTE can be saved and it was expected that a single client would be live in year 1, another three in year 2, and another five in year 3.

For the organization, Forrester assumes that:

- The annual cost per FTE of internal resources is €120,000 in Europe.
- For every client automating their data exchange, there is a 10% FTE time saving, but that only half of this productivity saving is actually recoverable.

The improvement in client data efficiency savings will vary with:

- The amount and nature of data exchanged per client.
- The frequency with which data is exchanged per client.

To account for these risks, Forrester adjusted this benefit downward by 20%, yielding a three-year risk-adjusted total PV of €52,688.

Client data automation efficiency savings contribute 9% of total benefits

One live client in year 1, four in year 2, and nine in the year 3

---

### Supplier Data Automation Efficiency Savings: Calculation Table

<table>
<thead>
<tr>
<th>REF.</th>
<th>METRIC</th>
<th>CALC.</th>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Number of live suppliers</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>Average annual fully burden cost per internal resource</td>
<td>€120,000</td>
<td>€120,000</td>
<td>€120,000</td>
<td></td>
</tr>
<tr>
<td>B3</td>
<td>Annual FTE time saving per live supplier</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>B4</td>
<td>Recoverable productivity</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Bt</td>
<td>Total supplier data automation efficiency savings</td>
<td>B1<em>B2</em>B3*B4</td>
<td>€30,000</td>
<td>€60,000</td>
<td>€60,000</td>
</tr>
<tr>
<td>Btr</td>
<td>Supplier data automation efficiency savings (risk-adjusted)</td>
<td></td>
<td>€24,000</td>
<td>€48,000</td>
<td>€48,000</td>
</tr>
</tbody>
</table>

Three-year benefit PV: €52,688
Benefit 4: Savings from Elimination Of Data Inaccuracies

With data being exchanged manually on a daily basis with numerous clients and suppliers, inaccuracies and errors are inevitable. In the case of the organization, the data includes labelling of healthcare products, their ingredients and other important information. Furthermore, the data details supply delivery requirements which are part of a just-in-time management production line. Clearly, therefore, data inaccuracies can incur significant costs and, indeed, their elimination drives the largest benefit category.

For the organization, Forrester assumes that prior to the implementation of SAP Cloud API Management:

- There is one large data inaccuracy incident per supplier and per client every year, and each of these incurs costs of €10,000.
- There are two small data inaccuracy incidents per supplier and per client every year and each of these incurs costs of €2,500.

The savings from data inaccuracy elimination will vary with:

- The type of data being exchanged and what it is used for.
- The frequency with which data is exchanged.
- The contingency plans in place in case of data inaccuracies.

To account for these risks, Forrester adjusted this benefit downward by 20%, yielding a three-year risk-adjusted total PV of €375,597.
Unquantified Benefits

There were a number of important, additional benefits highlighted by the interviewees which it has not been possible to include within the financial model.

› The transition away from an on-premises platform to a cloud-based subscription service was the key driver for one of the interviewees. The organization had been using an internally managed API management software platform for many years. Not only was the upkeep of this platform costly, but the organization was also implementing a broader IT policy of increased agility. Significant savings will be made from lower software fees, as well as reduced hardware and maintenance costs.

› Secure provisioning of data was also highlighted as an important benefit. By abstracting the data and implementing security policies, the system of records is galvanized. By using authentication and authorization controls, data can be more widely shared, opening up more opportunities to work with third parties. One interviewee highlighted that this opens opportunities to work with virtual/augmented reality developers and new developers/students via hackathons which otherwise was much more limited.

› Greater clarity and reporting capabilities were also seen as important benefits which Cloud API Management enables. Not only can usage be closely tracked, but internal business users can also readily check which APIs have been published.
Flexibility

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

› **Opportunities for new business models.** Both the interviewed companies highlighted that using cloud-based API management services would better prepare them for other, longer term opportunities. In particular, data-as-a-service is seen as a potential new business model: one of the organizations has water quality data, for instance, which it could sell and make available through APIs. Familiarity with cloud API management services today brings these opportunities forward, which also require a mind shift, particularly for larger and more traditional businesses.

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

<table>
<thead>
<tr>
<th>REF.</th>
<th>COST</th>
<th>INITIAL</th>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
<th>TOTAL</th>
<th>PRESENT VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Etr</td>
<td>Implementation and upfront costs</td>
<td>(€24,000)</td>
<td>€0</td>
<td>€0</td>
<td>€0</td>
<td>(€24,000)</td>
<td>(€24,000)</td>
</tr>
<tr>
<td>Ftr</td>
<td>Annual monitoring costs</td>
<td>€0</td>
<td>(€14,400)</td>
<td>(€28,800)</td>
<td>(€57,600)</td>
<td>(€100,800)</td>
<td>(€80,168)</td>
</tr>
<tr>
<td>Gtr</td>
<td>Annual subscription costs</td>
<td>€0</td>
<td>(€5,400)</td>
<td>(€19,800)</td>
<td>(€37,800)</td>
<td>(€63,000)</td>
<td>(€49,672)</td>
</tr>
<tr>
<td></td>
<td>Total costs (risk-adjusted)</td>
<td>(€24,000)</td>
<td>(€19,800)</td>
<td>(€48,600)</td>
<td>(€95,400)</td>
<td>(€187,800)</td>
<td>(€153,841)</td>
</tr>
</tbody>
</table>

### Cost 1: Implementation And Upfront Costs

The interviewed organizations stated that part of the role of their technology teams is to explore and pilot new technologies, and so the upfront and implementation costs of Cloud API Management from SAP were negligible. However, Forrester has included this category because there is always some element of time resource required for planning, discussing, and implementing the service.

In order to estimate these costs, Forrester assumed that:

- Half the time of two FTEs would be required for two months to plan and implement the service.
- The total monthly burden of an FTE is €10,000.

There is always the possibility that planning and implementation will take longer, if, for instance, the technology team is less familiar with API management. So to account for this risk, Forrester adjusted this cost upward by 20%, yielding a three-year risk-adjusted total PV of €24,000.

---

### Implementation And Upfront Costs: Calculation Table

<table>
<thead>
<tr>
<th>REF.</th>
<th>METRIC</th>
<th>CALC.</th>
<th>INITIAL</th>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>Number of internal resources to support API planning and implementation</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E2</td>
<td>Average monthly cost of internal resources</td>
<td>€10,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E3</td>
<td>Number of months for internal resources</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E4</td>
<td>Percent of time dedicated to SAP API Management</td>
<td>50%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Et</td>
<td>Implementation and upfront costs</td>
<td>E1<em>E2</em>E3*E4</td>
<td>€20,000</td>
<td>€0</td>
<td>€0</td>
<td>€0</td>
</tr>
<tr>
<td></td>
<td>Risk adjustment</td>
<td>↑20%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Etr</td>
<td>Implementation and upfront costs (risk-adjusted)</td>
<td>(€24,000)</td>
<td>€0</td>
<td>€0</td>
<td>€0</td>
<td></td>
</tr>
</tbody>
</table>

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 €150,000.

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.
Cost 2: Operations Costs

Given that the service under consideration is cloud-based, the monitoring and maintenance costs are minimal, especially compared to an on-premises approach. Initially, existing internal IT resources could manage the service at no extra cost as part of their role is to monitor cloud platforms. However, as the Cloud API Management workload increases, so it would require more operational management. In the first year this would require just “a few hours a week,” growing to a day a week in Year 3. This becomes significant as APIs are being used in more critical use cases, such as for exchanging data within just-in-time delivery chains. Additional resources would also be required to make adjustments to the formatting of data, which is exchanged with suppliers and clients.

In order to estimate these costs Forrester estimated the portion of time required of two FTEs, which is equivalent to 4 hours per week in year 1, 8 hours per week in year 2, and 16 hours per week in year 3.

It is possible that in other implementations these costs could be substantially higher because of a higher ramping of the workload or because the security and integrity of the data exchanged is much higher, requiring a higher level of scrutiny.

To account for these risks, Forrester adjusted this cost upward by 20%, yielding a three-year risk-adjusted total PV of €80,168.

### Annual Operations Costs: Calculation Table

<table>
<thead>
<tr>
<th>REF.</th>
<th>METRIC</th>
<th>CALC.</th>
<th>INITIAL</th>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Number of internal resources dedicated to service operations</td>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>F2</td>
<td>Average annual fully burden cost per internal resource</td>
<td>€120,000</td>
<td>€120,000</td>
<td>€120,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F3</td>
<td>Time dedicated to SAP API Management operations</td>
<td>5%</td>
<td>10%</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F1<em>F2</em>E3</td>
<td>Annual operation costs</td>
<td>€12,000</td>
<td>€24,000</td>
<td>€48,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk adjustment</td>
<td>↑20%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F1<em>F2</em>E3</td>
<td>SAP API Management annual operations costs (risk-adjusted)</td>
<td>€14,400</td>
<td>€28,800</td>
<td>€57,600</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cost 3: Annual Subscription Costs

The annual subscription costs are those that SAP charges the organization for use of the service. These costs are based on the volume of API monthly calls. The volume of API calls increases as a particular API is used more intensely and as more APIs generally are used.

Forrester estimated that the total volume of annual API calls (which is driven by 1) the number of live mobile projects expected and by 2) the number of live clients and suppliers using the APIs) will grow from 1.5 million in year 1, to 5.5 million in year 2, and 10.5 million in year 3. The fees are the product of both the volume of calls and their cost: SAP charges €250 per month per million calls.

The volume of calls may be significantly higher for a number of reasons, such as the nature of mobile applications or the data exchange APIs in use. To account for these risks, Forrester adjusted this cost upward by 20%, yielding a three-year risk-adjusted total PV of €49,672.
### Annual Subscription Costs: Calculation Table

<table>
<thead>
<tr>
<th>REF.</th>
<th>METRIC</th>
<th>CALC.</th>
<th>INITIAL</th>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>Average number of API calls per month</td>
<td></td>
<td>1,500,000</td>
<td>5,500,000</td>
<td>10,500,000</td>
<td></td>
</tr>
<tr>
<td>G2</td>
<td>API call costs (per million per month)</td>
<td>€250</td>
<td>€250</td>
<td>€250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gt</td>
<td>SAP API Management annual subscription costs</td>
<td>G1/1,000,000*,</td>
<td>€4,500</td>
<td>€16,500</td>
<td>€31,500</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>G2*12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gtr</td>
<td>SAP API Management annual subscription costs (risk-adjusted)</td>
<td></td>
<td>€5,400</td>
<td>€19,800</td>
<td>€37,800</td>
<td></td>
</tr>
</tbody>
</table>

*Risk adjustment: ↑20%
**Financial Summary**

**CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS**

The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.

The chart above summarizes the total risk-adjusted costs, benefits, and cumulative total for the 3 year period. Initial costs, being set-up and implementation costs, totaled €24,000. In year 1 the total benefits far outweighed the costs, bringing the net benefit to over €100,000. Both the costs and benefits increase substantially in year 2 bringing the net benefits to over €210,000. In year 3, the costs grew faster than the benefits, largely because the number of live suppliers did not increase. Nevertheless, net benefits grew to over €250,000.

Over the 3 year period, the total net benefits amounted to €465,425, with a return on investment of 303% and a payback period of under 3 months.

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**Cash Flow Table (Risk-Adjusted)**

<table>
<thead>
<tr>
<th></th>
<th>INITIAL</th>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
<th>TOTAL</th>
<th>PRESENT VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total costs</td>
<td>(€24,000)</td>
<td>(€19,800)</td>
<td>(€48,600)</td>
<td>(€95,400)</td>
<td>(€187,800)</td>
<td>(€153,841)</td>
</tr>
<tr>
<td>Total benefits</td>
<td>€0</td>
<td>€124,320</td>
<td>€262,080</td>
<td>€349,440</td>
<td>€735,840</td>
<td>€619,265</td>
</tr>
<tr>
<td>Net benefits</td>
<td>(€24,000)</td>
<td>€104,520</td>
<td>€213,480</td>
<td>€254,040</td>
<td>€548,040</td>
<td>€465,425</td>
</tr>
<tr>
<td>ROI</td>
<td>303%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payback period</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.8 months</td>
</tr>
</tbody>
</table>
SAP Cloud Platform API Management: Overview

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

SAP Cloud Platform API Management is an open-extension platform that simplifies integration with SAP and non-SAP solutions. It enables businesses to easily share digital assets with business partners as APIs beyond traditional applications and websites strive to create business networks and cross-company collaboration. SAP Cloud Platform API Management provides the ability to connect devices to business transactions, and allows companies to build business networks, offering enterprises the ability to scale and innovate while opening up new channels, partner ecosystems, and revenue opportunities.

The platform empowers enterprises to selectively externalize assets, not just through the traditional browser-centric model, but also over mobile devices and other channels, allowing services to be consumed on any platform. In this way, collaboration and co-innovation are fostered with business partners and developers. The intuitive developer portal provides for quick on-boarding of developers, the ability to test APIs, and the creation/management of applications in order to reduce internal development costs and quicken the innovation process.

In conjunction, SAP offers SAP API Business Hub to help discover, trial, use, and modify SAP and public customer prebuilt APIs. Other related content and elements of existing APIs can also be reused through the hub. Furthermore, real-time analytics from SAP Cloud Platform help to monitor APIs across various data platforms, both SAP and non-SAP. Usage metrics, errors, latency, and performance can be monitored in a simple, intuitive web experience to gain better insights on where to invest resources in the future. Traffic management capabilities, including blacklisting and throttling, further help protect back-end systems.

SAP Cloud Platform API Management can scale up to billions of API calls, unlocking new opportunities, new business potential, and additional value. Investment costs are low and demands can be met on a pay-as-you-go subscription model.
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.