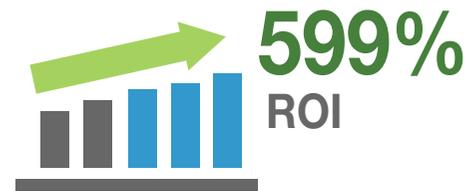
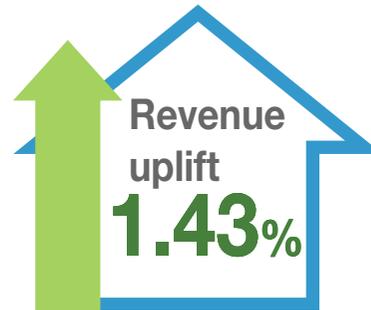


The Forrester Total Economic Impact™ of Adyen Global Payment Processing

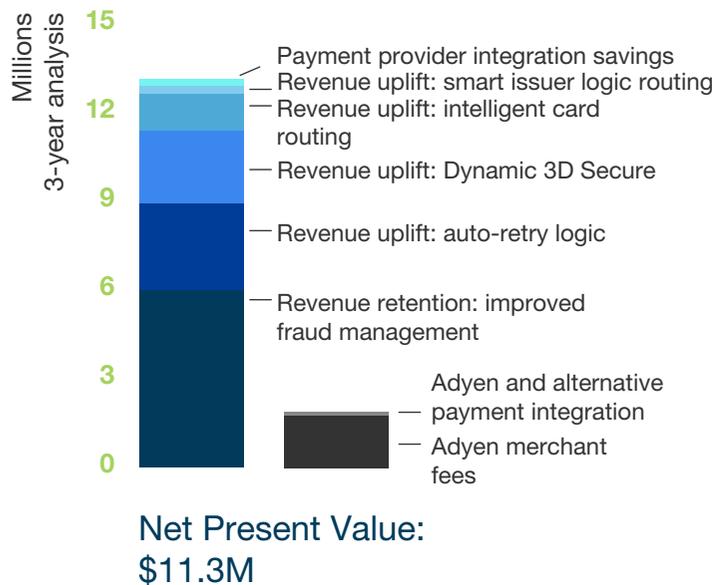
1 SUMMARY OF BENEFITS

Through three customer interviews and data aggregation, Forrester concluded that Adyen global payment processing has the following financial impact:

The TEI study quantified specific costs, benefits, and metrics that matter to customers.



2 BREAKDOWN OF BENEFITS



3 VOICE OF THE CUSTOMER

Our exponential growth required a payments partner that could scale with us and meet the challenges of the global payment landscape. Adyen was the company that helped us through the challenge of launching in a new country every two weeks.

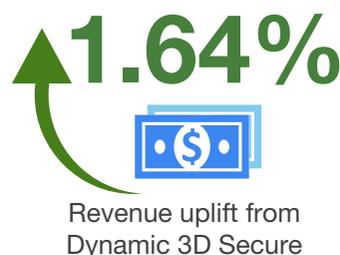
-Global marketplace tech startup

We needed a way to defend against chargebacks with losses in the millions.

-Top 5 global apparel brand



4 ADYEN GLOBAL PAYMENT PROCESSING BY THE NUMBERS



A Forrester Total Economic
Impact™ Study
Commissioned By
Adyen

Project Director:
Henry Huang
March 2016

The Total Economic Impact™ Of Adyen Global Payment Processing

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ABOUT FORRESTER CONSULTING

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Executive Summary

Adyen commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying Adyen's global payment processing. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of this payment processing solution on their organizations, to leverage the analytical technology behind the processing to increase revenue and ultimately meet the payment preferences of global customers.

To better understand the benefits, costs, and risks associated with an Adyen payment processing implementation, Forrester interviewed several customers with multiple years of experience using this payment processing service. As a primary provider, Adyen extends benefits beyond those of traditional acquirers by providing behind-the-scenes enhancements that have an impact on bottom-line results. Using machine learning and data analytics, Adyen is able to apply advanced logic to authorizations and fraud management to maximize the capture and retention of card payment revenue.

Prior to Adyen, customers had implemented a number of regional payment service providers. However, prior solutions yielded limited success, as implementing various payment types required long integration periods and did little to curtail fraud write-offs. International regions in particular had various consumer payment preferences that called for establishing relationships with a multitude of payment providers in a number of payment formats. At the time, order capture rates were sub-optimal for customers as they went through the logistics and implementation of these alternative payments offerings. Market penetration as a whole took a backseat while implementing disparate solutions. The slower pace of market entry in markets outside the US was compounded by fraud issues, where losses to card fraud were significantly higher. Under the Adyen solution, customers were able to rapidly scale into new markets with multiple payment types while protecting their revenues with advanced fraud detection. An additional measure, Dynamic 3D Secure, was also introduced and reduced fraud liabilities without hurting conversion. Said one payments manager, "They did a terrific job trying to understand our strategic goals. . . . helping us to be in the best position to expand into new markets without us having to worry over the technical portion."

ADYEN UPLIFTS AND PROTECTS REVENUE

Our interviews with three existing customers and subsequent financial analysis found that a composite organization based on these interviewed organizations experienced the risk-adjusted ROI, benefits, and costs shown in Figure 1.¹

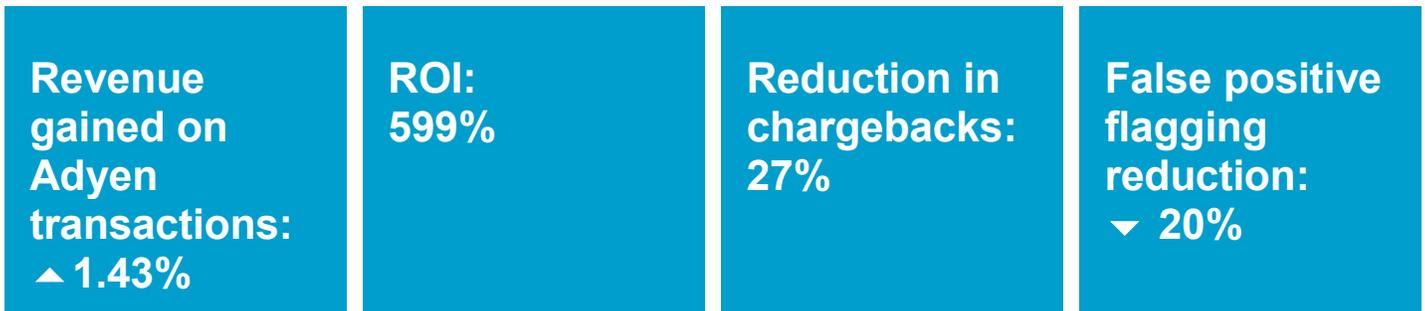
The composite organization analysis reveals that key drivers such as authorization optimization, improved fraud management, and Dynamic 3D Secure led to benefit and cost differentials of \$13.1 million and \$1.9 million, respectively, from the prior payment solution. Three-year totals yielded a net present value (NPV) of \$11.3 million and an ROI of 599%.

Adyen global payment processing, when measured against local providers, can generate added revenue while protecting revenues from fraud.

The costs and benefits for a composite organization with international revenues of \$1.5 billion, based on customer interviews, are:

- **Total added costs: \$1,878,499.**
- **Total added benefits: \$13,139,397.**
- **Net improvement with Adyen as the principal payment solution: \$11,260,898.**
- **Revenue gained: 1.43% of orders transacted through Adyen.**

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



Source: Forrester Research, Inc.

› **Benefits.** The composite organization experienced the following risk-adjusted benefits that represent those experienced by the interviewed companies:

- **Non-US revenues saw an uplift from Adyen’s intelligent card acquirer routing.** As an agnostic payment acquirer, Adyen routed foreign card transactions through region-specific acquirers that showed the highest rates of authorization approval. For those cards that Adyen could route to improve authorization rates, the rate uptick was 1.5% and delivered slightly over \$1.2 million in revenue, PV.
- **Revenue uplift was made possible from smart issuer logic routing, resulting in authorization improvement of 39% on a small subset of cards that were flagged as low performing.** Operating in the background, the Adyen smart issuer logic automatically presented flagged cards to the banks in a manner that produced the highest approval rate. Three-year revenue gains were \$272,337, PV.
- **Auto-retries on temporarily failed transactions provided a revenue uplift of \$2.9 million.** Periodically, technical issues with issuing banks or infrastructure will disrupt normal authorizations and return processing error codes. In situations such as these, the Adyen solution will re-present the request in the background through a different route or after the temporary technical issue has passed, ensuring that these transactions are converted.
- **Using Adyen as the primary payment processor reduced the effort and cost of integrating multiple local acquirers/payment service providers (PSPs).** The cost-adding alternative payments and multiple local PSPs can greatly increase costs of localization and integration. Using Adyen as a consolidated provider with a common API for multiple payment formats allowed the composite organization to save \$241,533, PV.
- **Better revenue retention was realized and made possible by an improvement in fraud management and a lower write-off rate.** The Adyen risk engine utilizes real-time machine learning and deep analytics to minimize fraud at the point of transactions without hurting overall conversion. The result is twofold: The customer experience is improved as fewer customers have their order put on hold under manual review (or rejected altogether), while chargebacks from true fraud are reduced. Overall savings in this area were nearly \$6 million for the three-year study period, PV.
- **Dynamic 3D Secure further uplifted revenues in select European countries.** By selectively implementing 3D Secure in only certain regions that have shown receptiveness to the technology, the composite organization was already off to a good start. Adyen further improved the equation by selectively passing transactions based on risk and card characteristics through 3D Secure to optimize the balance between user experience and risk tolerances. Revenue gains in the select countries equated to nearly \$2.5 million over three years, PV.

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

- **Adyen merchant fees of \$1.7 million over three years, PV.** These are recurring costs that are paid to Adyen for merchant fees beyond typical local PSPs/acquirers. Interchange fees still apply but are standard among all payment providers. As this study focuses on the advantages and costs beyond those of standard/disparate providers, that particular segment of cost has not been included.
- **Adyen and alternative payment integration.** Integrations are still necessary with Adyen, but they are made simpler and quicker with its gateway and API tool set. The initial cost of integrating multiple regions amounted to \$120,000.

Disclosures

The reader should be aware of the following:

- › The study is commissioned by Adyen 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 Adyen global payment processing.
- › Adyen 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.
- › Adyen provided the customer names for the interviews but did not participate in the interviews.

TEI Framework And Methodology

INTRODUCTION

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

APPROACH AND METHODOLOGY

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

- › Interviewed Adyen marketing, sales, and/or consulting personnel, along with Forrester analysts, to gather data relative to Adyen and the marketplace for its payment processing.
- › Interviewed three organizations currently using Adyen payment processing to obtain data with respect to costs, benefits, and risks.
- › Designed a composite organization based on characteristics of the interviewed organizations.
- › Constructed a financial model representative of the interviews using the TEI methodology. The financial model is populated with the cost and benefit data obtained from the interviews as applied to the composite organization.
- › Risk-adjusted the financial model based on issues and concerns the interviewed organizations highlighted in interviews. Risk adjustment is a key part of the TEI methodology. While interviewed organizations provided cost and benefit estimates, some categories included a broad range of responses or had a number of outside forces that might have affected the results. For that reason, some cost and benefit totals have been risk-adjusted and are detailed in each relevant section.

Forrester employed four fundamental elements of TEI in modeling Adyen payment processing's service: 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.

FIGURE 2
TEI Approach



Source: Forrester Research, Inc.

Analysis

COMPOSITE ORGANIZATION

For this study, Forrester conducted a total of three interviews with representatives from the following companies, which are Adyen customers based globally:

- › An American eCommerce and flash sale retailer accepting multiple forms of payment. At the time of the study, it had a footprint in roughly 50 countries and accepted over 40 local payment methods.
- › A marketplace tech startup that has rapidly expanded globally and depended on Adyen to grow its portfolio of accepted payments in new geographies.
- › A top-five global apparel brand using Adyen to process its credit, debit, and alternative payments in Europe, Latin America, and portions of North America.

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an associated ROI analysis that illustrates the areas financially affected. The composite organization that Forrester synthesized from these results represents an organization with the following characteristics:

- › It is a US-based company with a global footprint in both physical locations and sales.
- › It has annual global revenues of \$1.5 billion, with the vast majority via eCommerce and roughly half of it attributed to the US market alone.
- › Payments accepted at this retailer include debit, credit cards, and a plethora of alternative payments that it sees as preferred methods of payment in certain international regions.
- › Card payments in general make up nearly 60% of its transactions overall.
- › It is a rapidly expanding organization, with intentions to grow market share in the domestic market as well in new markets internationally.

After an extensive review process evaluating multiple payment processors and gateway vendors, the composite organization chose Adyen and shifted a majority of its payments to the new solution:

- › The migration started in the United States, where it saw most of its credit card transactions.
- › Following a smooth rollout in the US, the composite organization expanded the migration to its international website, where alternative payments were used in conjunction with traditional card processing.
- › For redundancy and testing purposes, the organization kept some of its legacy processors, in particular the ones that handled one-off alternative payments.
- › Risk optimization and 3D Secure went live shortly after implementation of Adyen.

“Our exponential growth required a payments partner that could scale with us and meet the challenges of the global payment landscape. Adyen was the company that helped us through the challenge of launching in a new country every two weeks.”

~ Product manager of payments, eCommerce retailer

Situation

As an organization in the hypergrowth stage, the composite organization had an expansion plan that included not only the US, but also Europe, Latin America, and Asia. The modern eCommerce landscape has presented several popular payment forms. Therefore, the composite organization sought to optimize its payment strategy and improve the bottom line through higher payment acceptance rates and lower operation costs, and possibly improve its fraud rates. Fraud in particular was an issue in areas outside of the United States, with chargeback rates oftentimes double that of the rates domestically.

In the organization's previous state, disparate payment providers were in place, which demanded significant resources to adapt to the preferred payment methods of different countries. Given the pace of payment evolution, newer payment technologies came to market, making PSPs that handled multiple payment formats far more lucrative as consolidated solutions. Especially important was the matter of integration, as new integrations took significant technical resources and time that the composite organization scarcely possessed. In choosing a new payment processor, the composite organization required the following needs to be met:

- › The ability to process multiple global payment formats.
- › A consolidated solution that enabled simplified reporting and management.
- › A built-in API set for simplified alternative payment integration.
- › Advanced fraud detection on the processor side.
- › An optimized authorization algorithm.

Solution

Ultimately, the composite organization selected Adyen global payment processing for its breadth of payments accepted and acquiring route optimization. An added plus was the simplicity of integration to alternative payments like Sofort and Alipay, increasing the organization's agility into cross into new markets across borders. Most importantly, however, Adyen provided the background analytics to prevent fraud before these transactions flowed through the composite organization's internal approval processes.

Results

The interviews revealed that:

- › **The global payment landscape has changed to necessitate multiple payment method acceptance, but credit/debit cards are still extremely relevant.** Many regions require the implementation of specific payment methods, such as wallets and online bank transfers, in order to maximize order rates. The preference for local payment methods in China, Latin America, and some parts of Europe means that credit cards don't always dominate every market.² And while these alternative payments are important, card payment optimization cannot be ignored, as VISA/MC sales still comprise over 50% of the overall global revenue at the composite organization. With Adyen, card acceptance optimization was improved in multiple areas, resulting in revenue uplift that otherwise would have been missed.

“We needed a way to defend against chargebacks, with our losses in the millions. With Adyen and their risk management setup, our chargeback rate decreased greatly.”

~ Senior manager of financial services, top 5 global apparel brand

- › **Scaling payment method acceptance to meet consumer preference was a large undertaking that was made easier with Adyen as a global provider solution.** Adyen's global expertise in payments facilitated an easier integration with global payment formats, helping the expansion of the business into new markets. Not only was the integration easier, but the speed at which the composite organization was able to accomplish this was also greatly improved to net a greater time-to-market proposition.
- › **Fraud and chargebacks will always be a problem for organizations but can be better countered and optimized to protect revenue.** By far the largest issue at the composite organization, as at many other organizations that accept card payments, was the issue of fraud. Regions outside of the US suffered from card fraud as high as 3% prior to the implementation of Adyen as the main payment service provider/acquirer. The Adyen risk engine improved false negative detection — that is, the measurement of truly fraudulent orders — all while reducing false positives, which is the inaccurate flagging of good transactions as being fraudulent. Even as fraud rates have increased worldwide, the composite organization improved its fraud write-off rates with Adyen's better fraud management.³ Further still, the composite organization averted having to invest heavily into its own real-time risk analytics.

“They did a terrific job trying to understand our strategic goals and supported us with an approach to help us launch in multiple markets. . . . There were many things that they did along the way, like optimize our acceptance rate or help us with our process on verifications. A lot of times they actually handled logic for us that put us in better positions in the markets.”

~ Payments lead, global marketplace tech startup

BENEFITS

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

- › Non-US revenue uplift from intelligent card acquirer routing.
- › Revenue uplift from smart issuer logic and intelligent payment routing.
- › Revenue uplift from auto-retry on temporarily failed transactions.
- › Cost avoidance of establishing and integrating with disparate payment methods.
- › Revenue retention from fraud management and improved write-off rate.
- › Revenue uplift from Dynamic 3D Secure in select European regions.

The composite organization and interviewed organizations alike also cited the benefit of receiving Adyen's consultative expertise in global payments. As the fragmented payment landscape continues to evolve, choosing a provider that has deep knowledge of the various markets is a necessity for organizations looking to better navigate the international realm. This benefit has not been quantified in this study, but several organizations stated that their global expansion strategy could not have been implemented at the same speed without Adyen's expertise.



Non-US Revenue Uplift From Intelligent Card Acquirer Routing

Behind every card transaction, Adyen checks factors such as card issuer, region, and acquiring bank approval characteristics to determine the optimal route for authorizations to be sent, aiming for routes with the highest rate of authorization possible for non-US card transactions. While Adyen is an acquirer itself in multiple regions, transactions are routed agnostically through an extensive network of acquirers, which most regionalized PSPs cannot do. Without the transactional data that Adyen has data mined, retail organizations would have missed this revenue if using a solution of multiple regional PSPs. The result at the composite organization was a 1.5% transaction approval improvement, leading to a revenue uplift of \$1,463,071 over a three-year analysis period.

Interviewed organizations and different regions showed a broad range in approval improvements due to routing, because of differences between some acquirer and transaction types. To compensate and produce a more conservative forecast, this benefit was risk-adjusted and reduced by 15%. The risk-adjusted total benefit resulting from intelligent acquirer routing over three years was \$1,243,611, PV. See the section on Risks for more detail.

TABLE 1
Non-US Revenue Uplift From Intelligent Card Acquirer Routing

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
A1	Gross global revenue			\$1,500,000,000	\$1,500,000,000	\$1,500,000,000
A2	Percentage of revenue from non-North America regions			40%	40%	40%
A3	VISA/MC as a percentage of overall sales			52%	52%	52%
A4	Percentage of VISA/MC transactions processed through Adyen			60%	60%	60%
A5	Percentage of VISA/MC transactions routed by Adyen to local acquirer/optimized method			20%	20%	20%
A6	Authorization rate improvement from optimization			1.5%	1.5%	1.5%
A7	Revenue growth				5%	5%
At	Non-US revenue uplift from intelligent card acquirer routing	$(A1 * (1 + A7)^n \text{ year of growth}) * A2 * A3 * A4 * A5 * A6$	\$0	\$561,600	\$589,680	\$619,164
	Risk adjustment	↓15%				
Atr	Non-US revenue uplift from intelligent card acquirer routing (risk-adjusted)		\$0	\$477,360	\$501,228	\$526,289

Source: Forrester Research, Inc.



Revenue Uplift From Smart Issuer Logic And Intelligent Payment Routing

The composite organization additionally realized revenue uplift with Adyen's smart issuer logic and intelligent payment routing. Using the card bank identifiers, Adyen is able to present transactions in a manner that produces the highest authorization rates with that particular bank's acceptance configuration. The total three-year benefit for this category at the composite organization was \$286,671, PV.

We noted some disparity between organizations and the relative uplift this benefit offered, possibly due to banks changing their own algorithms on authorization acceptance. Therefore, we have compensated with a risk adjustment of 5%. Post risk adjustment, the total three-year analysis points to a total of \$272,337. See the section on Risks for more detail. As banks continue to modify their criteria in the future, we fully expect Adyen's analytics to adapt its logic to maintain its efficiency in BIN flagging.

TABLE 2

Revenue Uplift From Smart Issuer Logic And Intelligent Payment Routing

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
B1	Gross global revenue			\$1,500,000,000	\$1,500,000,000	\$1,500,000,000
B2	Credit/debit cards as a percentage of overall sales			57%	57%	57%
B3	Percentage of transactions processed through Adyen			60%	60%	60%
B4	Percentage of cards flagged for alternate issuer logic			0.055%	0.055%	0.055%
B5	Delta in authorization rate with new logic and no logic optimization			39%	39%	39%
B6	Annual revenue growth				5%	5%
Bt	Revenue uplift from smart issuer logic and intelligent payment routing	$B1*B2*B3*B4*B5*(1+B6)^n$ year of growth	\$0	\$110,039	\$115,540	\$121,317
	Risk adjustment	↓5%				
Btr	Revenue uplift from smart issuer logic and intelligent payment routing (risk-adjusted)		\$0	\$104,537	\$109,763	\$115,252

Source: Forrester Research, Inc.



Revenue Uplift From Auto-Retry On Temporarily Failed Transactions

Common to all merchants is the case of generic errors for card transactions. Causes for the errors typically reside with card-issuing banks or infrastructure-related transmission issues and are temporary in nature. The composite organization was no exception, with upwards of 7% of its total transactions reporting such errors. Previously, on its existing payment network, the merchant eCommerce platform would return a decline code to the customer, resulting in the customer either balking in disdain and shopping elsewhere or, worse, trying to check out multiple times, causing multiple identical charges that could have resulted in chargebacks arising out of frustration. The Adyen retry logic enabled a 3.5% improvement on the transactions that were eligible for retry, producing a three-year benefit of \$3,274,326.

Some variance between organizations was noted, and we attribute it to differences such as regionality and transactional paths to the banks. In favor of conservatism, we reduced this benefit category by 10%, for a final total of \$2,946,893, PV. See the section on Risks for more detail.

TABLE 3

Revenue Uplift From Auto-Retry On Temporarily Failed Transactions

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
C1	Total global revenue			\$1,500,000,000	\$1,500,000,000	\$1,500,000,000
C2	Credit/debit cards as a percentage of overall sales			57%	57%	57%
C3	Percentage of transactions processed through Adyen			60%	60%	60%
C4	Percentage of transactions eligible for retries			7%	7%	7%
C5	Authorization success with retry logic			3.5%	3.5%	3.5%
C6	Annual revenue growth				5%	5%
Ct	Revenue uplift from auto-retry on temporarily failed transactions	$C1 \cdot C2 \cdot C3 \cdot C4 \cdot C5 \cdot (1 + C6)^n$ year of growth	\$0	\$1,256,850	\$1,319,693	\$1,385,677
	Risk adjustment	↓10%				
Ctr	Revenue uplift from auto-retry on temp. failed transactions (risk-adjusted)		\$0	\$1,131,165	\$1,187,723	\$1,247,109

Source: Forrester Research, Inc.



Cost Avoidance Of Establishing And Integrating With Disparate Payment Methods

Multiple interviewees exclaimed that consolidation of payment partners was a goal prior to adopting Adyen. Some needed a global partner for rapid international expansion, while others wanted simplified reporting. Internal software stack and eCommerce integration with the payment gateway was pivotal to all of these organizations and was a huge plus for the composite organization. Prior to Adyen, attempts to integrate the rapidly growing number of alternative payments were complex, with some technical integrations taking upwards of a year. Following the adoption of Adyen, payment methods like Giropay and Alipay were easily integrated into the fold, drastically reducing long development periods. Using conservative estimations of \$14,000 per integration, the cost aversion of these technical integrations was \$241,533, PV.

TABLE 4

Cost Avoidance Of Establishing And Integrating With Disparate Payment Methods

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
D1	Translations/contracts/legal negotiation effort with each acquirer/PSP			\$4,000	\$4,000	\$4,000
D2	Technical integration per acquirer/PSP/payment provider, inclusive of maintenance			\$14,000	\$14,000	\$14,000
D3	Total number of payment providers/PSPs/acquirers, globally			6	6	4
Dt	Cost avoidance of establishing and integrating with disparate payment methods	$(D1 \cdot D3) + (D2 \cdot D3)$	\$0	\$108,000	\$108,000	\$72,000
	Risk adjustment	0%				
Dtr	Cost avoidance of establishing and integrating with disparate payment methods (risk-adjusted)		\$0	\$108,000	\$108,000	\$72,000

Source: Forrester Research, Inc.



Revenue Retention From Fraud Management And Improved Write-Off Rate

Fraud is a game of cat and mouse, with perpetrators constantly finding new ways to extract benefit from merchants, while merchants are ever-crusading to fight back against these new fraud schemes. In having processed massive volumes of historical transactions, Adyen applied live analytics to transactions and lowered fraud rates without an increase in legitimate transactions falsely identified as fraud (otherwise known as false positives). False negatives, or the passing through of truly fraudulent transactions, decreased beyond that of what standard rule-based filters could provide. In Europe, where credit card verification code validation and

address verification are not as commonly expected as in the United States, chargeback rates ranged up to over 3% of overall European sales and thus were a significant area of concern for the composite organization. Following the introduction of Adyen, the composite organization saw an overall reduction of fraud by 27%, and it conversely saw a decrease in write-off loss attributed to fraud.

For many organizations, false positives can be as high as 10% of total orders. While not all orders that are triggered to be fraudulent will ultimately be rejected, as manual reviews can sometimes save the order, a significant portion of these orders are realistically not captured. The composite organization identified a lower rate of false positives, with a rate of roughly 2.5%, and with Adyen, it was able to reduce false positives by another 20%. Manual reviews of orders were similarly reduced for a further gain, as the risk engine stopped fraud at an improved rate prior to being ruled as fraudulent. Ultimately, the composite organization experienced a benefit of \$9,979,936 over three years. Risk-adjusting for organizations that might have a majority of their sales in the United States or already have some sort of internally developed advanced risk engine, we reduced this benefit category by 40%. Reflecting this risk adjustment, the total three-year benefit was \$5,987,962, PV.

TABLE 5
Revenue Retention From Fraud Management And Improved Write-Off Rate

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
E1	Gross global revenue			\$1,500,000,000	\$1,500,000,000	\$1,500,000,000
E2	Credit/debit cards as a percentage of overall sales			57%	57%	57%
E3	Percentage of transactions processed through Adyen			60%	60%	60%
E4	Global card revenue processed through Adyen	E1*E2*E3		\$513,000,000	\$513,000,000	\$513,000,000
E5	Existing state chargeback write-off percentage			0.8%	0.8%	0.8%
E6	Improvement in chargeback write-off rate with automated fraud/risk engine, not accounting for manual reviews			27%	27%	27%
E7	Percentage of transactions that result in false positive declines (legitimate orders flagged as fraud)			2.5%	2.5%	2.5%

E8	Improvement in false positives			20%	20%	20%
E9	Reduction in manual reviews, outsourced fees			\$340,000	\$340,000	\$340,000
Et	Revenue retention from fraud management and improved write-off rate	$E4*(E5*E6)+E4*(E7*E8)+E9$	\$0	\$4,013,080	\$4,013,080	\$4,013,080
	Risk adjustment	↓40%				
Etr	Revenue retention from fraud management and improved write-off rate (risk-adjusted)		\$0	\$2,407,848	\$2,407,848	\$2,407,848

Source: Forrester Research, Inc.



Revenue Uplift From Dynamic 3D Secure In Select European Regions (The UK, France, Hungary, Sweden)

In having extended itself to the EMEA region, the composite organization encountered new logic to optimal card processing as it pertained to 3D Secure. Most regions exhibit decreased order capture rates with 3D Secure, and many see it as an extra step that hinders the checkout process. However, Adyen's data analytics indicated that some countries, especially in particular situations, increase bottom-line capture amounts with the use of 3D Secure. Factors such as card type, order amount, and time of order all affected the likelihood of 3D Secure being positively or negatively received, and each was assessed for its effect on net conversion amounts in an automated fashion at the time of transaction. The composite organization realized a three-year total benefit in this area of \$2,447,062, PV.

TABLE 6

Revenue Uplift From Dynamic 3D Secure In Select European Regions (The UK, France, Hungary, Sweden)

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
F1	Select regional share of retail sales, annually, transacted with debit/credit cards			\$60,000,000	\$60,000,000	\$60,000,000
F2	Revenue uplift from Dynamic 3D Secure adjustment, percentage of total card volume			1.64%	1.64%	1.64%
Ft	Revenue uplift — Dynamic 3D Secure in select European regions (the UK, France, Hungary, Sweden)	$F1 \times F2$	\$0	\$984,000	\$984,000	\$984,000
	Risk adjustment	0%				
Ftr	Revenue uplift — Dynamic 3D Secure in select European regions (the UK, France, Hungary, Sweden) (risk-adjusted)		\$0	\$984,000	\$984,000	\$984,000

Source: Forrester Research, Inc.

Total Benefits

Table 7 shows the total of all benefits across the six areas listed above, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total benefits to be a PV of more than \$13 million.

TABLE 7
Total Benefits (Risk-Adjusted)

Ref.	Benefit Category	Initial	Year 1	Year 2	Year 3	Total	Present Value
Atr	Non-US revenue uplift from intelligent card acquirer routing	\$0	\$477,360	\$501,228	\$526,289	\$1,504,877	\$1,243,611
Btr	Revenue uplift from smart issuer logic and intelligent payment routing	\$0	\$104,537	\$109,763	\$115,252	\$329,552	\$272,337
Ctr	Revenue uplift from auto-retry on temporarily failed transactions	\$0	\$1,131,165	\$1,187,723	\$1,247,109	\$3,565,998	\$2,946,893
Dtr	Cost avoidance of establishing and integrating with disparate payment methods	\$0	\$108,000	\$108,000	\$72,000	\$288,000	\$241,533
Etr	Revenue retention from fraud management and improved write-off rate	\$0	\$2,407,848	\$2,407,848	\$2,407,848	\$7,223,544	\$5,987,962
Ftr	Revenue uplift — Dynamic 3D Secure in select European regions (the UK, France, Hungary, Sweden)	\$0	\$984,000	\$984,000	\$984,000	\$2,952,000	\$2,447,062
	Total benefits (risk-adjusted)	\$0	\$5,212,910	\$5,298,563	\$5,352,498	\$15,863,971	\$13,139,397

Source: Forrester Research, Inc.

COSTS

The composite organization experienced a number of costs associated with the Adyen global payment processing solution:

- › Adyen merchant fees.
- › Adyen and alternative payment integration.

These represent the mix of internal and external costs experienced by the composite organization for initial planning, implementation, and ongoing maintenance associated with the solution.



Adyen Merchant Fees

Merchant fees that differed from standard regional PSPs consisted primarily of per-transaction fees when Adyen was the acquiring party. Readers should note that as this case study is based on an existing state of having regionalized PSPs rather than having Adyen as the primary payment processor, interchange fees (or the advantages of accepting payment cards) have not been added to the financial analysis. Merchant fees beyond interchange totaled \$1,758,499 over three years, PV.

TABLE 8
Adyen Merchant Fees

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
G1	Gross global revenue			\$1,500,000,000	\$1,500,000,000	\$1,500,000,000
G2	Average basket size			\$38	\$38	\$38
G3	Annual revenue growth				5%	5%
G4	Credit/debit cards as a percentage of total sales			57%	57%	57%
G5	Average Adyen transaction fees beyond other processors			\$0.03	\$0.03	\$0.03
Gt	Adyen merchant fees	$G1/G2 * (1+G3)^{n-1} * G4 * G5$	\$0	\$675,000	\$708,750	\$744,188
	Risk adjustment	0%				
Gtr	Adyen merchant fees (risk-adjusted)		\$0	\$675,000	\$708,750	\$744,188

Source: Forrester Research, Inc.



Adyen And Alternative Payment Integration

With a comprehensive set of APIs and gateway functionality, the composite organization found that implementing alternative payments across various regions was a reasonably straightforward exercise. Localization of payment acceptance averaged \$4,000 per region and totaled \$120,000 in initial implementation work.

TABLE 9
Adyen And Alternative Payment Integration

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
H1	Developer integration with Adyen API/tunnel, average per region		\$4,000			
H2	Number of global regions integrated		30			
Ht	Adyen and alternative payment integration	H1*H2	\$120,000	\$0	\$0	\$0
	Risk adjustment	0%				
Htr	Adyen and alternative payment integration (risk-adjusted)		\$120,000	\$0	\$0	\$0

Source: Forrester Research, Inc.

TABLE 10
Total Costs (Risk-Adjusted)

Ref.	Cost Category	Initial	Year 1	Year 2	Year 3	Total	Present Value
Gtr	Adyen merchant fees	\$0	\$675,000	\$708,750	\$744,188	\$2,127,938	\$1,758,499
Htr	Adyen and alternative payment integration	\$120,000	\$0	\$0	\$0	\$120,000	\$120,000
Total costs (risk-adjusted)		\$120,000	\$675,000	\$708,750	\$744,188	\$2,247,938	\$1,878,499

Source: Forrester Research, Inc.

FLEXIBILITY

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for some future additional investment. This provides an organization with the “right” or the ability to engage in future initiatives but not the obligation to do so. There are multiple scenarios in which a customer might choose to implement Adyen 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 A).

A primary reason many customers chose Adyen was for its breadth of payment coverage. Adyen interfaces and processes multiple payment types globally, and numerous customers noted an increase in coverage from their previous PSPs. While not all organizations will utilize the additional payment methods, the relationships that Adyen continues to cultivate will ultimately increase value to all customers through continuous improvements in behind-the-scenes routing, presentation, and retry logic.

RISKS

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

TABLE 11
Benefit And Cost Risk Adjustments

Benefits	Adjustment
Non-US revenue uplift from intelligent card acquirer routing	↓ 15%
Revenue uplift from smart issuer logic and intelligent payment routing	↓ 5%
Revenue uplift from auto-retry on temporarily failed transactions	↓ 10%
Revenue retention from fraud management and improved write-off rate	↓ 40%
Costs	Adjustment
N/A	

Source: Forrester Research, Inc.

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

The following impact risks that affect benefits are identified as part of the analysis:

- › Non-US revenue uplift from intelligent card acquirer routing could be affected by the organization’s presence in international markets. As some acquirers in certain countries show higher approval rates than others, an increased presence in regions with fewer routing optimization opportunities will decrease this benefit category.
- › Revenue uplift from BIN flagging authorization logic may be lower in some areas where banks show decreased preference variability in how card transactions are presented.
- › Revenue uplift from auto-retries of temporarily failed transactions can sometimes be a factor of transactional path through networks. Some pathways in more developed regions with better public network infrastructure can reduce general errors from occurring in the first place.
- › Revenue retention from fraud management and write-off improvement has been risk-adjusted downward to reflect the possibility that some organizations have already developed machine learning or deep analytics on the fraud front. As Adyen analyzes far more transactional data than any single merchant, we believe the benefit to be still quite pronounced, even with merchant-side analytics.

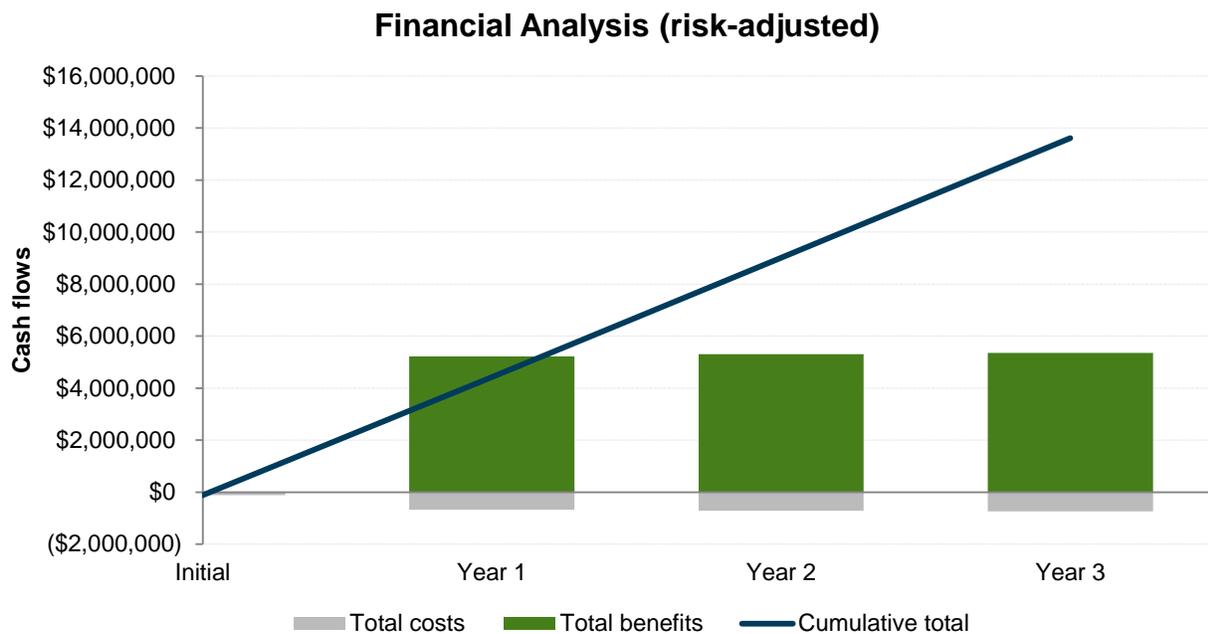
Table 11 shows the values used to adjust for risk and uncertainty in the cost and benefit estimates for the composite organization. Readers are urged to apply their own risk ranges based on their own degree of confidence in the cost and benefit estimates.

Financial Summary

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

Table 12 below shows the risk-adjusted ROI, NPV, and payback period values. These values are determined by applying the risk-adjustment values from Table 11 in the Risks section to the unadjusted results in each relevant cost and benefit section.

FIGURE 3
Cash Flow Chart (Risk-Adjusted)



Source: Forrester Research, Inc.

TABLE 12
Cash Flow (Risk-Adjusted)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Costs	(\$120,000)	(\$675,000)	(\$708,750)	(\$744,188)	(\$2,247,938)	(\$1,878,499)
Benefits	\$0	\$5,212,910	\$5,298,563	\$5,352,498	\$15,863,971	\$13,139,397
Net benefits	(\$120,000)	\$4,537,910	\$4,589,813	\$4,608,311	\$13,616,033	\$11,260,898
ROI						599%

Source: Forrester Research, Inc.

Adyen Global Payment Processing: Overview

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

Adyen is a leading payments technology company that enables merchants to accept payments in-app, online or in stores with a single, global platform. Adyen’s customers include leading brands such as Facebook, Uber, Netflix, Spotify, Mango, Crocs, Travian Games, KLM, Booking.com and Airbnb. Adyen manages the whole payment flow from checkout to final settlement, providing merchants with consolidated reporting.

A SINGLE PLATFORM ACROSS ONLINE, MOBILE AND IN-STORE

Adyen offers an omnichannel solution so merchants can accept payments in-app, online and in-store at the point-of-sale (POS). This provides merchants cross-channel data so they can target offers and track consumer behavior across numerous touch points, as well as offer new experiences such as endless aisle, cross-channel returns, and mobile POS checkout.

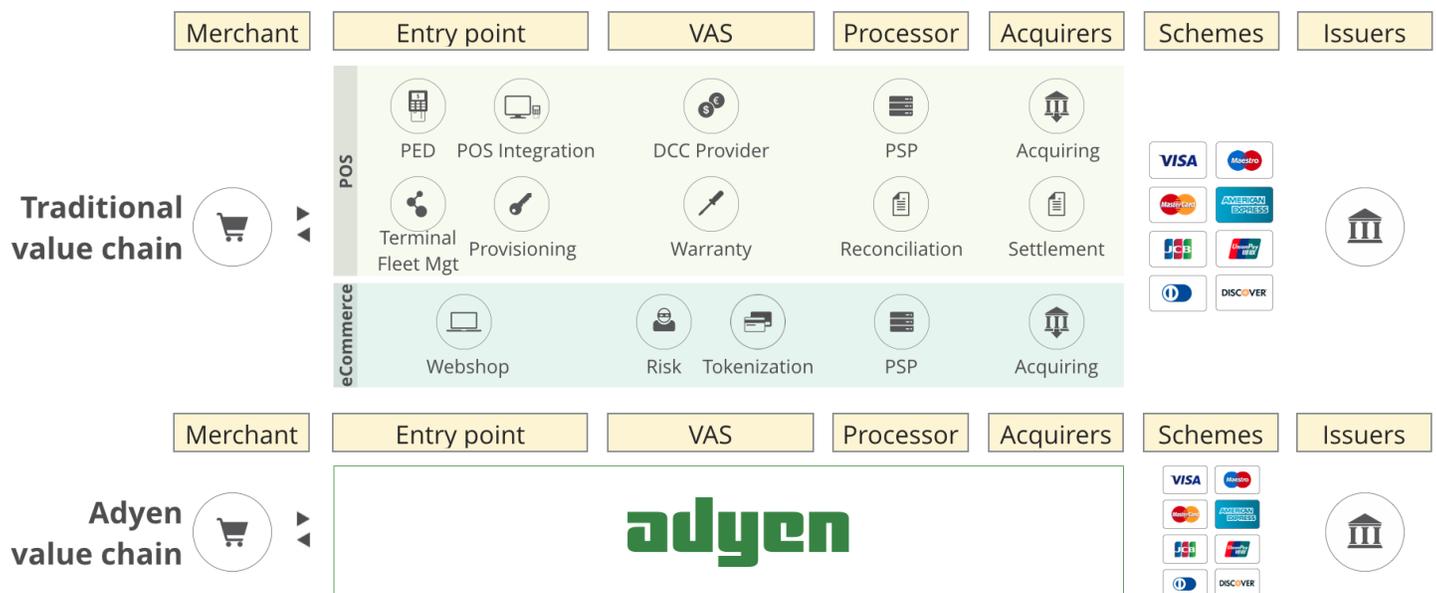
LOCAL PAYMENT SUPPORT FOR GLOBAL EXPANSION

Adyen helps merchants expand globally by catering to local payment needs. Specifically,

Adyen supports over 250 payment methods in 200 countries and territories, including cards, direct debit, online banking, e-wallets (e.g. PayPal, Alipay) and cash-based payment methods (e.g. Boletos, Oxxo). As a result of optimizing these payment preferences, Adyen’s customers typically see uplift in checkout conversion.

ACQUIRER ON 5 CONTINENTS

Adyen connects merchants directly to the major card schemes in the U.S., Europe, LATAM, Australia, and soon Asia, dramatically simplifying the value chain and removing the need for additional 3rd parties. This means Adyen is a local acquirer in many markets, resulting in improved authorization rates and lower fees for merchants.



STREAMLINED PAYMENT FLOW

Adyen helps remove friction in the purchase flow, with features such as mobile-friendly payment pages, one click and recurring payments, and real-time A/B testing of payment pages. Ultimately, these help convert more buyers and increase revenue for Adyen's customers.

FRAUD DETECTION AND RISK MANAGEMENT

RevenueProtect, Adyen's data-driven risk management solution, was designed to help merchants combat fraud while simultaneously maximizing conversions. Specifically, by using advanced machine learning and multiple data sources, RevenueProtect differentiates between 'good shoppers' and fraudsters. In addition, RevenueProtect dynamically applies 3D Secure to transactions identified as "high risk" and manages disputes and chargebacks automatically.

RICH ANALYTICS TO GROW REVENUE

Adyen provides detailed transaction data through comprehensive reports and analytics available in a simple, web-based dashboard. In addition, Adyen provides merchants with a suite of tools to systematically improve authorization rates around the world and ultimately grow their revenue.

CERTIFICATIONS AND BACKGROUND

Adyen is fully PCI Level 1 compliant and monitored by Trust-wave, an ASV and a QSA for the Payment Card Industry Security Standards. It is a privately owned and financially independent, registered and monitored by the Dutch Central Bank as a payment institution under the European Payment Service Directive (PSD, 2007/64/EC).

Appendix A: Total Economic Impact™ Overview

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

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

BENEFITS

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

COSTS

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

FLEXIBILITY

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

RISKS

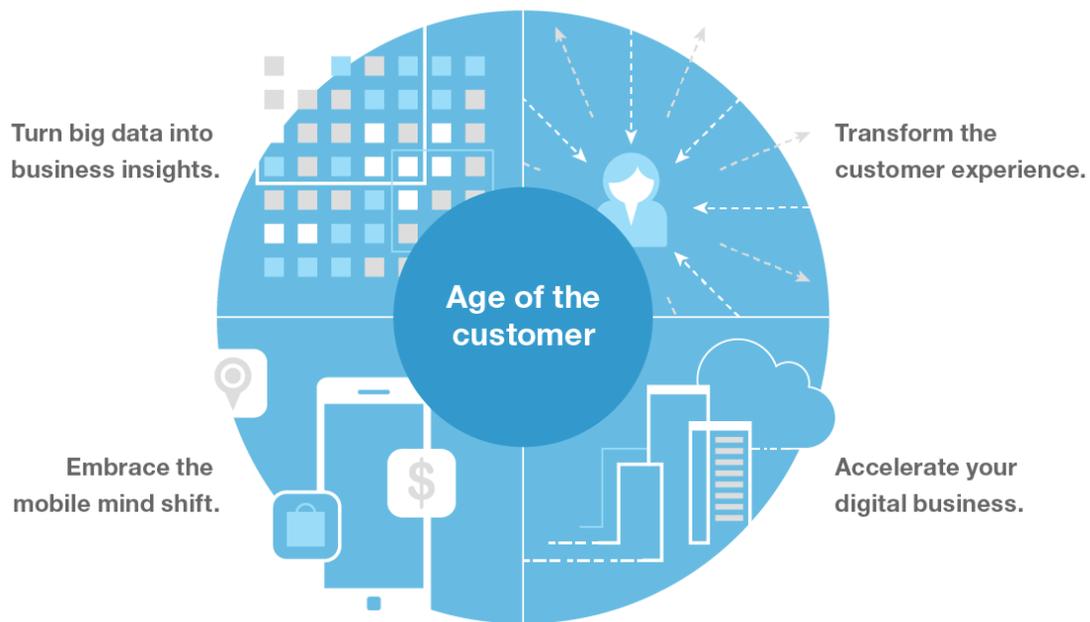
Risks measure the uncertainty of benefit and cost estimates contained within the investment. Uncertainty is measured in two ways: 1) the likelihood that the cost and benefit estimates will meet the original projections and 2) the likelihood that the estimates will be measured and tracked over time. TEI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

Appendix B: Forrester And The Age Of The Customer

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

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

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



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



Transform the customer experience to gain sustainable competitive advantage.



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



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



Turn (big) data into business insights through innovative analytics.

Appendix C: Glossary

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

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

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

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

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

A NOTE ON CASH FLOW TABLES

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

Sums and present value calculations of the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.

TABLE [EXAMPLE]
Example Table

Ref.	Metric	Calculation	Year 1	Year 2	Year 3

Source: Forrester Research, Inc.

Appendix D: Supplemental Material

Related Forrester Research

“Stop Billions in Fraud Losses With Machine Learning,” Forrester Research, Inc., April 6, 2015

“Seven Must-Haves For Successful Website Localization,” Forrester Research, Inc., September 8, 2015

“Market Overview: eCommerce Fraud Management Solutions, 2014,” Forrester Research, Inc., February 4, 2014

Appendix E: Endnotes

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

² Source: “Seven Must-Haves For Successful Website Localization,” Forrester Research, Inc., September 8, 2015.

³ Source: “2015 LexisNexis Risk Solutions True Cost of Fraud 2015 Study,” LexisNexis, September 2015 (<http://www.lexisnexis.com/risk/downloads/assets/true-cost-of-fraud-2015-study.pdf>).