**FORRESTER®**

# The Total Economic Impact™ Of Microsoft Power BI Pro in Microsoft 365 E5

Business Benefits And Cost Savings
Enabled By Power BI Pro Within Microsoft 365 E5

**JULY 2023**

# Table Of Contents

*Consulting Team:  Richard Cavallaro*
*Carmen Serradilla Ortiz*

# Executive Summary

Power BI Pro within Microsoft 365 E5 licensing allows organizations to scale business intelligence and analytics capabilities to more users than ever before, beyond the confines of legacy licensing models. This fosters better, faster decision-making among more business users and analysts. It also gives business users the option to become citizen developers on a no-code platform, while avoiding the costs of legacy licenses, on-premises infrastructure, and support.

Microsoft Power BI Pro (available within Microsoft 365 E5) is an end-to-end business intelligence platform that fosters a single source of truth for organizations' decision-makers, facilitating better, faster decisions and uncovering insights.

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 Power BI Pro within Microsoft 365 E5 (M365 E5).[1] The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Power BI Pro on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed five representatives with experience using Power BI Pro within M365 E5. For the purposes of this study, Forrester aggregated the interviewees' experiences and combined the results into a single composite organization that is a retail organization with 2 million customers and revenue of $1 billion per year.

Prior to using Power BI Pro, the interviewees noted their organizations used on-premises business intelligence (BI) solutions that were built with the developer, rather than the business decision-maker, in mind. As a result, consequential decisions were often made with static data on spreadsheets, business analyst capacity was limited, and maintenance typical of an on-premises solution was required.

**KEY STATISTICS**

Return on investment (ROI)
**321%**

Net present value (NPV)
**$29.34M**

By leveraging Power BI Pro within Microsoft E5, the interviewees' companies scaled BI capabilities to more users and use cases than ever before while democratizing reporting beyond the business analyst. Decisions are made based on real-time information that was consistent across the entire organization. Cloud migrations for BI also yielded licensing, infrastructure, and maintenance savings, as BI was typically one of the last on-premises solutions at the interviewees' companies.

**KEY FINDINGS**

**Quantified benefits.** Three-year, risk-adjusted present value (PV) quantified benefits for the composite organization include:

- **Improved profitability from improved decision-making at the retail level totaling nearly $10.6 million.** At the retail level, Power BI Pro (from E5 licensing) gives decision-makers in retail and the supply chain at the composite

organization visibility into real-time analytics that improve profitability. This represents nearly $2.7 million in profit annually across all retail locations and a three-year total of $10.6 million PV.

- **Organizational productivity savings for business users and business analysts alike, representing $15.7 million annually.** Power BI Pro's ease of use relative to legacy tools yields productivity boons to the composite organization's decision-makers and BI analysts. Business end users (report consumers) benefit from immediate visibility into real-time information without the tedium of spreadsheet consolidation and reconciliation, while BI analysts gain an improved ability to quickly serve up reporting to the business.

- **Retire legacy business intelligence tools, which saves $10.7 million while scaling BI capabilities to more users.** By leveraging Power BI Pro within M365 E5, the composite organization scales the same BI capabilities from their legacy tools to nearly 6,000 additional business users.

- **Infrastructure and support savings of over $1.5 million.** The composite organization's incumbent BI solutions were on-premises and required more hands-on infrastructure maintenance and support from IT personnel. By moving most of the organization's analytics functionality to M365 E5 and Power BI Pro in the cloud, the composite retires infrastructure and reclaims support hours historically dedicated incumbent BI solutions.

**Unquantified benefits.** Benefits that provide value for the composite organization but are not quantified in this study include:

- **Improved end-user experience.** Interviewees spoke of the inherent user experience benefit resulting from less manual work, more accurate

information, and real-time visibility delivered by Power BI Pro and M365 E5.

- **Native integration with Microsoft solutions.** Interviewees told Forrester that Power BI Pro's native integration into Microsoft applications, such as Teams and SharePoint, provided additional fluidity to BI workstreams.

- **Improved security.** Interviewees spoke about the security benefits of shifting BI capabilities to Microsoft 365 E5 and Power BI Pro. E5 natively supports access management functionality, which interviewees cited as benefit to moving to Power BI on M365.

**Costs.** Three-year, risk-adjusted PV costs for the composite organization include:

- **Power BI Pro (within M365 E5) license and capacity costs of $8.9 million.** The composite organization leverages Power BI Pro through Microsoft E5 licensing. A capacity charge is also incurred for production environments.

- **Training and change management costs of $215,000.** Training and change management efforts allows the composite organization to maximize the impact of the Power BI Pro investment, training citizen developers to bring customized reporting to their respective teams' business needs.

The representative interviews and financial analysis found that a composite organization experiences benefits of $38.48 million over three years versus costs of $9.15 million, adding up to a net present value (NPV) of $29.34 million and an ROI of 321%.

**ROI**
**321%**

**BENEFITS PV**
**$38.48M**

**NPV**
**$29.34M**
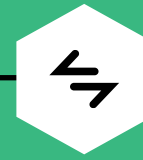
**PAYBACK**
**<6 months**

**Benefits (Three-Year)**

Improved profitability from better front-line decision-making — $10.6M

Organizational productivity savings on Power BI Pro — $15.3M

Retired legacy business intellegence tools — $10.7M

Infrastructure and related support savings — $2.4M
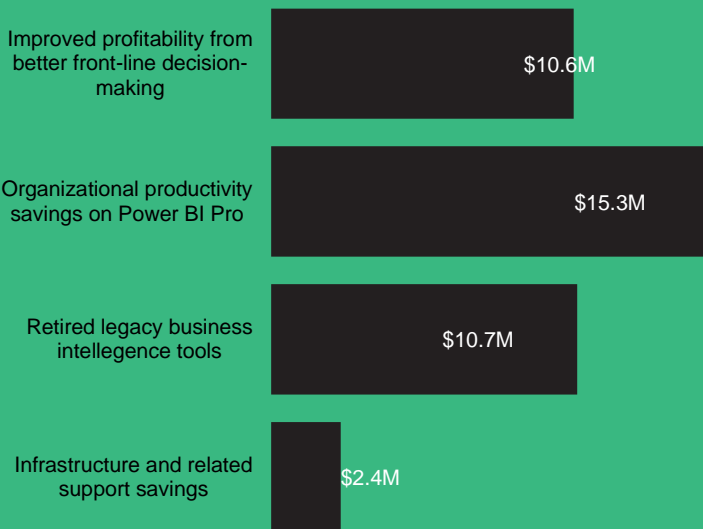
"Power BI Pro [within M365 E5] has played a part in really driving the democratization of data, making it more accessible, reaching more colleagues."

— Principal strategist, retail

## TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews, Forrester constructed a Total Economic Impact™ framework for those organizations considering an investment in Power BI Pro within M365 E5.

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 Pro can have on an organization.

**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 study to determine the appropriateness of an investment in Power BI Pro within M365 E5.

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.

**DUE DILIGENCE**
Interviewed Microsoft stakeholders and Forrester analysts to gather data relative to Power BI Pro and M365 E5.

**INTERVIEWS**
Interviewed five representatives at organizations using Power BI Pro within M365 E5 to obtain data with respect to costs, benefits, and risks.

**COMPOSITE ORGANIZATION**
Designed a composite organization based on characteristics of the interviewees' organizations.

**FINANCIAL MODEL FRAMEWORK**
Constructed a financial model representative of the interviews using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewees.

**CASE STUDY**
Employed four fundamental elements of TEI in modeling the investment impact: benefits, costs, flexibility, and risks. Given the increasing sophistication of ROI analyses related to IT investments, Forrester's TEI methodology provides a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

# The Microsoft Power BI Pro Customer Journey

■ Drivers leading to the Microsoft E5 (with Power BI Pro) investment

## Interviews

| Role(s) | Industry | Region | Employees |
|---|---|---|---|
| Enterprise infrastructure director | Food and beverage | North America | ~1,000 |
| Business intelligence consultant | Insurance | North America | ~46,000 |
| Head of digital transformation and innovation | Oil and gas | Global | ~85,000 |
| • Principal strategist<br>• Lead data analyst | Retail | Europe | ~72,000 |

## KEY CHALLENGES

The interviewees noted how their organizations struggled with common challenges, including:

- **Inability to scale BI capabilities beyond analysts due to cost constraints.** Extending licensing for legacy BI solutions to additional frontline staff and end users proved cost prohibitive for several interviewees' organizations, as licensing models for incumbent solutions could not scale across additional end users. The head of digital transformation and innovation at the oil and gas organization noted: "With [our legacy BI solution], we were paying $3,000 per head. Needing to extend this functionality to thousands of users, the cost was just way beyond our reach."

- **No single source of truth, especially for frontline staff, resulting in suboptimal decision-making.** Limited access to BI tools and reporting hampered the interviewees' real-time access to information. Interviewees noted that static reporting was common across non-BI analyst end users, while non-office users on the edge had limited to no visibility into important data. The enterprise infrastructure director at the food and beverage organization told Forrester that their field teams seldom work from a laptop or desktop and, therefore, do not have consistent

> **"[On the legacy BI solution,] we had people building reports that weren't building nice reports. There have been multiple instances where executives have gone to the board meeting, and all have different numbers on their reports."**
>
> *Enterprise infrastructure director, food and beverage*

access to the legacy reports. They needed a solution that would grant these teams real-time visibility on their phones or tablets.

- **Self-service BI for the business was impossible.** While interviewees acknowledged that legacy BI tools provided sufficient functionality for their dedicated BI analysts, limited low- to no-code functionality meant that business users did not have self-service capabilities. Limited BI analyst FTE resources further compounded this pain point. The head of digital transformation and innovation at the oil

and gas firm summarized: "Analysts and business users needed fairly advanced training to be able to build analysis within [our legacy BI solution]. While we told the business that they could do self-service BI on it, we needed to assign some dedicated analyst resources to support. Business users who trained on it needed to go up quite a steep learning curve to be proficient."

- **Manual, error-prone work was pervasive throughout analytics efforts.** Interviewees described several challenges for both BI analysts and end users which resulted in suboptimal productivity and manual work. Notably, analysis was frequently done in spreadsheets using static data, which was both time-intensive for staff and prone to error.

- **Multiple on-premises legacy reporting and BI solutions.** Interviewees told Forrester that over time, different groups within the organization adopted their own BI solutions, exacerbating the aforementioned challenges while promoting a lack of standardization and data governance. Furthermore, some of these legacy BI solutions were on-premises and were not compatible with the organizations' long-term cloud transformation goals. The principal strategist retail interviewee summarized: "Our previous business intelligence system was on-premises. We needed a way to get rid of those servers and get into the cloud." The enterprise infrastructure director at the food and beverage firm echoed this sentiment, noting that BI functionality was one of the last remaining on-premises solutions amid a major cloud-first organizational initiative.

## INVESTMENT OBJECTIVES

The interviewees' organizations searched for a solution and ultimately selected Power BI Pro within M365 E5 because it could:

- Scale to support hundreds to thousands of users in a cost-effective manner.

> **"Our legacy BI environment was just really problematic. We were providing an inordinate amount of time supporting both users and infrastructure."**
>
> *Enterprise infrastructure director, food and beverage*

- Deploy in the cloud and avoid infrastructure and support costs.

- Extend functionality into already deployed Microsoft solutions across the organization.

- Support a culture of self-service in the business.

## COMPOSITE ORGANIZATION

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

**Description of composite.** The composite organization is a $10 billion global consumer packaged goods (CPG) manufacturer and retailer with 40,000 employees.

**Deployment characteristics.** The composite organization has global operations across 95 retail locations and several manufacturing sites. BI reporting is required at retail for activities such as forecasting and inventory management, as well as in the manufacturing supply chain. Historically, the organization was supported in this capacity by several teams of BI analysts. These analysts have historically leveraged several on-premises BI

solutions that the organization hopes to retire by moving to Power BI Pro on M365 E5. Across the 40,000 employees, the organization has historically licensed Microsoft 365 E3 for the majority of its staff while purchasing standalone BI solution licenses for 10% of the employee base (including analysts). In order to scale BI licensing beyond these 4,000 employees, the composite organization migrates 10,000 M365 E3 licenses to E5, including Power BI Pro, scaling licensing to another 6,000 decision-makers.

**Key Assumptions**
- **$10 billion revenue**
- **Global manufacturer and retailer**
- **95 retail locations**
- **10,000 Microsoft 365 E5 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 profitability from better frontline decision-making | $4,250,000 | $4,250,000 | $4,250,000 | $12,750,000 | $10,569,121 |
| Btr | Organizational productivity savings on Power BI Pro | $6,033,938 | $6,457,875 | $6,457,875 | $18,949,688 | $15,674,382 |
| Ctr | Retired legacy business intelligence tools | $4,050,000 | $4,320,000 | $4,590,000 | $12,960,000 | $10,700,601 |
| Dtr | Infrastructure and related support savings | $531,000 | $639,000 | $703,800 | $1,873,800 | $1,539,602 |
| | Total benefits (risk-adjusted) | $14,864,938 | $15,666,875 | $16,001,675 | $46,533,488 | $38,483,706 |

## IMPROVED PROFITABILITY FROM BETTER FRONTLINE DECISION-MAKING

**Evidence and data.** Before organizational adoption of Microsoft Power BI Pro, interviewees noted that decision-making at the retail level was commonly carried out using static data on spreadsheets. This led to potentially suboptimal decisions using older data, manifesting in decreased profitability from stockouts, over-ordering, and other retail inefficiencies. Interviewees also spoke of inefficiencies in supply chain forecasting resulting from inconsistent access to real-time insights. At the retail level, Power BI Pro (from E5 licensing) gave decision-makers in retail and the supply chain visibility into real-time analytics that improved profitability.

- The interviewees at the retail organization spoke to the myriad of use cases for Power BI Pro in their retail and supply chain operations, all impacting the profitability of their retail locations. These use cases included supply chain supplier management, customer loyalty program targeting, sales forecasting, and product planning. The lead data analyst summarized that the use cases for Power BI Pro continue to expand: "[There are] thousands of different use

> **"Power BI Pro is about better, faster decisions. We're trying to grow our business and better serve our customers and colleagues."**
>
> *Principal strategist, retail*

cases out there that we're solving for with [Power BI Pro]. I'd say the number of use cases are growing by the week." Overall, the interviewees noted that every decision is now being made off real-time data.

- The enterprise infrastructure director at the food and beverage organization told Forrester that the facilitation of decision-making using real-time data on Power BI Pro was a contributing factor in their organization's growth in revenue and profitability. A data culture took hold, and decision-makers consumed more reporting than ever. The interviewee noted that additional data analyst hires were required as a result (but noted

this as a positive). They concluded: "Our business has grown from $400 million three years ago to nearly $750 million dollars this year. Is better data and better decision-making driving that alone? Probably not, but you can't grow like we have by flying blind."

- The head of digital transformation and innovation noted that a wide Power BI Pro adoption from Microsoft E5 has supported a data-first, citizen-developer culture at the oil and gas organization that impacted decision-making and profitability. They continued: "[Power BI Pro] continues to drive a data culture across the company and the importance of having clean and accurate data. In the past, people were more careless with data entry, but rubbish in, rubbish out. Now, with citizen developers actively involved in the data analysis, they know the importance of making sure data is portrayed accurately. And it's not just that the decision-making is better, but also quicker. We are now able to expose certain the right people to analysis way faster than before."

- The business intelligence consultant at the insurance organization spoke to the impact of Power BI Pro on their organization's business users and decision-makers (policy writers), noting: "[On moving to Power BI Pro,] we went from [BI] tools really designed for developers and bridged the gap to business users to make data-driven decisions more consistently and easily."

**Modeling and assumptions.** For the composite organization, Forrester makes the following assumptions:

- Each of the 95 retail locations has just over $50 million in annual revenue.

- Brick-and-motor retail operations consist of 50% of the composite's $10 billion annual revenue.

- The composite has a historic 5% net margin, which increases by 0.1% with decision-making supported by Power BI Pro. This is a conservative assumption for the composite based on the interviews.

- While there are many potential ways improved data-driven decision-making can improve profitability, Forrester selected this specific retail example for the composite organization based on the interviews.

**Risks.** This benefit will vary among organizations based on:

- The specific use case(s) to which Power BI Pro insights are applied.

- An organization's before state when it comes to decision-making with analytics (e.g., culture, tools and technology, user adoption, etc.).

- The skill and capacity of an organization's users to author and consume relevant reporting on Power BI Pro.

**Results.** To account for these variances, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of nearly $10.6 million.

### Improved Profitability From Better Frontline Decision-Making

| Ref. | Metric | Source | Year 1 | Year 2 | Year 3 |
|---|---|---|---|---|---|
| A1 | Annual revenue | Composite | $10,000,000,000 | $10,000,000,000 | $10,000,000,000 |
| A2 | Percentage of revenue brick and mortar | Composite | 50% | 50% | 50% |
| A3 | Number of retail locations | Composite | 95 | 95 | 95 |
| A4 | Revenue per retail location (annual) | (A1*A2)/A3 | $52,631,579 | $52,631,579 | $52,631,579 |
| A5 | Net margin | TEI standard | 5% | 5% | 5% |
| A6 | Historical gross profit per retail location (annual) | A4*A5 | $2,631,579 | $2,631,579 | $2,631,579 |
| A7 | Improvement to margin attributable to improved forecasting, inventory, and supply chain management with Power BI Pro | Interviews | 0.10% | 0.10% | 0.10% |
| A8 | Net margin per retail location with Power BI Pro (annual) | A5+A7 | 5.10% | 5.10% | 5.10% |
| A9 | Gross profit per retail location on Power BI Pro | A4*A8 | $2,684,211 | $2,684,211 | $2,684,211 |
| A10 | Profit improvement per retail location attributable to Power BI Pro | A9-A6 | $52,632 | $52,632 | $52,632 |
| At | Improved profitability from better frontline decision-making | A3*A10 | $5,000,000 | $5,000,000 | $5,000,000 |
| | Risk adjustment | ↓15% | | | |
| Atr | Improved profitability from better frontline decision-making (risk-adjusted) | | $4,250,000 | $4,250,000 | $4,250,000 |
| | **Three-year total: $12,750,000** | | **Three-year present value: $10,569,121** | | |

## ORGANIZATIONAL PRODUCTIVITY SAVINGS ON POWER BI PRO

**Evidence and data.** In addition to the business impact of decision-making based on real-time data, interviewees noted that Power BI Pro's ease of use relative to legacy tools yielded productivity boons to business decision-makers and BI analysts. Business end users (report consumers) benefitted from immediate visibility into real-time information without the tedium of spreadsheet consolidation and reconciliation, while BI analysts gained an improved ability to quickly serve up reporting to the business. Furthermore, Power BI's low-code/no-code interface allowed for some business users to become citizen developers, serving up reporting for their (or their team's) unique use cases without relying on a potentially short-staffed rank of business analysts, freeing up these often-expensive resources.

- The head of digital transformation and innovation from the oil and gas industry noted the cultural change at the organization resulting from the adoption of Power BI Pro, since they came from a code-heavy legacy BI solution. Analysts no longer needed to be trained on legacy solutions and could offer more reporting to more teams.

- The interviewees at the retail organization noted the inherent barriers to leveraging insights within legacy BI reporting tools and processes hindered the speed at which decisions could be made. As a result, the interviewees noted that there were typically only around 80 users regularly leveraging BI for their decisions. By removing some of the friction around leveraging data on Power BI Pro in M365, the interviewees told Forrester that there are now over 400 decision-makers regularly leveraging analytics.

- According the insurance interviewee, manual work within analytics, once heavily required in business user workflows at the insurance organization, has been significantly reduced with Power BI Pro. The interviewee told Forrester:

"We've been able to show [our business users] that you don't have to do manual work anymore on Power BI. You can automate it. Reporting can refresh on whatever schedule they set it to. So, we're definitely seeing benefits where people are significantly simplifying existing workflows."

- Due to a shortage of BI analyst talent at the food and beverage organization, the enterprise infrastructure director noted that they had been paying $50,000 annually to outsource support for business users. The interviewee summarized the experience for some users: "[Our users] would come in first thing in the morning, open up Excel, which was one Excel document with 20 tabs, each of those tabs has three pivot tables in it connected to analysis services. They'd hit refresh and then go get their coffee, but still would need to wait a half hour or 45 minutes before they could use it. And I have 50 people doing that at 8 o'clock in the morning. Once we were in Power BI, we just scheduled those." The organization has since retired the annual support contract.

**Modeling and assumptions.** For the composite organization, Forrester makes the following assumptions:

- Of the organization's 40,000 employees, 25% (10,000 employees) are business decision-makers with access to Power BI Pro within M365 E5.

- Through improved functionality, a low-code/no-code interface, the ability to automate, and newfound access to reporting (for users with access only to manually generated reports), Forrester assumes each decision-maker reclaims two hours of working time per month.

- The organization's 190 personnel in business analyst roles reclaim between 5% and 10% of their productivity resulting from Power BI Pro versus the legacy solution. In addition to the above, business users functioning as citizen

developers also serve to reduce the burden on officially trained business analysts.

- A $55 average hourly rate for business users.

- A $140,000 fully loaded annual salary for business analysts.

- A 50% productivity recapture is applied to this benefit, as all working time reclaimed with Power BI Pro will not necessarily be applied to productive work.

**Risks.** This benefit will vary among organizations based on:

- An organization's analytics before state as it relates to the potential for functionality improvement on Power BI Pro.

- Business user and business analyst workflows as it relates to the ability for Power BI Pro to make a notable productivity impact through automation.

- The skill and capacity of an organization's personnel to take advantage of Power BI Pro functionality.

**Results.** To account for these variances, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of $15.7 million.

## Organizational Productivity Savings On Power BI Pro

| Ref. | Metric | Source | Year 1 | Year 2 | Year 3 |
|---|---|---|---|---|---|
| B1 | Power BI Pro business users (report consumers) | 25%*40,000 | 10,000 | 10,000 | 10,000 |
| B2 | Average time savings through streamlined reporting (decision-making, monthly hours) | Interviews | 2 | 2 | 2 |
| B3 | Annual manual work avoidance (hours) | B1*B2*12 | 240,000 | 240,000 | 240,000 |
| B4 | Average hourly rate for business users (rounded) | TEI standard | $55 | $55 | $55 |
| B5 | Productivity improvement on Power BI Pro (business users) | B3*B4 | $13,200,000 | $13,200,000 | $13,200,000 |
| B6 | Power BI analyst users (developers) | Composite | 190 | 190 | 190 |
| B7 | BI analysts authoring reports | Composite | 75% | 75% | 75% |
| B8 | Productivity improvement for BI analysts on Power BI Pro | Interviews | 5% | 10% | 10% |
| B9 | BI analyst FTE capacity increase | B6*B7*B8 | 7 | 14 | 14 |
| B10 | Average annual rate for BI analyst | Assumption | $140,000 | $140,000 | $140,000 |
| B11 | BI analyst capacity cost savings | B9*B10 | $997,500 | $1,995,000 | $1,995,000 |
| B12 | Productivity recapture | B8*B9 | 50% | 50% | 50% |
| Bt | Organizational productivity savings on Power BI Pro | (B5+B10)*B11 | $7,098,750 | $7,597,500 | $7,597,500 |
| | Risk adjustment | ↓15% | | | |
| Btr | Organizational productivity savings on Power BI Pro (risk-adjusted) | | $6,033,938 | $6,457,875 | $6,457,875 |
| | **Three-year total: $18,949,688** | | | **Three-year present value: $15,674,382** | |

## RETIRED LEGACY BUSINESS INTELLIGENCE TOOLS

**Evidence and data.** Interviewees who spoke to Forrester for this report noted their organizations' desire to significantly scale up their analytics capabilities (and users who had access to them) but cited the licensing structure for incumbent solutions as a barrier to this investment. By leveraging Power BI Pro within M365 E5, interviewees noted that they could scale the same BI capabilities from their legacy tools to more users than before, all native to their other Microsoft investment. Nearly every interviewee for this report told Forrester that the degree to which they scaled their BI capabilities and access would be impossible without M365 E5.

- The business intelligence consultant from the insurance organization told Forrester that in order to scale their legacy BI tool to their desired business users, they would have incurred five times the cost. The interviewee also noted: "Our [legacy tool] also lacks significant self-service capabilities and cloud presence as well. It was stuck in the last decade, let's put it this way."

- By fully moving to Power BI Pro within M365 E5, the interviewees at the retail organization told Forrester that they have retired about 80% and counting of the multiple legacy BI solutions across their organization's business units.

- Speaking of the infeasibility of scaling legacy BI solutions to new users, the head of digital transformation and innovation at the oil and gas organization told Forrester that it would cost around $3,000 per head to expand their legacy solution. They concluded: "It was just going to be really expensive. And if we wanted to scale to nearly 100,000 users, the cost is just way out of reach. So, that helped accelerate the decision to say, 'Okay, we need something simpler, something much more cost efficient.' And then that's when Power BI Pro showed up." The

interviewee's organization is avoiding "millions" on Power BI Pro within M365 E5.

**Modeling and assumptions.** For the composite organization, Forrester makes the following assumptions:

- The composite organization has licenses across various BI solutions for 4,000 users.

- The blended annual license cost for an incumbent BI license is $1,500, a conservative estimate based on the solutions and licensing specifics for the interviewees' organizations.

- The composite organization retires between 75% and 85% of the legacy BI licenses from Year 1 to Year 3 of the analysis. Fifteen percent of the legacy licenses remain on niche use cases for some teams across the organization.

**Risks.** This benefit will vary among organizations based on:

- The current portfolio of BI solutions, the number of users with licenses, and the contract specifics for each solution.

- The degree to which legacy BI solutions can be retired, as some organizations may require to stay on tools specifically customized for their use cases.

**Results.** To account for these variances, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $10.7 million.

### Retired Legacy Business Intelligence Tools

| Ref. | Metric | Source | Year 1 | Year 2 | Year 3 |
|------|--------|--------|--------|--------|--------|
| C1 | Legacy BI licenses | 40,000*10% | 4,000 | 4,000 | 4,000 |
| C2 | Blended cost of standalone BI license (annual) | Interviews | $1,500 | $1,500 | $1,500 |
| C3 | Percentage of licenses retired annually | Interviews | 75% | 80% | 85% |
| Ct | Retired legacy business intelligence tools | D1*D2*D3 | $4,500,000 | $4,800,000 | $5,100,000 |
| | Risk adjustment | ↓10% | | | |
| Ctr | Retired legacy business intelligence tools (risk-adjusted) | | $4,050,000 | $4,320,000 | $4,590,000 |
| | **Three-year total: $12,960,000** | | **Three-year present value: $10,700,601** | | |

## INFRASTRUCTURE AND RELATED SUPPORT SAVINGS

**Evidence and data.** Interviewees told Forrester that their incumbent BI solutions were on-premises and required more hands-on infrastructure maintenance and support from IT personnel. By moving most of the organizations' analytics functionality to M365 E5 and Power BI Pro in the cloud, the organizations retired infrastructure and reclaim support hours historically dedicated incumbent BI solutions.

- With on-premises incumbent BI solutions, the enterprise infrastructure director at the food and beverage organization spoke to the savings since moving their BI functionality to Power BI with E5: "We cut a lot of costs out of our data warehouse by being able to use Azure data warehouse in the cloud. Hard costs I want to estimate it is about a $100,000 in infrastructure management alone we're saving. This was at a time when our total IT budget was $3 million. That's significant for us."

- Interviewees also spoke of a reduction in the personnel resources required to manage the infrastructure supporting legacy BI tools. With a cloud-based Power BI Pro on M365 E5, this labor was avoided. The enterprise infrastructure director at the food and beverage organization summarized, "Reclaiming the people who need to manage and maintain this infrastructure is even more valuable for us."

- The business intelligence consultant at an insurance firm noted a similar savings at their organization, cutting their investment in infrastructure supporting BI in half. The interviewee summarized, "Not only are we reducing the overall cost from IT investments perspective, but also we are positioning our IT team to actually work with users on resolving their issues and not just maintaining the infrastructure."

> **"We now have fewer people dedicated to supporting hardware, and that's definitely a plus because we have less hardware, too. From a support resource perspective, I'd say it's better to have them providing support to Power BI projects than having them working on hardware support and maintenance issues."**
>
> *Business intelligence consultant, insurance*

**Modeling and assumptions.** For the composite organization, Forrester makes the following assumptions:

- In Year 1, $350,000 of infrastructure supporting legacy BI solutions begins to be phased out.

- The composite avoids four IT FTEs supporting infrastructure for legacy BI solutions as infrastructure is phased out.

- The average annual salary for an IT FTE supporting infrastructure is $120,000.

- In Year 1, 50% of the infrastructure cost and maintenance is phased out, scaling to 90% by Year 3.

**Risks.** This benefit will vary among organizations based on:

- The specifics of an organization's BI solution deployment as it relates to required infrastructure and IT support.

- The ability for infrastructure and maintenance to be phased out based on contract specifics, owned infrastructure, service contracts, etc.

**Results.** To account for these variances, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of just over $1.5 million.

## Infrastructure And Related Support Savings

| Ref. | Metric | Source | Year 1 | Year 2 | Year 3 |
|------|--------|--------|--------|--------|--------|
| D1 | Annual infrastructure expenditure supporting legacy BI solutions | Composite | $350,000 | $350,000 | $350,000 |
| D2 | FTEs supporting BI-related infrastructure | Composite | 4 | 4 | 4 |
| D3 | Average annual salary | TEI standard | $120,000 | $120,000 | $120,000 |
| D4 | Annual percentage of BI solutions retired | Interviews | 50% | 75% | 90% |
| Dt | Infrastructure and related support savings | E1+(E2*E3)*E4 | $590,000 | $710,000 | $782,000 |
| | Risk adjustment | ↓10% | | | |
| Dtr | Infrastructure and related support savings (risk-adjusted) | | $531,000 | $639,000 | $703,800 |
| | **Three-year total: $1,873,800** | | **Three-year present value: $1,539,602** | | |

## UNQUANTIFIED BENEFITS

Interviewees mentioned the following additional benefits that their organizations experienced but were not able to quantify:

- **Improved end-user experience.** Interviewees spoke of the inherent user experience benefit that resulted from less manual work, more accurate information, and real-time visibility delivered by Power BI Pro and M365 E5.

- **Native integration with Microsoft solutions.** Interviewees told Forrester that Power BI Pro's native integration into Microsoft applications, such as Teams and SharePoint, provided additional fluidity to BI workstreams.

- **Improved security.** Interviewees spoke about the security benefits of shifting BI capabilities to Microsoft 365 E5 and Power BI Pro. E5 natively supported access management functionality, which interviewees cited as a benefit to moving to Power BI on M365. The business intelligence consultant at the insurance organization told Forrester: "We now have significantly tighter control of who has access to what and it's much easier to verify it. At our company, access to data is strictly controlled and access to the reports is controlled by Windows security groups. And we monitor who has access to what so we can avoid data exfiltration. Our previous Excel-based solution with data embedded on [spreadsheets] emailing the whole document back and forth. This is always riskier than with Power BI. You don't have to email, and you only can see the data which is supposed to be seen through the Power BI interface. This is much improved from a data governance perspective."

## FLEXIBILITY

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement Power BI Pro on M365 E5 and later

realize additional uses and business opportunities, including:

- **The downstream benefits of data-driven decision-making.** As organizations continue to make decisions based on real-time data and information, it can be understood that there may be future advantages resulting from these decisions that may not have been available otherwise. The business intelligence consultant from the insurance organization summarized: "[Power BI Pro] gives our business users access to functionality other tools usually designed for developers. The more comfortable [the business users] get on the tools, the more we're moving towards of the data-driven decisions and more reliable [outcomes]."

- **The addition of AI insights.** Interviewees noted that AI is the next phase of their Power BI Pro journeys to gain even more visibility and insight for key decision-making. The head of digital transformation and innovation at the oil and gas organization told Forrester: "Today, our reporting shows us the trends on the charts, but it's not summarizing the chart for us because we still rely on humans to read the charts. And then from there, it depends on the experience of the person, the human to make a decision. In the next couple years, our vision is to let this data to bring in a bit more on the AI capability into our data."

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

# Analysis Of Costs

Quantified cost data as applied to the composite

| Total Costs | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Ref. | Cost | Initial | Year 1 | Year 2 | Year 3 | Total | Present Value |
| Etr | Power BI license and capacity costs | $0 | $3,591,000 | $3,591,000 | $3,591,000 | $10,773,000 | $8,930,285 |
| Ftr | Power BI Pro training and change management costs | $0 | $86,625 | $86,625 | $86,625 | $259,875 | $215,424 |
| | Total costs (risk-adjusted) | $0 | $3,591,000 | $3,591,000 | $3,591,000 | $10,773,000 | $8,930,285 |

## POWER BI LICENSE AND CAPACITY COSTS

**Evidence and data.** Interviewees noted that organizations can pay for Power BI Pro access through Microsoft 365 E5 licensing or on a per user per month basis. The interviewees' organizations leveraged Power BI Pro through Microsoft E5 licensing. A capacity charge was also incurred for production environments.

**Modeling and assumptions.** For the composite organization, Forrester makes the following assumptions:

- The 10,000 users who require Power BI Pro access are licensed via Microsoft 365 E5, while the other 30,000 users are licensed at the E3 level.

- Forrester represents this cost as a $21 per user per month cost, the list pricing difference between Microsoft 365 E3 and E5.

- A $75,000 capacity fee is incurred annually based on a 3:1 P1 to P2 capacity blend.

- Pricing may vary significantly based on organizational and licensing specifics. Contact Microsoft for additional details.

**Risks.** This cost will vary among organizations based on:

- The Microsoft licensing specifics of an organization as it relates to the required Power BI Pro per user licensing.

- The number of users who require access to Power BI Pro as it relates to licensing and capacity costs.

**Results.** To account for these variances, Forrester adjusted this cost upward by 5%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $8.9 million.

## Power BI License And Capacity Costs

| Ref. | Metric | Source | Initial | Year 1 | Year 2 | Year 3 |
|------|--------|--------|---------|--------|--------|--------|
| E1 | Number of employees | Composite | 0 | 40,000 | 40,000 | 40,000 |
| E2 | Percentage of employees on M365 E5 | Composite | 0% | 25% | 25% | 25% |
| E3 | Total M365 Power BI Pro business users | E1*E2 | 0 | 10,000 | 10,000 | 10,000 |
| E4 | Per user price for M365 E5 license (over E3, per month) | Microsoft list pricing | $0 | $21 | $21 | $21 |
| E5 | Subtotal: License cost for Power BI Pro business users | E3*E4*12 months | $0 | $2,520,000 | $2,520,000 | $2,520,000 |
| E6 | Premium P1 and P2 capacities needed to support total active users | Microsoft list pricing | 0 | 12 | 12 | 12 |
| E7 | Average cost per capacity based on 3:1 P1 to P2 blend | Assumption | $0 | $75,000 | $75,000 | $75,000 |
| E8 | Subtotal: Estimate of Power BI Premium capacities | E6*E7 | $0 | $900,000 | $900,000 | $900,000 |
| Et | Power BI license and capacity costs | E5+E8 | $0 | $3,420,000 | $3,420,000 | $3,420,000 |
| | Risk adjustment | ↑5% | | | | |
| Etr | Power BI license and capacity costs (risk-adjusted) | | $0 | $3,591,000 | $3,591,000 | $3,591,000 |
| **Three-year total: $10,773,000** | | | **Three-year present value: $8,930,285** | | | |

ANALYSIS OF COSTS

## POWER BI PRO TRAINING AND CHANGE MANAGEMENT COSTS

**Evidence and data.** Interviewees spoke about the training, especially for citizen developer business users, and change management efforts that allowed their organizations to maximize the impact of the Power BI Pro investment.

- The interviewees at the retailer noted that they led several training sessions for their user base with over 1,100 participants, training specifically by role (e.g., store manager, category manager, etc.). They summarized: "We've invested a lot of effort around colleague adoption and training and taking people up the change curve to adopt it and to grow the use cases in Power BI Pro. This is because we're really seeing the benefits."

- To train their citizen developers, the head of digital transformation and innovation at an oil and gas organization noted their organization set up a center of excellence to lead training and best practices around Power BI Pro reporting. The interviewee told Forrester: "For citizen developers, we have learning pathways where we define how they learn Power BI. They need to watch these few videos, and then from there, they should be able to start building reporting by following our playbook. And then, once a year, we host an annual internal hackathon to recruit new citizen developers." The interviewee noted that over 2,000 employees participated in the most recent hackathon.

**Modeling and assumptions.** For the composite organization, Forrester makes the following assumptions:

- 500 citizen developer business users opt in to training to serve up reporting to their individual groups within the business.

- On average, initial training requires 6 hours of user time, as well as 3 hours of additional training on an annual basis.

> **"Our first training sessions were so well received that we ended up running a whole bespoke event for our store management population. That really helped create a 'snowball effect' from there."**
>
> *Principal strategist, retail*

- The average hourly rate for a business user is $55.

**Risks.** This cost will vary among organizations based on:

- The skill and capacity of an organization's users as it relates to required training and change management efforts.

- The ability for internal resources to manage training and change management efforts for the user base.

**Results.** To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year, risk-adjusted total PV of $215,000.

THE TOTAL ECONOMIC IMPACT™ OF MICROSOFT POWER BI PRO WITHIN M365 E5

20

## Power BI Pro Training And Change Management Costs

| Ref. | Metric | Source | Initial | Year 1 | Year 2 | Year 3 |
|------|--------|--------|---------|--------|--------|--------|
| F1 | Number of "citizen developer" users | 5% * 10,000 | 500 | 500 | 500 | 500 |
| F2 | Required training per "citizen developer" user | Interviews | 6 | 3 | 3 | 3 |
| F3 | Total required training/change management hours | F1*F2 | 3,000 | 1,500 | 1,500 | 1,500 |
| F4 | Average hourly rate for business users (rounded) | TEI standard | $55 | $55 | $55 | $55 |
| Ft | Power BI Pro training and change management costs | F5*F6 | $165,000 | $82,500 | $82,500 | $82,500 |
| | Risk adjustment | ↑5% | | | | |
| Ftr | Power BI Pro training and change management costs (risk-adjusted) | | | $86,625 | $86,625 | $86,625 |
| | **Three-year total: $259,875** | | | **Three-year present value: $215,424** | | |

# Financial Summary

## CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

### Cash Flow Chart (Risk-Adjusted)
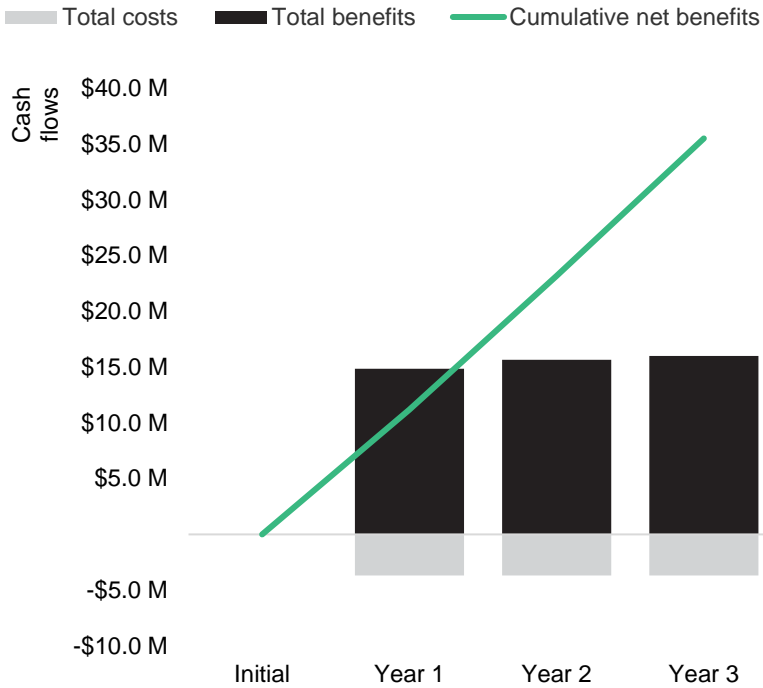


The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.

**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 Analysis (Risk-Adjusted Estimates) | | | | | | |
|---|---|---|---|---|---|---|
| | Initial | Year 1 | Year 2 | Year 3 | Total | Present Value |
| Total costs | $0 | ($3,677,625) | ($3,677,625) | ($3,677,625) | ($11,032,875) | ($9,145,709) |
| Total benefits | $0 | $14,864,938 | $15,666,875 | $16,001,675 | $46,533,488 | $38,483,706 |
| Net benefits | $0 | $11,187,313 | $11,989,250 | $12,324,050 | $35,500,613 | $29,337,997 |
| ROI | | | | | | 321% |
| Payback | | | | | | <6 months |

# Appendix A: Total Economic Impact

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

## TOTAL ECONOMIC IMPACT APPROACH

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

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

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

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

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

## PRESENT VALUE (PV)

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

## NET PRESENT VALUE (NPV)

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

## RETURN ON INVESTMENT (ROI)

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

## DISCOUNT RATE

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

## PAYBACK PERIOD

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

# Appendix B: Endnotes

[1] 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.

FORRESTER®