

A Forrester Total Economic Impact™ Study
Commissioned By Microsoft
March 2020

The Total Economic Impact™ Of Microsoft Power BI

One In A Series Of Total Economic Impact™ Analyses
Looking At Microsoft Power Platform Solutions

Table Of Contents

Executive Summary	1
Key Findings	1
TEI Framework And Methodology	3
The Microsoft Power BI Customer Journey	4
Interviewed And Surveyed Organizations	4
Key Challenges	4
Key Results	5
Composite Organization	5
Analysis Of Benefits	6
Improved BI-Related Business Outcomes	6
Lower Total Cost of Ownership	7
Increased Business User Productivity	8
Unquantified Benefits	9
Flexibility	10
Analysis Of Costs	11
Internal Effort	11
Power BI Costs	11
Financial Summary	13
Power BI: Overview	14
Appendix A: Total Economic Impact	15

Project Director:
Jonathan Lipsitz

Project Contributor:
Adrienne Capaldo

ABOUT FORRESTER CONSULTING

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

© 2020, Forrester Research, Inc. All rights reserved. Unauthorized reproduction is strictly prohibited. Information is based on best available resources. Opinions reflect judgment at the time and are subject to change. Forrester®, Technographics®, Forrester Wave, RoleView, TechRadar, and Total Economic Impact are trademarks of Forrester Research, Inc. All other trademarks are the property of their respective companies. For additional information, go to forrester.com.

Key Benefits



Reduced centralized analytics team effort:

42%



Operating income uplift linked to better business intelligence:

2.5%



BI user's hours saved from increased self-service (annual):

125

Executive Summary

Microsoft provides business intelligence solutions that help its customers democratize data analytics and get better insights faster. Microsoft commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying Microsoft Power BI. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Power BI on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed four customers and surveyed an additional 59 using Power BI either with or without other Microsoft Power Platform products — Power Apps and Power Automate. Regardless, this study looks specifically at the benefits and costs associated with Power BI as a standalone solution. Interviewees said that by improving business intelligence in terms of quality and timeliness of decisions, they were able to improve business outcomes and user efficiencies. These improvements delivered business benefits such as reduced time-to-market, better customer service, and increased revenues.

Prior to using Power BI, organizations used a mix of solutions including other vendor solutions, spreadsheets, and homegrown tools. This meant that there was a backlog of analytics projects that required help from database administrators (DBAs)/data scientists while users were making decisions based more on intuition rather than facts. Adopting Power BI transformed the culture to be more data-driven. One interviewee said, “People can make decisions faster because they get the data they need in days instead of months.”

Key Findings

Quantified benefits. The following risk-adjusted present value (PV) quantified benefits are representative of those experienced by the interviewed and surveyed companies and applied to a composite organization with 2,000 Power BI users:

- › **Improved analytics delivered tangible business benefits.** Companies experienced a wide range of business benefits due to better and timelier analysis and decision making by using Power BI. These benefits include things such as increased revenues, decreased operating and supply chain costs, and faster entry into new markets. The financial model includes increased operating income from a combination of revenue growth and lower operating costs. The total risk-adjusted benefit over three years is \$2.9 million.
- › **Moving to Power BI reduced the total cost of ownership (TCO).** Power BI promotes data democratization, which means the amount of data analytics projects and users could increase without growing the core data analytics team as much and other vendor solutions could be retired. The total TCO savings over three years is \$2.3 million.
- › **Power BI users saved time because of faster access to important information.** Business users across many different roles became more efficient because they were not waiting for reports to become available or for a centralized data analytics team to complete new data analytics projects. The time savings vary by role, and the average savings was 1.25 hours per week. Applying a 50% productivity capture (because not



ROI
366%



Benefits PV
\$8.9 million



NPV
\$7.0 million



Payback
<6 months

all productivity gains translate into additional work), the composite organization achieves \$3.6 million in efficiencies.

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

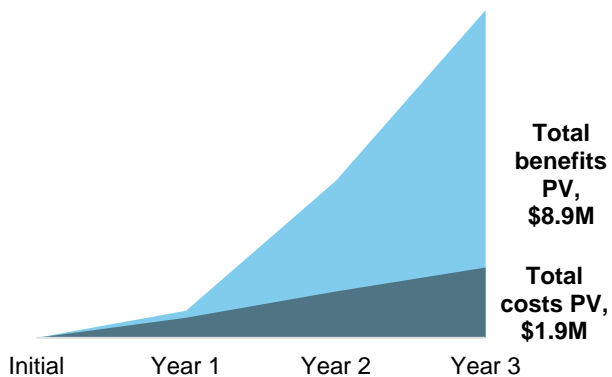
- › **Power BI empowered users, which increased employee satisfaction.** Creating a data-driven and data-democratization culture increased employee satisfaction because they felt more empowered to make meaningful contributions to the organization. This translates into things such as better employee retention.
- › **Security and compliance improved.** Power BI helped with challenges such as data segregation to make sure users cannot access information they should not. This improved overall data security and can help with internal and regulatory compliance.

Costs. The interviewed organizations experienced the following risk-adjusted PV costs, modeled by the composite organization:

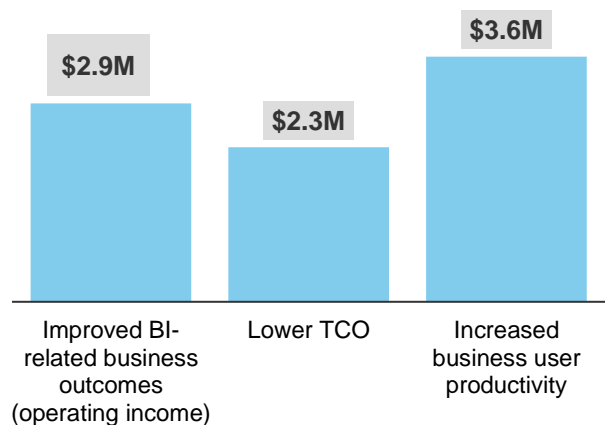
- › **Internal effort includes the central data analytics team as well as the time users spend learning Power BI.** The Power BI adoption started organically and then the IT organization championed it to spread it further. There are four data analysts/DBAs supporting the organization, which is less than what would be required, as shown in the Benefits section of this study. Each user also spends two hours training on Power BI. The total cost over three years is \$1.5 million.
- › **Each Power BI user is assumed to be using Power BI Pro licenses.** This license enables users to read reports created by other users and to interact with other Power BI users to co-create. Using this license costs helps isolate the Power BI cost-benefit story from the broader Microsoft 365 story. The three-year total cost is \$420,391.

Forrester's interviews with four existing customers, survey of an additional 59 customers, and subsequent financial analysis found that a composite organization based on these organizations would experience benefits of \$8.9 million over three years versus costs of \$1.9 million, adding up to a net present value (NPV) of \$7.0 million and an ROI of 366%.

Financial Summary



Benefits (Three-Year)



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

TEI Framework And Methodology

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

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 Power BI can have on an organization:



DUE DILIGENCE

Interviewed Microsoft stakeholders and Forrester analysts to gather data relative to Power BI.



CUSTOMER INTERVIEWS AND SURVEY

Interviewed four organizations and surveyed an additional 59 using Power BI to obtain data with respect to costs, benefits, and risks.



COMPOSITE ORGANIZATION

Designed a composite organization based on characteristics of the interviewed and surveyed organizations.



FINANCIAL MODEL FRAMEWORK

Constructed a financial model representative of the interviews and survey 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 Power BI'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 Microsoft 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 Power BI.

Microsoft 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.

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

The Microsoft Power BI Customer Journey

BEFORE AND AFTER THE POWER BI INVESTMENT

Interviewed And Surveyed Organizations

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

INDUSTRY	REGION	INTERVIEWEES	POWER BI USERS
Beverage distributor	US regional	-Cloud services manager	1,600
Financial services	UK	-Head of CRM solutions -Chief data officer	3,500
Field services	Global	-Director -IT operations -Digital transformation manager	10,000
Bank	HQ in Africa	-BI specialist	3,000

There were 59 survey respondents using Power BI. The top three industries were IT professional services, financial services, and business services. The average number of Power BI users was 1,242.

Key Challenges

The interviewed companies faced these common challenges around delivering better access to data and creating a data-driven culture:

- › **Previous data analytics solutions impeded business transformation initiatives.** Interviewed companies wanted to transform through increased use of data analytics. Their prior solutions could not provide users with the information they needed to be successful in their jobs. Transformation also required a culture change to become a data-driven organization.
- › **The existing data analytics team could not support data-democratization growth.** Moving to a data-driven culture means that there are many more requests for data-related projects. The existing, centralized IT/data analytics teams could not support this growth without adding a lot of additional people, which was not feasible.
- › **Previous solutions were too limiting in features and expensive to expand usage.** Prior solutions had very high seat license costs and/or maintenance contracts. Some also required costly upgrades every few years, and until the upgrades were completed, the solutions did not deliver the latest data analytics capabilities.

The top four adoption drivers from the survey included:

- › IT could not keep up with delivery requests.
- › There was a need to deliver more actionable and better quality of insights.
- › The organization wanted to replace paper-based/manual processes.
- › The organization wanted to reduce reliance on overly complex systems.

“Users know what they need to do their jobs, so it makes sense for them to build their own dashboards. The IT organization doesn’t know the business requirements as well, and it would take three to four months to roll something out. By the time we build it, the business need is gone.”

BI specialist, bank



Key Results

The interviews and survey revealed several key results from the Power BI investment:

- › **The companies gained better and faster analytics, which improved business outcomes.** The most important thing for companies was to gain better analytics to improve decision making and increase agility. This took many forms, including increased sales, better cashflows, faster time-to-market with new products, lower operating and inventory costs, and increased customer satisfaction. “People are getting to root causes now. They better understand the strengths and weaknesses of our company and are making meaningful changes.” (Financial services)
- › **Data democratization empowered users and saved time.** Putting data in the hands of more users and giving them the ability to create their own analyses and reports was very valuable. This removed IT bottlenecks and increased creativity and agility. “People are definitely saving time. Previously, they used paper-based processes, spreadsheets, and multiple systems to get the data they needed.” (Financial services)
- › **Moving to Power BI saved money.** The financial analysis section of this study includes examples of cost savings. One interviewee said: “We were able to cancel a maintenance contract on day one and are phasing out other licenses as the contracts come up.” (Bank)

The top five business benefits from the survey included:

- › Improved IT team productivity.
- › Better customer service.
- › Faster solution quoting.
- › Increased revenues.
- › Faster time-to-market with new products/services/solutions.

Composite Organization

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

The composite organization is a US-based company with global sales and operations. Total revenues equal \$500 million and grow at 5% per year. There are 10,000 employees and 2,000 Power BI users by Year 3 of the study. Adoption of Power BI is originally organic, and the IT organization later champions it to promote further adoption. All Power BI users are on Power BI Pro licenses.

“Power BI is the vehicle that helps people focus on the right things. In the past, different geographies would be looking at different data views and making bad decisions. We couldn’t get to the truth.”

*Cloud services manager,
beverage distribution*



Key assumptions

\$500 million in revenue

2,000 Power BI users

Analysis Of Benefits

QUANTIFIED BENEFIT DATA AS APPLIED TO THE COMPOSITE

Total Benefits

REF.	BENEFIT	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Atr	Improved BI-related business outcomes (operating income)	\$0	\$1,178,625	\$2,618,438	\$3,797,063	\$2,941,341
Btr	Lower TCO	\$378,000	\$1,233,000	\$1,233,000	\$2,844,000	\$2,289,016
Ctr	Increased business user productivity	\$427,562	\$1,838,975	\$2,298,719	\$4,565,255	\$3,635,568
	Total benefits (risk-adjusted)	\$805,562	\$4,250,600	\$6,150,156	\$11,206,318	\$8,865,925

Improved BI-Related Business Outcomes

All of the interviewed companies reported better analytics since moving to Power BI. That resulted in a set of meaningful improvements to the companies' overall performances. Examples included gaining increased revenues, more efficient business processes, faster time-to-market, lower inventory and supply chain costs, and better cashflows. Interviewees shared the following examples:

- › “We connected Power BI to our learning management system to do better compliance reporting on required training. We are also using it for sales, financial, and labor reporting.”
- › “Power BI reports auto-refresh every day at 8 a.m. In the past, people had to do manual pivot table refreshes. We are now seeing better consistency and governance because everyone is looking at the same thing. That allows us to act quicker and in unison.”
- › “Power BI was our first entry to the Power Platform. We are better able to put data analyses into action.”
- › “We now make more intelligent insight. We can make key decisions faster without the need for a data visualization team.”
- › “We had an open cash project for unbilled jobs. In the past, the financial controller would have to call engineers to find out what was going on with projects. The solution uses Power BI with Power Apps. Within two weeks, unbilled days were decreased from 31 down to 16. That has resulted in \$7.5 million of free cash flow for just one product line.”
- › “We created a sales reporting solution based on Power BI extracts. It has delivered \$150 million in better cashflow because of fewer days outstanding.”

The survey revealed additional business-related benefits:

- › Time-to-market for new products and services decreased from 18 months to 10 months.
- › Revenue increased by 4.8%.
- › Solution quoting became 22.6% faster.

The table above shows the total of all benefits across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total benefits to be a PV of nearly \$8.9 million.

“We use Power BI to make lending decisions. We can now give an answer in minutes which has resulted in [hundreds of millions of dollars] in new lending per year. We are also much quicker to market with new offerings.”

BI specialist, bank



For the financial analysis, Forrester assumes:

- › The composite organization’s annual revenue is \$500 million and grows 5% per year.
- › Beginning in Year 2, analytics adds additional revenue growth from better sales, customer service, and store analytics.
- › An operating income margin is applied to isolate bottom-line improvements to the company. This margin increases over the life of the study because analytics contribute to improved operations and inventory management.

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

This benefit can vary widely depending on the types of initiatives that Power BI are being used for, as well as existing revenues and margins. To account for these risks, Forrester adjusts this benefit downward by 20%, yielding a three-year, risk-adjusted total PV of \$2.9 million.

Improved BI-Related Business Outcomes: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
A1	Baseline revenues	Growing at 5% p.a.	\$500,000,000	\$525,000,000	\$551,250,000
A2	Power BI-related increased revenue %		0%	0.25%	0.75%
A3	BI-related increased revenues	A1*A2	\$0	\$1,312,500	\$4,134,375
A4	Operating-margin		12.0%	12.3%	12.5%
At	Improved BI-related business outcomes (operating income)	A3*A4+A1*(A4cy-A4y1)	\$0	\$1,473,281	\$3,273,047
	Risk adjustment	↓20%			
Atr	Improved BI-related business outcomes (operating income) (risk-adjusted)		\$0	\$1,178,625	\$2,618,438

Lower Total Cost of Ownership

Interviewees and survey respondents said that moving to Power BI lowered total cost of ownership (TCO) more than previous solutions. Contributing factors included the elimination of other solutions that may have become cost-prohibitive at scale and a need to support data democratization without adding a lot of people to a centralized data analytics organization. Interviewees provided the following examples:

- › “We canceled our [previous solution] maintenance contract and used those savings to pay for Power BI. We are in the process of completely getting rid of other solutions.”
- › “We eliminated another data visualization tool with a very high seat cost.”

For the financial analysis, Forrester assumes that supporting increased demands in a centralized model would have required twice as many resources, as noted in the Costs section of this study. Subtracting the remaining team size from the Costs section provides the net benefit. Additionally, \$250,000 per year in previous solution license and maintenance costs are eliminated.

The benefit will vary based on which analytics solutions were previously

“We were a team of 40 split between three geographies – 25 analysts and 15 developers. We are now a team of 10 because business users are doing their own analysis. The central team has been reassigned and is closer to the lines of business.”

BI specialist, bank



in place and how the analytics team was structured. To account for these risks, Forrester adjusts this benefit downward by 10%, yielding a three-year risk-adjusted total PV of \$2.3 million.

Lower Total Cost Of Ownership: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
B1	Size of centralized data analytics team (without Power BI)	D2*2 [50% in Year 1]	3	8	8
B2	Team costs	B1*\$140,000	\$420,000	\$1,120,000	\$1,120,000
B3	Eliminated other solution costs	[Beginning Year 2]		\$250,000	\$250,000
Bt	Lower TCO	B2+B3	\$420,000	\$1,370,000	\$1,370,000
	Risk adjustment	↓10%			
Btr	Lower TCO (risk-adjusted)		\$378,000	\$1,233,000	\$1,233,000

Increased Business User Productivity

Interviewees also noted improved productivity for business users engaged in BI activities. They saw improvements from gaining more timely access to more information to make decisions and not having to wait for centralized IT organizations to create new reports and data extracts. They also benefited from increased usability and system performance. Interviewees provided the following examples:

- › “We have a standard form for a data request which assigns it to someone on the analytics team. Our average time to complete a request with Power BI is 2.7 days. Other banks are taking three months on average to do similar things.”
- › “The biggest benefit is users creating their own reports. It cuts the wait time from a couple of months down to a simple, ad hoc creation.”
- › “In the past, HR would create a macro to do something in our previous solution. We showed them that with Power BI, they could reduce the effort from five days to nearly instantaneous and get insights right away.”
- › “Power BI is helping with branch efficiency. It saves 40 hours per month in reporting at each branch. At our headquarters, we have 1,400 people who are saving time because of Power BI.”
- › “Uptime and performance are a lot better than our previous BI solutions.”

The survey revealed that Power BI users save two hours per week compared to previous solutions. To be conservative, Forrester assumes a savings of 1.25 hours per week for the composite organization, and only half of the benefit is realized in Year 1. A 50% productivity capture is applied because not all time savings result in additional productive output.

The benefit will vary based on the previous BI solutions, the number of users, and generally how efficient they were before. To account for these risks, Forrester adjusts this benefit downward by 15%, yielding a three-year risk-adjusted total PV of \$4.3 million.

“People are absolutely more efficient because of Power BI.”

Head of CRM solutions, financial services



Increased Business User Productivity: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
C1	Number of Power BI users		750	1,600	2,000
C2	Time saved	50 weeks*1.25 hours [50% in Year 1]	31.00	62.50	62.50
C3	Hourly fully burdened cost	\$90,000/2,080 hours (rounded)	\$43.27	\$43.27	\$43.27
C4	Business user productivity gain	C1*C2*C3	\$1,006,028	\$4,327,000	\$5,408,750
C5	Productivity capture		50%	50%	50%
Ct	Increased business user productivity	C4*C5	\$503,014	\$2,163,500	\$2,704,375
	Risk adjustment	↓15%			
Ctr	Increased business user productivity (risk-adjusted)		\$427,562	\$1,838,975	\$2,298,719

Unquantified Benefits

Interviewees described other business benefits that are not included in the financial analysis. That's because there is too great a variation or it is impossible to add a realistic financial value to the business benefit (e.g., increased employee satisfaction).

Power BI empowers users, which increases employee satisfaction.

Creating a data-driven and data-democratization culture increases employee satisfaction because they feel more empowered to make meaningful contributions to their organization. This can translate into things such as better retention.

- › “The feedback on Power BI from people who joined from other banks has been phenomenal. They like how professional it is, and how all information is in one place.”
- › “Everyone having access to all the information they need has made them more data-aware and data-driven. It's created a data-centric culture. People are happier because of this, and it is part of their daily conversations.”

Improved Security And Compliance

Interviewees each said that Power BI has improved their organization's data security and helped with compliance. Some examples include:

- › “We had a lot of security concerns before because people were emailing around reports and the underlying data. Everyone understands the security built into Power BI and how to lock down data elements.”
- › “People are using row-level security without us having to tell them to.”
- › “Previously, people could see data that they weren't supposed to. The security is brilliant in Power BI. I also like being able to lock down Excel exports. It's been a godsend.”
- › “Being in Microsoft's cloud helps us a lot with compliance issues.”
- › “Security applied to Excel sheets helps a lot with compliance.”

- › “We are using data from Dynamics that has already gone through the GDPR compliance process. It’s much better than having to create a new data store.”

Flexibility

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

Interviewees described how utilizing Power BI has made their organizations more agile in how they use data and the time-to-insight realization. One area that organizations are actively looking at is increasing the use of AI and machine learning. Some organizations that have their data on-premise are looking at migrating it to the cloud. None of these future opportunities are included in the financial analysis.

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

Analysis Of Costs

QUANTIFIED COST DATA AS APPLIED TO THE COMPOSITE ORGANIZATION

Total Costs

REF.	COST	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Dtr	Internal effort	\$509,150	\$665,237	\$624,347	\$1,798,734	\$1,481,727
Etr	Power BI costs	\$89,910	\$191,808	\$239,760	\$521,478	\$420,391
	Total costs (risk-adjusted)	\$599,060	\$857,045	\$864,107	\$2,320,212	\$1,902,118

Internal Effort

There are two broad approaches to rolling out Power BI. One is an enterprisewide strategic initiative to move users to Power BI. The second is an organic approach in which users adopt Power BI as desired, often without central IT being aware of it. The majority of interviewed organizations started with an organic rollout, which meant little or no upfront costs.

For the financial analysis, Forrester assumes:

- › The composite organization follows an organic approach.
- › Each user spends two hours training for how to use Power BI.
- › The average fully burdened cost for a business user is \$90,000.
- › The centralized data analytics team that supports all of the users with complex needs grows to four FTEs by Year 3. This is less than without Power BI, as shown in the Benefits section of this study.

Internal effort will vary based on the rollout approach and the number of users. To account for these risks, Forrester adjusts this cost upward by 5%, yielding a three-year risk-adjusted total PV of \$1.5 million.

The table above shows the total of all costs across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total costs to be a PV of more than \$1.9 million.

Implementation risk is the risk that a proposed investment may deviate from the original or expected requirements, resulting in higher costs than anticipated. The greater the uncertainty, the wider the potential range of outcomes for cost estimates.

Internal Effort: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
D1	User training downtime	$C1[Yc-Yp]*2 \text{ hours}*\43.27	\$64,905	\$73,559	\$34,616
D2	Number of centralized data team (FTEs)		3	4	4
Dt	Risk adjustment	$C1[Yc-Yp]*1 \text{ hour}*\43.27			
	Internal effort (risk-adjusted)	↑5%	\$509,150	\$665,237	\$624,347
Dtr	User training downtime		\$64,905	\$73,559	\$34,616

Power BI Costs

Power BI is sold as:

- (1) a per-user service (Power BI Pro)
- (2) a capacity-based offer (Power BI Premium)

(3) analytics solution for developers (Power BI Embedded).

For the costs in this study, strictly Power BI Pro is used. Pro is sold standalone, as well as included in Office 365 E5 and Microsoft 365 E5 SKUs. Many of the interviewees said their organizations had their users on Power BI Pro licenses, so that scenario is included in the financial analysis. The standalone license cost is used to isolate the cost-benefit comparison from the broader Microsoft 365 story.

Power BI Premium may also be valuable to companies with large BI deployments as it includes additional features and can be cost-effective, for providing BI viewing capabilities to a broad number of users. The reader is encouraged to work with Microsoft or their Microsoft partner to understand their specific licensing needs. Companies not providing Power BI Pro licenses to their users should see an increase in the ROI because of lower costs.

The cost below can be lower if not all users require a Power BI Pro license. Therefore, no risk-adjustment is applied, and the three-year risk-adjusted total PV is \$420,391.

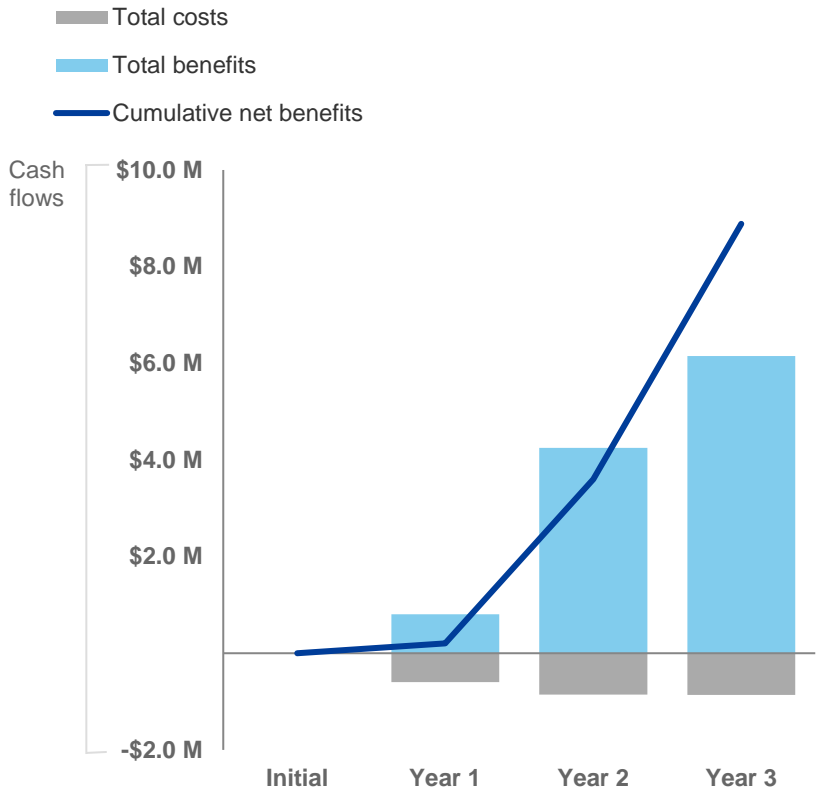
Power BI Costs: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
E1	Power BI Pro licenses	$\$9.99 * 12 \text{ months} * C1$	\$89,910	\$191,808	\$239,760
Et	Power BI costs	=E1	\$89,910	\$191,808	\$239,760
	Risk adjustment	0%			
Etr	Power BI costs (risk-adjusted)		\$89,910	\$191,808	\$239,760

Financial Summary

CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

Cash Flow Chart (Risk-Adjusted)



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



These risk-adjusted ROI, NPV, and payback period values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

Cash Flow Table (Risk-Adjusted)

	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Total costs	\$0	(\$599,060)	(\$857,045)	(\$864,107)	(\$2,320,212)	(\$1,902,118)
Total benefits	\$0	\$805,562	\$4,250,600	\$6,150,156	\$11,206,318	\$8,865,925
Net benefits	\$0	\$206,501	\$3,393,555	\$5,286,049	\$8,886,106	\$6,963,807
ROI						366%
Payback period						< 6 months

Power BI: Overview

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

Microsoft Power BI is a unified self-service and enterprise business intelligence platform that seamlessly bridges data and decision making. Intelligent, easy to understand reports appear wherever decisions are made including on-the-go, on-premises, or in the cloud, and within tools like Teams, SharePoint, PowerPoint, and more.

With powerful self-service capabilities, business users can complete their own reporting, while Microsoft governance, compliance, and security capabilities meet IT requirements. Connected natively to Microsoft Office applications and Azure analytics tools, Power BI connects data to productivity in a seamless, secure, and scalable way.

Power BI simplifies data preparation, modeling, and analysis with built-in automation and intelligence that help organizations get answers faster and propel a data-driven culture.

Microsoft Power BI at a glance:

- › **Connect to all the data around you.** Quickly clean, transform, and mash up multiple data sources on-premises, in the cloud, or both to create powerful models and visually impactful, interactive reports.
- › **Use interactive dashboards or paginated reports.** Share live dashboards with users inside and outside your organization. Track KPIs with easy-to-understand interactive visualizations while paginated reports provide a printable format.
- › **Access insights on the go.** With native apps for iOS, Windows, and Android, stay up to date with data-driven alerts, and share live reports and dashboards directly from your mobile device.
- › **Complete powerful self-service analysis.** Build powerful models and then explore your data on a freeform canvas through a drag-and-drop experience while creating visually appealing, interactive reports.
- › **Experience AI-powered insights.** Ask questions in natural language and get answers in the form of charts and graphs. Automatically discover predictive patterns, associations, and trends in your data. Analyze and better understand unstructured data with help text and image analysis, key phrase extraction, and language detection.
- › **Help protect your data.** Apply the same Microsoft Information Protection data labels used in Word, Excel, and Outlook to your Power BI data to help keep it safe, even when the data is exported outside of Power BI. Mitigate risk by blocking risky user behavior with Microsoft Cloud App Security to help ensure that data is better protected.
- › **Improve productivity.** Put insights in the places people work most often like Teams, SharePoint, Excel or inside web portals, websites, or applications to improve decision making.
- › **Scale with confidence.** Whether it's the size or complexity of your dataset or the number of users in your organization, Power BI scales to meet your needs backed by leading cloud compute and Microsoft security, compliance, governance, accessibility, and privacy standards.

Appendix A: Total Economic Impact

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

Total Economic Impact Approach



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



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



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



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

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



Present value (PV)

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



Net present value (NPV)

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



Return on investment (ROI)

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



Discount rate

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



Payback period

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