

A Forrester Total Economic Impact™ Study
Commissioned By Microsoft
September 2018

The Total Economic Impact™ Of Microsoft Dynamics 365 For Finance And Operations

Cost Savings And Business Benefits Enabled
By Dynamics 365 For Finance And Operations

Table Of Contents

Executive Summary	1
Key Findings	1
TEI Framework And Methodology	3
Customer Journey	4
Interviewed Organizations	4
Key Challenges	6
Solution Requirements	7
Key Results	8
Composite Organization	10
Analysis Of Benefits	11
Operations Efficiency	11
Employee Productivity	13
Wholesale Profit	17
Retail Profit	18
Legacy Cost Avoidance	21
Unquantified Benefits	23
Flexibility	27
Analysis Of Costs	29
Implementation	29
Licensing	32
Support And Management	33
Financial Summary	35
Microsoft Dynamics 365 for Finance and Operations: Overview	36
Appendix A: Total Economic Impact	38

Project Director:
Benjamin Brown

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.

© 2018, 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.

Executive Summary

Key Benefits



Improved operations efficiency:

\$39 million



Increased employee productivity:

\$20.6 million



Increased wholesale and retail profit:

\$4.6 million

Microsoft Dynamics 365 for Finance and Operations is an enterprise resource planning (ERP) solution delivered as a service from the cloud that customers use to operate the core of their businesses. 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 Dynamics 365 for Finance and Operations. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Microsoft Dynamics 365 for Finance and Operations on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed seven customers with years of experience using Microsoft Dynamics 365 for Finance and Operations. Each customer's use case varied, but all adopted Dynamics 365 to replace aging, siloed ERP systems that offered bad user experiences. For many interviewees, a new ERP was not a choice — their legacy systems were failing to meet capability and performance needs as their businesses grew. All seven organizations desired a cloud ERP with top tier capabilities that could be rolled out in modules to accelerate deployment and avoid potential disruption. By moving to the cloud and staying up-to-date, organizations also sought to permanently reduce the cost and pain of systems administration.

Ultimately, the seven interviewed organizations indicated key benefits of enhanced data, business insights, operations efficiency, and productivity improvements among many others. Interviewees indicated that with Microsoft Dynamics 365 for Finance and Operations, they had undergone key business transformation that they hoped would drive growth and market leadership for many years to come.

Key Findings

Forrester synthesized a composite organization and created a financial model that is representative of the seven interviewed customers.

Quantified benefits. The following three-year risk-adjusted present value (PV) benefits for the composite organization are based on those experienced by the seven interviewed customers:

- › **Operations efficiency savings of \$39 million.** Real-time data analysis, automation, and streamlined processes enhance forecasts, improve quality, reduce waste, and prevent delays — reducing cost of goods sold by 10% and improving gross margin by 2.4 percentage points.
- › **Employee productivity savings of \$20.6 million.** Automation, better user experience, reduced rework, and enhanced forecasting increased productivity companywide. The composite organization reduces shop floor staffing by 6%, increases finance productivity by 20%, and increases sales representative productivity by 4%.
- › **Increased wholesale profit of \$3.3 million.** Better quality, reduced delays, improved ordering and invoicing combined with increased sales productivity avoids lost revenue, increases customer retention, and drives additional sales to increase wholesale revenue by 3%.
- › **Increased retail profit of \$1.3 million.** Improved tracking and sales forecasting enables organizations to optimize inventory in stores, preventing lost sales from out-of-stock products, reducing inventory



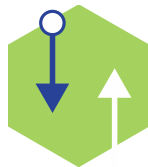
ROI
60%



Benefits PV
\$74.9 million



NPV
\$28.1 million



Payback
20 months

shrinkage, and avoiding discounting — ultimately increasing revenue by 4% and decreasing excess inventory and shrinkage by 10%.

- › **Legacy cost avoidance of \$10.6 million.** Organizations avoided legacy license, maintenance, hardware, and systems administration costs by adopting Microsoft Dynamics 365 for Finance and Operations.

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

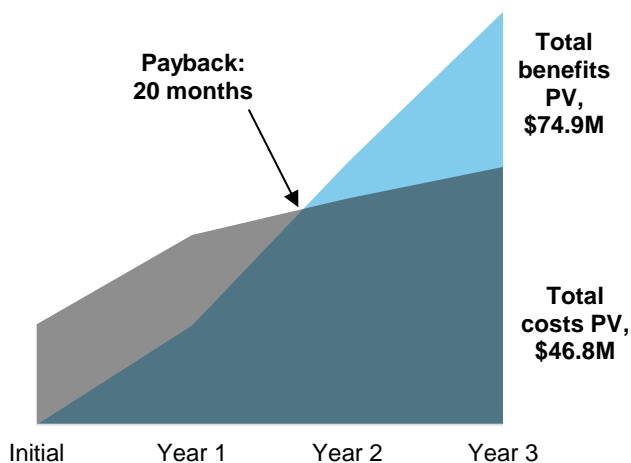
- › Cloud simplicity with enhanced system performance.
- › Improved user experience with more pleasant user interface and greater flexibility to access systems anytime, anywhere.
- › Gained agility to quickly deploy and integrate new lines of business, reducing labor costs and accelerating time-to-market.
- › Enhanced security, governance, and fraud prevention.
- › Attained the ability to build applications that leverage core ERP data without risk of breaking ERP functionality.

Costs. The following are the composite organization’s three-year risk-adjusted present value costs based on the seven interviewed customers:

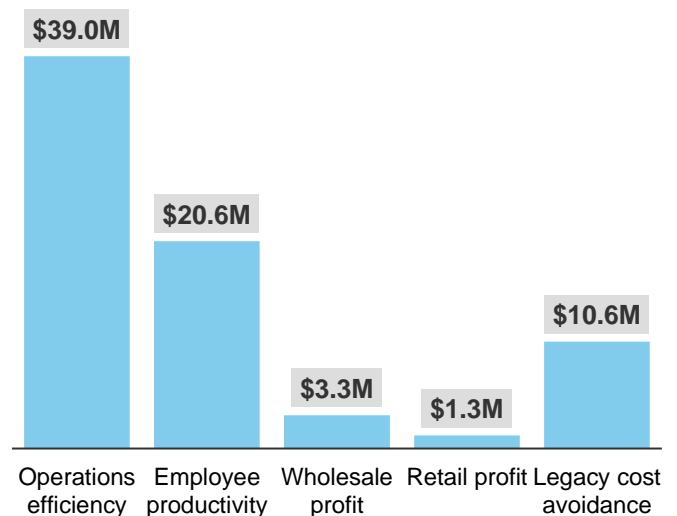
- › **Implementation costs of \$27.8 million.** The composite organization conducts a two-phase rollout of 12 months per phase, with accumulated implementation costs from internal labor, third-party professional services, and hardware modernization.
- › **Licensing costs of \$9.1 million.** The organization incurs monthly licensing fees for 1,400 users, 1,000 devices, and 120 retail stores.
- › **Support and management costs of \$9.9 million.** The composite organization incurs ongoing costs of IT administrators, trainers, third-party update services, and third-party support escalation.

Forrester’s interviews with seven existing customers and subsequent financial analysis found that an organization based on these interviewed organizations experienced benefits of \$74.9 million over three years versus costs of \$46.8 million, adding up to a net present value (NPV) of \$28.1 million and an ROI of 60%.

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 Microsoft Dynamics 365 for Finance and Operations.

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 Microsoft Dynamics 365 for Finance and Operations can have on an organization:



DUE DILIGENCE

Interviewed Microsoft stakeholders and Forrester analysts to gather data relative to Microsoft Dynamics 365 for Finance and Operations.



CUSTOMER INTERVIEWS

Interviewed seven organizations using Microsoft Dynamics 365 for Finance and Operations to obtain data with respect to costs, benefits, and risks.



COMPOSITE ORGANIZATION

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



FINANCIAL MODEL FRAMEWORK

Constructed a financial model representative of the interviews using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewed organizations.



CASE STUDY

Employed four fundamental elements of TEI in modeling the impact of Microsoft Dynamics 365 for Finance and Operations: 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 Microsoft Dynamics 365 for Finance and Operations.

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.

Customer Journey

BEFORE AND AFTER THE MICROSOFT DYNAMICS 365 FOR FINANCE AND OPERATIONS INVESTMENT

Interviewed Organizations

For this study, Forrester conducted seven interviews with Microsoft Dynamics 365 for Finance and Operations customers. Interviewed customers include the following:

INDUSTRY	REGION	SIZE	USE CASES	INTERVIEWEES
Energy infrastructure	Global	\$500M – \$1B revenue Less than 500 FTEs	Finance Operations	Manager of business applications
Entertainment agency	Global	\$100M – \$500M revenue 1,000 – 5,000 FTEs	Finance	ERP Manager
Specialty foods manufacturing and retail	North America	\$100M – \$500M revenue 1,000 – 5,000 FTEs 500+ seasonal retail stores	Finance Manufacturing Operations Retail	Chief operating officer
General retail	North America	\$100M – \$500M revenue 1,000 – 5,000 FTEs 100 retail stores	Finance Retail	VP of information technology Director of IT and operations
Apparel brand	Global	\$100M – \$500M revenue Less than 500 FTEs	Finance Operations Retail	Director of IT
EPC contracting	Global	\$50M – \$100M revenue Less than 500 FTEs	Finance Manufacturing Operations	Systems engineer
Automotive manufacturing	North America	\$10M – \$50M revenue Less than 500 FTEs	Finance Manufacturing Operations	ERP Manager

Interviewed customers started from varying legacy environments and deployed Microsoft Dynamics 365 for Finance and Operations for a variety of use cases. Deployments include:

- › **Global energy infrastructure company with less than 500 employees and \$500 million to \$1 billion in annual revenue.** The company sought a Tier 1 ERP to replace its existing 15-year-old on-premises solution to enable business transformation with enhanced capabilities, cloud flexibility and savings, and future reductions in technical debt by staying up-to-date with regular releases. Deployment was in two phases with a 12-month implementation of core finance, supply chain, intelligence, development, and administration modules followed by a nine-month phase for “nice-to-have” enhancements. The company has expanded into Power BI, Power Apps, Flow, and is looking into leveraging AI in the future.
- › **Global entertainment agency with between 1,000 and 5,000 employees and \$100 to \$300 million in annual revenue.** The agency adopted Microsoft Dynamics 365 for Finance and Operations as part of corporate cloud initiative, seeing flexibility to the business

and users combined with low total cost of ownership (TCO) as key differentiators for being in the cloud. Implementation of finance and accounting capabilities took nine months, and the agency found integrating acquisitions and establishing subsidiaries in other countries was substantially easier with the cloud deployment of Dynamics.

- › **North American specialty foods manufacturer and retailer that employs up to 5,000 employees seasonally and generates \$100 to \$500 million in annual revenue.** The company's business is highly seasonal, quickly opening and closing over 600 retail sites in a three-month period every year. The company adopted Microsoft's complete slate of ERP capabilities for three primary reasons: 1) to keep pace with its aggressive organic growth strategy; 2) to consolidate four existing, loosely integrated solutions; and 3) to reduce the expertise required for customization and management of a cloud solution. Deployment was conducted in three phases with finance and supply chain components followed by a direct-to-consumer integration and pilot retail program, and finally a full retail store deployment that is slated to occur during the next seasonal rollout.
- › **North American general retailer with 1,000 to 5,000 employees, 100 retail stores, and \$100 to \$500 million in annual revenue.** The retailer's former on-premises ERP and retail solution was end-of-life and could not meet their business growth and modern needs. The solution began having data syncing and inventory issues since the retailer surpassed 60 stores, and licenses were no longer even available. The retailer sought a "full-blown" ERP solution; Microsoft Dynamics 365 for Finance and Operations offered the desired top-tier capabilities, and as its VP of IT noted, the solution "was significantly less expensive" than other offerings they scoped. Implementation of the core ERP took 12 months followed by a seven-month rollout to retail stores.
- › **Global apparel brand with online retail and B2B sales distribution that employs under 500 employees and earns \$100 to \$500 million in annual revenue.** The brand's existing ERP solution could not scale to meet the growing needs of the business and lacked key capabilities, and it invested in Dynamics 365 for Finance and Operations hoping to deliver capabilities throughout the supply chain with minimal customizations. Implementation took 18 months.
- › **Global, North American-based engineering, procurement, and construction (EPC) contractor with fewer than 500 employees and \$50 to \$100 million in annual revenue.** The company adopted Dynamics 365 for Finance, Manufacturing, and Operations to alleviate on-premises hardware and personnel costs and gain business insights regarding sales, production, and shipping to increase profitability. Implementation took only three months and the environment is fully maintained by Microsoft.
- › **North American, fast-growing automotive manufacturer with revenue doubling annually to a present state of \$50 to \$100 million.** The manufacturer was highly reliant on a paper processes, locally maintained spreadsheets, and a basic bookkeeping solution that also has a rapidly degrading database. To protect its business and keep pace with the massive growth, the company needed a modern, easy-to-use, and scalable ERP system. The manufacturer conducted a rapid deployment process in six months to go live and is currently using Microsoft's manufacturing, warehouse management, inventory, finance, and sales capabilities.

"Our previous system worked until we reached about 60 stores, and then we had issues with data syncing and inventory transfers. We had to turn certain things off to get other elements to work, and it was pretty much a full-time job to support."

Vice president of information technology, general retail



"Our legacy finance system ran off a single file, and that file was becoming unstable. We did not have a choice, and we needed to move quickly — Dynamics 365 fit the bill, and we went from start to finish in only six months."

ERP manager, automotive manufacturing



Key Challenges

Interviewed organizations identified several key challenges of their legacy ERP environments that led to the investment in Microsoft Dynamics 365 for Finance and Operations:

- › **Legacy systems inhibited growth.** Several interviewed organizations were using decades-old ERP solutions, while others had undergone major business growth but still used basic products as remnants of early years. For both categories of organizations, the ERP systems failed to keep pace with their growing needs and the organizations had accumulated significant amounts of technical debt. Therefore, the ERP solutions had become a hindrance with inadequate performance, poor user experience, a lacking functionality, and excessive customizations.
 - **Solutions were reaching end-of-life and had become foreign to IT departments.** “We had a 25-year-old core ERP system that was out of support and that virtually nobody in the company understood,” explained the chief operating officer of a specialty foods brand. The director of IT and operations for another retail organization described how, “[We] can’t even buy licenses of [our previous solution] anymore.” The energy infrastructure manager of business applications concurred: “After 15 years with our previous on-premise solution, we were merely keeping the lights on. We were no longer investing in keeping the system up to date, and consequently, the system was not effectively supporting the rate of change and growth that our business was experiencing.”
 - **Legacy solutions were failing as companies grew.** Companies had to dedicate significant labor just keeping legacy solutions functional, instead of working to grow the business. Younger companies were especially challenged as growth brought them head to head with enterprises. Simple bookkeeping was not enough, “Everything was running out of spreadsheets,” remarked the ERP manager for the automotive manufacturing company. They continued, “Revenues were doubling year-over-year, and we could not stay in our environment and expect to scale with the volume of transactions, data, and accounting. Our organization is young and growing so much — accelerated growth creates challenges the existing system could not handle. Master data and business values, inventory, BOMs, etc, were low in accuracy. We didn’t have the rails around us in our environment to keep things clean and that was painful.”
 - **Performance issues plagued users.** Users were hampered by system performance and cumbersome and unintuitive data entry. The systems engineer for the EPC contracting firm noted that the power users within the organization spent significant amounts of their time answering a common set of questions, which took time away from the main duties and meant that less data was being entered into the ERP system and further that they had less time to analyze the data.
- › **Organizations were blind to business insights due to siloed and inadequate data.** Systems were siloed between sites and functions, and organizations lacked a central way to track and analyze data. Reports had to be painstakingly constructed, even for just a one-time analysis. Worse, with paper processes and employees sidestepping

“We had a 25-year-old core ERP system that was out of support and that virtually nobody in the company understood.”

Chief operating officer, specialty foods manufacturing and retail



“After 15 years with our previous on-premises solution, we were merely keeping the lights on. We were no longer investing in keeping the system up to date, and consequently, the system was not effectively supporting the rate of change and growth that our business was experiencing.”

Manager of business applications, energy infrastructure



“Revenues were doubling year-over-year, and we could not stay in our environment and expect to scale with the volume of transactions, data, and accounting.”

ERP manager, automotive manufacturing



the ERP, more and more valuable business data was being stored locally and couldn't ever be accessed or analyzed.

- **Legacy solutions couldn't provide insights.** For many of the interviewed organizations, their existing solutions lacked the reporting and analysis capabilities they were looking for, the systems engineer for the EPC contracting firm explained: "Our on-premises solution didn't have much reporting capabilities. And if you needed better reporting, you'd need to invest in a data warehouse, open up a SQL server, and dedicate a consultant to develop everything. It'd be a special project on its own." The automotive manufacturer's ERP manager noted that his company was "running on spreadsheets" and "couldn't do a true aggregation."
- **Lacking insights caused major quality issues, delays, and excessive costs.** Over time, legacy solutions accumulated significant technical debt and failed to keep pace with the growing business demands. This technical debt manifested as performance degradation and worsening user experiences, which often resulted in users circumventing the ERP solution. Further, missing capabilities caused key processes like ordering through production to be handled entirely on paper. The manager of business applications for the energy infrastructure company noted, "In the end, we were finding that users were performing a greater amount of their work outside of the application, such as offline spreadsheet analysis and manual process workarounds."
- **On-premises deployments incurred excessive hardware and labor costs.** Setting up and maintaining on-premises solutions hindered development. "Most of my time was just wasted on managing the hardware, making sure it's performing well rather than focusing on new business problems that are developing," stated the systems engineer for the EPC contracting company. On-premises upgrades and maintenance was very difficult, as the retailer's VP of information technology described: "The problem with our previous system was we had to upgrade every register, store server, and our headquarter server all at the same time or else they wouldn't sync anymore. And we could not fully automate that process either. We had to touch every single register individually." Both interviewees, the VP of information technology, and the director of IT and operations, were unanimous, "That was not fun."
- › **Small businesses struggled to attract and retain capable IT staff.** "It's very difficult to find an IT administrator for a small-scale business because they don't have much to do. If you even get them to join the company, they leave pretty quickly," explained the EPC contractor's systems engineer. Geography adds difficulty for small companies, shared the automotive manufacturer's ERP manager, "We're located in a pretty remote place and finding a SQL administrator is not easy."

"In the end, we were finding that users were performing a greater amount of their work outside of the application, such as offline spreadsheet analysis and manual process workarounds."

Manager of business applications, energy infrastructure



"We had to upgrade every register, store server, and our headquarter server all at the same time or else they wouldn't sync anymore. And we could not fully automate that process either. We had to touch every single register individually. . . . That was not fun."

VP of information technology, general retail



Solution Requirements

The interviewed organizations searched for a solution that offered:

- › **Top tier capabilities covering all business units with minimal customization.** The chief operating officer for a specialty foods brand

explained: “The reason [we implemented Dynamics 365] was to have one integrated system that could support the entire business so we could see everything holistically, manage inventory across channels, and scale. We have aggressive organic and acquisitive growth plans, and we wanted a system that had lots of capability that we could make work for whatever we were doing.”

- › **Agile, modular environment hosted in the cloud for fast deployment and scale.** The ERP needed to be implemented quickly, and then scaled to match changing business needs or deployed to additional use cases, sites, or business units. The energy infrastructure manager of business applications described their cloud-first search: “We hoped and expected that the move to tier one ERP would be transformational to our business. However, it was also very important to our senior leadership that the new solution would not be adversely disruptive to our users. To achieve that balance — how do you transform but not be disruptive? — was an interesting challenge for us.” He continued: “Our business is very dynamic, so scalability, flexibility, agility, elasticity, interoperability, transparency, acceptability, ease of use, governance, accuracy, and completeness are all important to us. These were strategic objectives that, combined with our confidence in [Microsoft] and in our own team’s ability to deploy the system, ultimately drove our decision [to adopt Dynamics 365].”
 - **Minimal customizations.** Every interviewed organization explained that they wanted a solution that could meet as many of their needs out-of-the-box as possible. They wanted to minimize the customizations to accelerate implementation and minimize maintenance and upgrade efforts going forward.
 - **Cloud environments with software-as-a-service updates.** The energy infrastructure manager of business applications continued, “Running your ERP on-premise can sometimes lead to a false sense of security. In our case, we expected that a move to a cloud hosted solution would come under greater scrutiny and concern from senior management. It turns out that our leaders were already well informed with all aspects relating to the cloud and cybersecurity, that we received exceptional support and sponsorship for our decision.”
- › **Cost effective deployment, licensing, and management.** ERP implementations are some of the largest technology investments made by companies. An ERP is the central nervous system of the business, and it must work well at all times, or the consequences can be severe. Organizations interviewed for this study therefore tended to place capabilities and design first, but among top tier choices, cost played a significant role in selection.

Key Results

The interviews revealed that key results from the Microsoft Dynamics 365 for Finance and Operations investment include:

- › **Modernize and centralize the enterprise.** Across business types and sizes, Microsoft Dynamics 365 for Finance and Operations consistently enables system consolidation, real-time data analysis, improved efficiency, and advanced business insights — with the agility and scalability of a modular, cloud-based solution. Organizations can

“The common data model platform is a game changer. Your applications are in a different platform, totally independent of the ERP, so the ERP can be updated without any doubts that it might break. It is true SaaS.”

*Systems engineer,
EPC contracting*



“Our brand has very steep growth plans, and we needed an ERP system that could flex with it.”

Director of IT, apparel brand



“More functionality integrated within our application reduces customization. We have more harmony in our environment.”

*Manager of business applications,
energy infrastructure*



“Everything in today’s workforce is about agility — getting all your information on any device, at any time. It’s an ideal that we wanted to strive for. [Gaining agility] with Dynamics 365 for Finance and Operations, without putting the organization at any greater risk, is significant and has been one of the catalysts of our digital transformation.”

*Manager of business applications,
energy infrastructure*



quickly adapt to changing business needs and improve their efficiency, productivity, and ultimately profitability.

- › **Quickly scale and launch new sites.** Dynamics 365 helps organizations integrate a new acquisition or launch a new site quickly and effectively. The ERP manager for the entertainment agency described how: “rolling out to China or even London was much more intensive [with our on-premises solution] and demanded a lot more onsite face-to-face time along with more support from IT than with Dynamics 365 in the cloud. All our focus went for managing the servers, performance, XPU movements to looking at other processes. The purpose of the technical team is very different from what it was when we had our on-premises solution.”
- › **Enhance user experience.** “The employee experience has been good. We had better user adaptation than our on-premises solution because the user interface was a lot easier and cleaner,” elaborated the systems engineer for an EPC contractor. In addition, the manager of business applications for the energy infrastructure company shared that “the qualitative feedback . . . from clients and end users is very positive,” and that users have shifted from expressing frustration with the system to being excited about the next release of new features that his team has been regularly rolling out. Task Guides have drastically reduced the number of questions that the EPC contracting company’s power users get on a regular basis, enabling them to spend more time generating value for the business.
- › **Reduce technical debt.** Organizations avoid the significant levels of customization common with ERPs and their subsequent testing and upgrades with Dynamics 365. Further, the ability to more easily extend the ERP with Power Apps enables interviewees to build impactful applications based on the core data with minimal development expertise, without risking compatibility or upgrade issues in the future.
- › **Gain insight into businesses operations.** Microsoft Dynamics 365 for Finance and Operations unifies data from across the enterprise. With the help of Power BI, organizations gain insight into what’s going on in their business in real time — helping identify excess costs, allocate resources, manage inventory, forecast future orders and production needs, and ultimately increase business profitability and speed. The systems engineer for the EPC contracting company described the value of these gained insights: “We are able to see the true cost of a project every day. We don’t have to wait until the end of the month.”
- › **Reallocate systems administration labor.** Interviewees freed up a significant amount of time because they no longer had to worry about maintaining the hardware necessary to run their ERP solution. This benefit pronounced when companies rolled out a new retail store or subsidiary business. The ERP manager for the entertainment agency described how “rolling out to China or even London was much more intensive [with our on-premises solution] and demanded a lot more onsite face-to-face time along with more support from IT than with Dynamics 365 in the cloud. All our focus went for managing the servers, performance, XPU movements to looking at other processes. The purpose of the technical team is very different from what it was when we had our on-premises solution.”
- › **Increase quality.** Better monitoring of production processes uncovers issues quickly so businesses can solve issues before costs and delays

“One of the big benefits we got from moving to the cloud is the ease of rolling out [Dynamics 365] to a subsidiary. You don’t have to install anything, you can just send the URL and that’s it, they’re on.”

*ERP manager,
entertainment agency*



“The ability to integrate lots of different data sources into a view of information is a big benefit – it’s one of the reasons we went with Microsoft.”

*ERP manager,
automotive manufacturing*



“[Dynamics 365 for Finance and Operations] keeps us from putting a poor-quality product out the door. We find the problems before they get discovered [by the customer].”

*ERP manager,
automotive manufacturing*



accumulate. Greater consistency combines with reduced likelihood of delays to drive greater customer satisfaction.

- › **Enhance productivity.** The improved features and functionality provided by Microsoft Dynamics 365 for Finance and Operations reduced the amount of manual processes, workarounds, and work done in spreadsheets; as a result, more data was being captured and centralized with less wasted labor. On the shop floor, improved forecasting, monitoring, and quality enables organizations to avoid overruns, rework, and overall labor costs.
- › **Increase profitability.** A multitude of production enhancements in ordering, inventory management, production, warehousing, and distribution combine to drive down the cost of goods sold. Finance teams can better track and bill for goods, sales representatives can make better estimates and devote more time to customers, and retail stores can optimize their sales process — all driving increased revenue.

Composite Organization

Forrester constructed a TEI framework, a composite company, and an associated ROI analysis that illustrates the areas financially affected. The composite organization is representative of the seven organizations that Forrester interviewed, and is used to present the aggregate financial analysis in the next section. This composite organization has the following characteristics:

- › Global vertically-integrated manufacturer and retailer with \$1 billion in annual revenue. Eighty percent of sales are driven by wholesale and the other 20% by the organization's 100+ retail stores.
- › Handles aspects of ordering, manufacturing, warehousing, and distribution for its products.
- › Employs approximately 10,000 FTEs with 2,000 employees in corporate offices (including over 40 IT FTEs dedicated to ERP, 50 finance FTEs, and 400 wholesale sales representatives), 3,000 retail employees (across its 100 stores), and 5,000 manufacturing and supply chain employees (including 4,000 shop floor staff).
- › Replaced several legacy siloed ERP systems including separate solutions for production, distribution, ordering, finance, and retail.

The composite organization adopts Microsoft Dynamics 365 for Finance and Operations in a dual-phase approach over two years:

- › Implementation is led by a third-party organization with expertise in Dynamics 365 and vertically-integrated manufacturing and retail. The implementation partner works alongside internal employees and with the support of Microsoft to ensure the systems are deployed effectively, on schedule, and with best practices in mind.
- › Phase 1 implementation takes 12 months and includes full deployment of the finance, manufacturing, and operations capabilities. "Go live" takes place at the end of this 12-month period and is where Year 1 of the financial model begins.
- › Phase 2 implementation takes an additional 12 months and includes deployment of retail capabilities to all 100 stores, change management and training, and additional production and finance improvements based on initial usage and learnings.

"We've reduced overtime and made [employees] more efficient. It has enabled us to grow without adding expense. We're going to grow our core business by six to seven percent with minimal additional labor."

Chief operating officer, specialty foods manufacturing and retail



Key assumptions:

- › Vertically-integrated manufacturer and retailer
- › \$1B total annual revenue
- › \$800M wholesale revenue
- › \$200M retail revenue
- › 100+ retail stores



Deployment:

- › Cloud version of Microsoft Dynamics 365 for Finance and Operations
- › One year to deploy core ERP functionality
- › One year to deploy retail functionality

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	Operations efficiency	\$9,600,000	\$19,200,000	\$19,200,000	\$48,000,000	\$39,020,285
Btr	Employee productivity	\$5,069,740	\$10,139,480	\$10,139,480	\$25,348,700	\$20,606,531
Ctr	Wholesale profit	\$816,000	\$1,632,000	\$1,632,000	\$4,080,000	\$3,316,724
Dtr	Retail profit	\$0	\$523,600	\$1,142,400	\$1,666,000	\$1,291,029
Etr	Legacy cost avoidance	\$4,275,000	\$4,275,000	\$4,275,000	\$12,825,000	\$10,631,292
Total benefits (risk-adjusted)		\$19,760,740	\$35,770,080	\$36,388,880	\$91,919,700	\$74,865,861

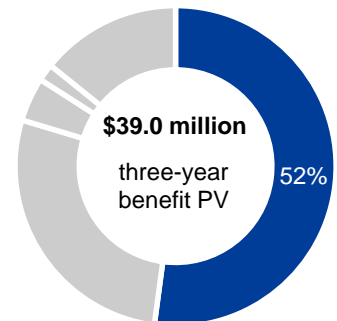
Operations Efficiency

Microsoft Dynamics 365 for Finance and Operations enables organizations to improve operations efficiency via business insights. Interviewees drastically increased their data collection efforts, replaced disparate systems, and revamped paper processes with automation and live system data. Using this data, organizations can track the entire supply chain and production and identify issues, optimization points, and beyond. Ultimately, the organizations can improve their profit margins via a myriad of operations improvements with Dynamics 365:

- › **Increase sales orders accuracy.** Better quotes with more detail helps procurement to order the right parts and materials and helps the manufacturing, warehousing, and distribution channels to anticipate upcoming work. Better planning reduces the risk of delays and errors, ultimately reducing the risk of cost overruns and lost profits.
- › **Enhance inventory management.** Dynamics 365 helps organizations see exactly what inventory they have and where it is, helping to avoid excess ordering or shrinkage.
- › **Identify quality or production issues early.** Business insights help organizations see in real-time when a certain production line is not performing correctly or when parts and materials from a vendor are failing at higher-than-expected rates. This empowers organizations to solve the problems immediately, significantly reducing the risk of waste and delays while also aiding vendor selection and negotiation.
- › **Accurately predict production and warehousing needs.** Historical and real-time data unifies to provide better forecasting, which allows production and warehousing teams to allocate their resources and optimize their operations as needed in order to meet timelines and avoid over-capacity cost and stoppage issues.
- › **Reduce delays.** Better planning and quality reduces the risk of delays, helping to avoid overage costs like overtime and rush shipping. Furthermore, delay reduction reduces the risk of damaging a customer relationship and potentially losing revenue.

Interviewed customers described a host of operations improvements such as those named above. Examples include:

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 almost \$75 million.



Operations efficiency:
52% of total benefits

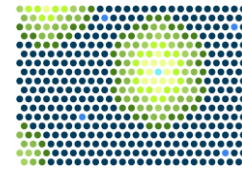


Enhance forecasts

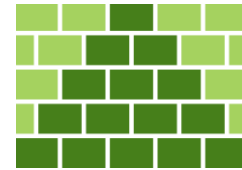
- › The EPC contractor leveraged Dynamics 365's reporting and visibility to achieve an impressive 10% reduction in overhead expense, explained the systems engineer: "[Due to increased visibility from Dynamics 365], we changed our overall profit margins this year with visibility on what's going on in the cost of projects from the prior year. We have improved the true cost of a project in the last two years, . . . and it gave our controller a lot more metrics to work on reducing overhead expenses. We're reducing overhead expenses by almost 10% from last year." Dynamics 365 for Finance and Operations enabled the EPC contractor's controller to build a monthly audit, review slow moving items, and more accurately order inventory only when it will be used. These efforts drove a 10% reduction in on-hand inventory.
- › The specialty foods brand is leveraging Dynamics 365 to improve its warehouse management with better capacity planning based on forecast, distributed space constraints, and production levels. Given the brand's seasonality, it is essential to plan for when it will run out of warehouse space, having contingency plans in place and ready to be acted upon. Failure to plan appropriately can be crippling, with steep losses. The chief operating officer shared one such example that resulted in a six-figure loss: "Last year, we hit 100% capacity utilization [during our peak season]. We had to shut down for a day to move stuff around and figure out what to do. Because we were doing that at the 11th hour, we screwed stuff up, and it cost us a lot of money in direct cost and failures to our customers. We shipped orders short, we missed deliveries, and so we had customers short pay us because we didn't deliver them their whole orders. It was a pretty big mess. [With Dynamics 365], we're able now to forecast constraints we're going to have in our distribution center. Being able to preplan is going to be critical for our success."
- › Dynamics 365 improved the automotive manufacturer's operations, as the ERP manager described, "It creates efficiencies, lot sizes, scales, how much we make, when we make it, how much we purchase, and when we purchase." The automotive manufacturer previously tracked quality issues in a simple list; now, with Dynamics 365, Power BI pools production data, quantities, and error and defect rates. The company can quickly identify and isolate quality issues, attribute them back to a specific parts vendor or team performance, and address the issue. The ERP manager explained the impact on quality: "[Dynamics 365] keeps us from putting poor quality products out the door. We find the problems before they get discovered [by the customer]."

To model this improvement, Forrester assumed a baseline gross margin of 24% to which a 5% and 10% improvement was applied in Year 1 and in Years 2 and 3, respectively. The improvement drove an overall increase to the gross margin of 1.2 percentage points in Year 1 and of 2.4 percentage points in Year 2 and Year 3. Applied to \$1 billion in baseline revenue, the composite organization increases gross profit by \$12 million in Year 1 and \$24 million in Year 2 and Year 3.

Operations efficiency gains varied significantly for interviewed organizations depending upon their type of business, prior state technology and processes, and the specific Dynamics 365 modules and customizations deployed. No two organizations will achieve the same level of benefit, and while the gross margin improvements modeled in this calculation represent a conservative level of benefit, Forrester additionally adjusted this benefit downward by a risk reduction of 20%, yielding a three-year risk-adjusted total PV of \$39,020,285.



Improve quality



Reduce waste



Avoid delays

"Last year, we hit 100% capacity utilization [during our peak season]. We had to shut down for a day to move stuff around and figure out what to do. . . . It cost us a lot of money in direct cost and failures to our customers. . . . [With Dynamics 365] we're able now to forecast constraints we're going to have in our distribution center. Being able to preplan is going to be critical for our success."

Chief operating officer, specialty foods manufacturing and retail



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.

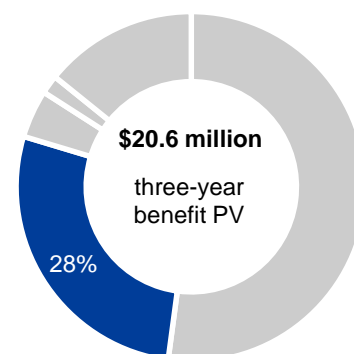
Operations Efficiency: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
A1	Baseline business revenue	Assumption	\$1,000,000,000	\$1,000,000,000	\$1,000,000,000
A2	Baseline gross margin	Assumption	24%	24%	24%
A3	Reduction in cost of goods sold	Interviews	5%	10%	10%
A4	Increased gross margin	$A2*(1+A3)$	25.2%	26.4%	26.4%
A5	Baseline gross profit	$A1*A2$	\$240,000,000	\$240,000,000	\$240,000,000
A6	Increased gross profit	$A1*A4$	\$252,000,000	\$264,000,000	\$264,000,000
At	Operations efficiency	$A6-A5$	\$12,000,000	\$24,000,000	\$24,000,000
	Risk adjustment	↓20%			
Atr	Operations efficiency (risk-adjusted)		\$9,600,000	\$19,200,000	\$19,200,000

Employee Productivity

Microsoft Dynamics 365 for Finance and Operations enables significant productivity improvements for users across varying teams as evidenced by the interviewed organizations. Automation, streamlined forms, reduced data entry, automatic reporting, reduced rework, and avoided overtime all combine for significant labor savings:

- › **Shop floor staff.** Streamlined processes and automation make staff more efficient, or even replaces certain tasks, and improved quality reduces needed rework. Better forecasting enables plants to manage production in advance for spikes and lulls, ensuring orders can always be fulfilled while reducing overtime during seasonal peaks.
 - Dynamics 365 for Finance and Operations enabled the EPC contractor to cut labor force by 10 to 15% thanks to heightened visibility and control of production processes. Pipeline and timeline predictions enable better estimation, thereby reducing overtime and double shifts.
 - The automotive manufacturer gained visibility into business volume with Dynamics 365. Now, even if volume changes, the company can quickly see how it is using its resources and scale up or down rapidly as needed.
 - Before Dynamics 365, the automotive manufacturer had no inventory management solution. The ERP manager described: “We had no idea where our inventory was physically. Employees used to drive around on forklifts looking for inventory.” Additionally, to determine what inventory should have been available, employees used to look at purchase orders to see what materials were ordered and compare them to actual shipments. Workers are enabled now with the new system, and accountants find it valuable. They actually know what inventory is on hand, and how much it is worth.
- › **Finance, accounting, and procurement.** Significant time savings are achieved through reduced data entry and verification, digital billing, and automation such as automated follow-up. Reports no longer require significant data collection, analysis, and presentation. They can be designed once and accessed via dashboards with real-time data.



**Employee productivity:
28% of total benefits**

“We had no idea where our inventory was physically. Employees used to drive around on forklifts looking for inventory.”

ERP manager, automotive manufacturing



Compliance and auditing processes are significantly improved with better systems availability and automated processes.

- The entertainment agency significantly improved its billing and payment processing, driving an 80% reduction in time and labor to process checks. The ERP manager described how finance improvements impacted the business: “The number of hours we need to process money and follow up has been considerably reduced. In terms of cash, we can collect revenue faster because we process money faster.”
 - The energy infrastructure company improved auditing, as the manager of business applications described: “Audit is happy [with Dynamics 365 for Finance and Operations] due to refinement in our approach for application management, including managed code check in and a formal production backlog, update, and release process. Our processes are much more mature and transparent than before.”
 - The EPC contractor reallocated one of their two accountants to a new project management role thanks to Dynamics 365, helping to improve production speed and project outcomes.
 - The finance controller for the EPC contractor can review historical data and quickly determine the current pipeline, true cost, and potential cash flow, as the systems engineer described, “Our controller is able to see [production] cost much faster than ever before because we are capturing almost all business scenarios within Dynamics 365.”
 - The manager of business applications for the energy infrastructure company described: “We’ve realized improved time value of money by changing our receipt process and actually having that data integrate with our cash and treasury management systems. We also gained efficiencies and more accurate intelligence in regard to our spend, so our cost of money is better managed.”
- › **B2B sales.** Sales representatives reduce time spent for procedural tasks such as invoicing, and with fewer quality and delay issues, they spend less time dealing with issues and more time with customers.
- The apparel brand leveraged integrations with a variety of external systems to automate tasks; now, orders come in, are analyzed, and flow to the warehouse automatically without anyone needing to look at them.
 - Sales representatives at the EPC contractor can also now review real-time reporting in Power BI to see the true daily cost, enabling important decisions for delivery time and estimates. The systems engineer elaborated, “Sales representatives used to wait until the controller closes all the financial books at month’s end to get the true cost, but now, we can see the true cost and what’s going on in the shop floor every day. That lets sales make important decisions on the delivery time or promising a delivery date to a customer.”
- › **Systems administration and application development.** Moving to the cloud and reducing customizations significantly decreases ERP systems administration, and applications can be developed much quicker and easier using Power Apps. Please see the Legacy Cost Avoidance section for further discussion where this labor benefit is monetized separately.

“The number of hours we need to process money and follow up has been considerably reduced. In terms of cash, we can collect revenue faster because we process money faster.”

*ERP manager,
entertainment agency*



“Audit is happy [with Dynamics 365 for Finance and Operations] due to refinement in our approach for application management, including managed code check in and a formal production backlog, update, and release process. Our processes are much more mature and transparent than before.”

*Manager of business applications,
energy infrastructure*



“Sales representatives used to wait until the controller closes all the financial books at month end to get the true cost, but now, we can see the true cost and what’s going on in the shop floor every day. That lets sales make important decisions on the delivery time or promising a delivery date to a customer.”

*Systems engineer,
EPC contracting*



Interviewed customers described a host of productivity improvements such as those named above. Additional examples include:

- › The specialty foods manufacturer and retailer achieved major labor savings with Dynamics 365 for Finance and Operations, as the chief operating officer shared: “We’ve reduced overtime and made [employees] more efficient. It has enabled us to grow without adding expense. . . . We’re going to grow our core business by six to seven percent with minimal additional labor.”
- › The energy infrastructure company’s former ERP had such a bad user experience that users would often attempt to work around it. Dynamics 365 for Finance and Operations was a huge improvement, as the manager of business applications described: “After 15 years with our previous on-premises solution, we were merely keeping the lights on. We were no longer investing in keeping the system up to date, and consequently, the system was not effectively supporting the rate of change and growth that our business was experiencing — in doing so, we were creating technical debt. And in the end, we were finding that users were performing a greater amount of their work outside of the application, such as offline spreadsheet analysis and manual process workarounds. Now with [Dynamics 365], we’ve moved to a solution that offers the opportunity to release new features and enhancements on a regular basis – bringing greater user satisfaction and harmony.”
- › The systems engineer at an EPC contractor shared, “A huge timesaver for us is all of our exception cases where our employees have to ask the same question multiple times. With Dynamics 365, users can just open a form and click on help to see the Task Guides. Now, power users are not addressing those day-to-day exception cases and are really working on the true process.”
- › “I’m a Power BI guy,” shared the ERP manager for the automotive manufacturer. “One of the reasons I pushed for Microsoft was the integration with Power BI for aggregation, analytics, and insights. He who has information wins.” The ERP manager continued, “I showed the owner some reports coming out of Power BI I had built and said that, in the past, you would have had to ask a person to run it, they would have called six people, it would have taken three days to compile and another day to put into a spreadsheet — and it would have just been static. Now, I have the ability to build a report once and it refreshes . . . it’s a beautiful thing.”

Forrester measured the value of improved employee productivity using the following model. The composite organization:

- › Reduces shop floor staffing from a baseline of 4,000 FTEs by 3% in Year 1 and 6% in years 2 and 3. Staff reduction is achieved via better production planning, reduced rework, and general process efficiency gains. Savings increase in the first two years as business insights enable further production efficiencies.
- › Improves productivity for 50 finance employees by 10% in Year 1 and 20% in years 2 and 3. Time savings are achieved by reducing data entry and verification, automating processes, enhancing data analysis and reporting, minimizing compliance and auditing effort. Savings increase in Year 2 with training and full systems deployment.
- › Improves productivity for 400 wholesale sales representatives by 2% in Year 1 and 4% in years 2 and 3. Time savings are achieved by streamlining order forms, minimizing data entry and verification,

“We don’t even have to work on weekends anymore, which we had to do before.”

*ERP manager,
entertainment agency*



“I’m a Power BI guy. One of the reasons I pushed for Microsoft was the integration with Power BI for aggregation, analytics, and insights. He who has information wins.”

*ERP manager, automotive
manufacturing*



6% reduction in avoided shop floor staffing with better planning and efficiency.



20% increase in productivity for finance staff for standard tasks, data entry, and reporting.

reducing interactions with finance, and avoiding customer-affecting quality, accuracy, and delay issues. Savings increase from Year 1 to Year 2 as systems are fully rolled out and employees are trained.

- › Pays average fully burdened salaries of \$22 per hour for shop floor staff and \$35 per hour for finance and sales employees.
- › Forrester assumes that a fully burdened employee will work a total of 2,080 hours in a year.
- › The composite recaptures only 50% of time savings for finance and sales employees for added value, as not all time saved will necessarily be devoted to additional work.

Forrester evaluated the following impact risks in modeling the value of this benefit for the composite organization:

- › Prior state technology, processes, and business insight capabilities and their related efficiency levels.
- › Specific use cases and deployed modules of Microsoft Dynamics 365 for Finance and Operations, and the level of change in day-to-day activities that occurred with deployment.
- › Varying size of labor force and average fully burdened salaries.

To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year risk-adjusted total PV of \$20,606,531.

Employee Productivity: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
B1	Shop floor FTEs	Assumption	4,000	4,000	4,000
B2	Reduced shop floor staffing		3.0%	6.0%	6.0%
B3	Fully burdened hourly rate	Assumption	\$22	\$22	\$22
B4	Manufacturing productivity savings	$B1*B2*B3*2080$	\$5,491,200	\$10,982,400	\$10,982,400
B5	Number of finance employees	Assumption	50	50	50
B6	Improved finance productivity		10%	20%	20%
B7	Fully burdened hourly rate	Assumption	\$35	\$35	\$35
B8	Percentage of time savings recaptured for productivity		50%	50%	50%
B9	Finance productivity savings	$B5*B6*B7*B8*2080$	\$182,000	\$364,000	\$364,000
B10	Number of sales representatives	Assumption	400	400	400
B11	Improved sales productivity		2.0%	4%	4%
B12	Fully burdened hourly rate	Assumption	\$35	\$35	\$35
B13	Percentage of time savings recaptured for productivity		50%	50%	50%
B14	Sales productivity savings	$B10*B11*B12*B13*2080$	\$291,200	\$582,400	\$582,400
Bt	Employee productivity	$B4+B9+B14$	\$5,964,400	\$11,928,800	\$11,928,800
	Risk adjustment	↓15%			
Btr	Employee productivity (risk-adjusted)		\$5,069,740	\$10,139,480	\$10,139,480

Wholesale Profit

Microsoft Dynamics 365 for Finance and Operations helps companies to provide a better customer experience for their B2B customers.

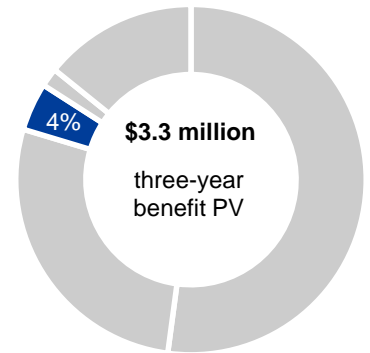
Customers are less likely to experience delays or fulfillment issues — reducing the likelihood of churn in the future, and also reducing the likelihood that an order may not be paid. Customers also enjoy the simplified process of ordering and invoicing. Further, wholesale sales representatives leverage productivity savings to provide even further customer support. The net result is a reduction in lost revenue, an increase in customer retention, and an increase in wholesale sales.

Interviewed customers described several examples of improved customer experience and increased revenue:

- › Sales representatives at the EPC contractor have taken on a more proactive sales approach using the data visibility in Dynamics 365, driving significant revenue increases of 5% to 10%. Sales staff can better negotiate and update invoices, increasing amounts due to overages and leveraging live data, whereas before, invoices were made before they were able to analyze the project data.
- › The EPC contracting company also increased its profit margins through analysis of system data in Dynamics 365. Now, quotes are more accurate with a better estimate of true cost and a larger profit, with sales people able to see how much real profit the company will make on the job.
- › The energy infrastructure company is more effective at sales efforts and customer service, as the manager of business applications described: “Our efforts are much more targeted and effective [with Dynamics 365 for Finance and Operations] in delivering value and keeping customer satisfaction as high as it can be.”
- › Analytics and dashboards have given the automotive manufacturer a powerful view of supply and demand, providing significant strategic value to the company. Sales orders are now configured so they are difficult to mess up, stymying the chance for orders to be built or quoted incorrectly — a common problem of the legacy environment. This enables the company to control things more than they could when they were bound up in paper processes, ultimately helping to protect the business and its bottom line. Inquiries, dashboards, and live reports have replaced laborious record collection and analysis, saving significant time.
- › For the automotive manufacturer, before Dynamics 365 for Finance and Operations, workers would put sales orders into their financial system with a rough bill of materials. Experts would estimate the parts required, but there was no comprehensive view of processes, inventory, or labor demands. Ultimately, this led to bad inventory and billing processes and a host of other problems. Other processes were even more manual, as the ERP manager described: “Production orders were written on tags and attached to the units as they went down the assembly line. You write something on the piece of paper, and that’s what you got to do. You didn’t interact with a system. At the end of production, someone would write it down in a spreadsheet and there was no live information or data verification.”

Forrester measured the value of increased wholesale profit using the following model. The composite organization:

- › Earns \$800 million (80% of total revenues) via wholesale annually.



**Wholesale profit:
4% of total benefits**



**3% increase
in wholesale sales
revenue.**

“Our efforts are much more targeted and effective [with Dynamics 365 for Finance and Operations] in delivering value and keeping customer satisfaction as high as it can be.”

*Manager of business applications,
energy infrastructure*



- › Increases sales revenue by 1.5% (\$12 million) in Year 1 and by 3% (\$24 million) in years 2 and 3. Sales are driven by improved quality, better quotes, accelerated manufacturing and distribution, improved customer satisfaction, and productivity improvements that enable sales representatives to spend additional time with customers.
- › Earns a net operating margin of 8% on wholesale revenue.

Forrester evaluated the following impact risks in modeling the value of this benefit for the composite organization:

- › Prior state technology and processes and the resulting frequency of defects, delays, and order inaccuracies.
- › Specific use cases and deployed modules of Microsoft Dynamics 365 for Finance and Operations, and the level of change in quality, speed, and order accuracy for customers.
- › Amount of time saved for sales representatives and the percentage of that time that is devoted to additional customer service.
- › Varying annual wholesale revenues and net operating margins.

To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year risk-adjusted total PV of \$3,316,724.

“Client service is a big deal. From a client perspective, [Dynamics 365 for Finance and Operations] did improve our service.”

*ERP manager,
entertainment agency*



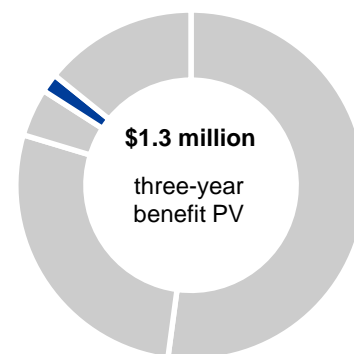
Wholesale Profit: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
C1	Baseline wholesale revenue		\$800,000,000	\$800,000,000	\$800,000,000
C2	Lift in wholesale sales revenue		1.5%	3%	3%
C3	Total wholesale revenue	$C1*(1+C2)$	\$812,000,000	\$824,000,000	\$824,000,000
C4	Increase in wholesale revenue	$C3-C1$	\$12,000,000	\$24,000,000	\$24,000,000
C5	Wholesale net (operating) margin		8%	8%	8%
Ct	Wholesale profit	$C4*C5$	\$960,000	\$1,920,000	\$1,920,000
	Risk adjustment	↓15%			
Ctr	Wholesale profit (risk-adjusted)		\$816,000	\$1,632,000	\$1,632,000

Retail Profit

Interviewees modernized their retail presence using Microsoft Dynamics 365 for Finance and Operations and integrated the retail channel data into the company’s broader ERP system. Stores can now keep a live view of current inventory levels connected to the point of sale. With this companywide view of inventory and sales, organizations can then strategically ship goods to the right stores to: 1) prevent items from going out of stock, which reduces the risk of lost sales, and 2) to avoid shipping excess inventory, which reduces the need to discount excess goods and the risk of shrinkage through forgotten or stolen items.

Dynamics 365 for Finance and Operations also provides the retailers the ability to offer a better customer experience and thereby drive increased sales by establishing loyalty programs, handling returns consistently across all retail stores, offering coordinated one-time and scannable mobile coupons, and enhancing cash register speed, experience, and security modern chip readers and mobile phone payments.



**Retail profit:
2% of total benefits**

These retail benefits come together as increased profitability for the retail channel with reduced shrinkage, avoided discounting, and increased sales. Interviewed customers described several such examples:

› **Seasonal spikes posed unique challenges for the specialty foods manufacturer and retailer.** The specialty foods brand runs a highly seasonal business with seasonal highs of 5,000 employees versus lows of a couple hundred. Manufacturing and retail must both ramp up aggressively, including the deployment and subsequent closing of over 600 retail stores.

- Before Dynamics 365, the specialty foods brand had no inventory visibility; it would ship a set amount of product to retail stores in four preplanned deliveries (to consolidate freight), the stores would sell what they had, and they would only know what was left at the end of the year. Inventory was a black box. At the end of the season, it needs to shutter stores as fast as possible to maximize profitability as for every day excess stores stay open, there is wasted labor and rent costs. This translates to heavy discounts, with stores trying to sell everything as fast as possible and only minimal manual shifting of inventory with a burdensome corporate process.
- The brand piloted six retail sites with Dynamics 365 during its most recent seasonal peak, and expects significant benefits with the full retail rollout. Instead of a fourth preplanned delivery, for example, it will use real-time visibility to allocate the final goods to key locations in order to optimize sales – helping to simultaneously avoid items going out of stock early (thus losing out on sales) and reducing the amount of excess stock that would end up sold at a steeply discounted price. This will enable the brand to ultimately increase sales and profit margins across its retail presence, driving almost \$1 million in additional profit, while simultaneously reducing overhead costs by quickly scaling down its retail presence at the end of the season.

› **The general retailer adopted Dynamics 365 to bring its stores into the modern era.** Decades-old point of sale machines with taped over credit card readers were replaced with modern devices, and inventory and sales data was unified across the environment and connected to the rest of the business.

- The retailer's stores are now connected through Dynamics 365, finally enabling it to implement key retail standards such as marketing coupons, a loyalty program, and being able to accept returns across multiple stores.
- While data is still early, the general retailer expects increased sales as a result of its Dynamics 365 implementation. Loyalty programs and coupons will drive sales across stores, and better point of sale systems, mobile and chip card capabilities, better inventory tracking, and a better return policy should improve the customer experience for retail visitors.
- In the future, the vice president of information technology plans to leverage inventory and sell-through analytics to improve pricing and training for their sales people who evaluate and create pricing for resold goods. Tracking inventory is still a next step, but once it is deployed, 2D barcode scanners will enable the organization to keep track of where items physically are in stores, who priced them, and who processed them.

“[Before Dynamics 365], we had no inventory visibility in retail stores at all. We would basically ship products from the distribution center to the stores and then whatever they had, they had. It was a black box.”

Chief operating officer, specialty foods manufacturing and retail



“We don't really know who our customers are today. Being able to market to our customers, invite them back if they haven't visited one of our stores in a while, send out coupons that can be one-use only versus our wide open coupons that we do now – these are all going to be really great aspects of building out our customer loyalty program.”

Director of IT and operations, general retail



Forrester measured the value of increased retail profit with Dynamics 365 for Finance and Operations using the following model. The composite organization:

- › Launches ten new stores annually, with 100 initial stores in Year 1.
- › Deploys retail modules with the Phase 2 launch at the end of Year 1.
- › Earns \$200 million (20% of total revenues) via retail stores annually.
- › Increases sales by 2% in Year 2 and by 4% in Year 3. Additional sales are driven by keeping products in stock and knowing where they are, improving the point of sale experience and technology, and leveraging new capabilities for loyalty programs and promotions.
- › Reduces excess inventory and shrinkage by 5% and 10% in Year 2 and Year 3, respectively. Improvements are achieved through better tracking and management of inventory in stores and enhanced data visibility and analysis across the retail channel to more accurately predict and allocate inventory across stores.
- › Earns a net operating margin of 4% on retail channel revenue.

Forrester evaluated the following impact risks in modeling the value of this benefit for the composite organization:

- › Prior state technology and processes and the ability to track, manage, and predict levels of inventory across retail stores.
- › Specific use cases and deployed modules of Microsoft Dynamics 365 for Finance and Operations, and the level of change in inventory management and visibility across stores.
- › Actual usage of business insights to predict sales cycles and better allocate and reallocate inventory across stores for optimal sales.
- › Varying annual retail revenues and net operating margins.

To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year risk-adjusted total PV of \$1,291,029.



4% increase in retail sales revenue.



10% reduction in excess inventory and shrinkage.

Retail Profit: Calculation Table

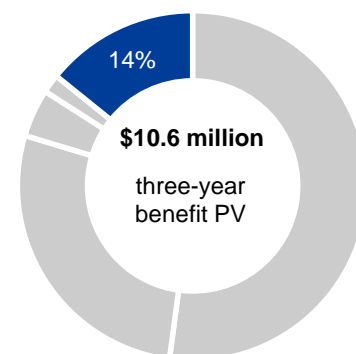
REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
D1	Revenue per store		\$2,000,000	\$2,000,000	\$2,000,000
D2	Number of stores		100	110	120
D3	Baseline retail revenue	D1*D2	\$200,000,000	\$220,000,000	\$240,000,000
D4	Percentage reduction in excess inventory and shrinkage		0%	5%	10%
D5	Percentage increase in sales		0%	2%	4%
D6	Increased sales revenue	D3*D4+D3*D5	\$0	\$15,400,000	\$33,600,000
D7	Retail net (operating) margin		4%	4%	4%
Dt	Retail profit	D6*D7	\$0	\$616,000	\$1,344,000
	Risk adjustment	↓15%			
Dtr	Retail profit (risk-adjusted)		\$0	\$523,600	\$1,142,400

Legacy Cost Avoidance

As organizations adopt Microsoft Dynamics 365 for Finance and Operations, they are able to retire their legacy ERP systems. Resulting cost savings are typically achieved in: 1) avoided licensing cost for their prior solutions; 2) hardware refresh and maintenance costs for the servers, machines, scanners, devices, and terminals; and 3) internal and third-party systems administration, customization, and support. The magnitude of legacy pricing varies for every organization — some will come from expensive, top tier ERP systems while others may be using a set of basic siloed applications or even paper processes.

Interviewed organizations cited a range of legacy savings:

- › The entertainment agency identified that hardware and license costs were much cheaper than their previous solution, ultimately accounting for a savings of almost 10x in annual costs.
- › By adopting Dynamics 365 as SaaS, the EPC contractor avoided hiring a dedicated IT administrator and over \$50,000 in upgrade costs every three years. Further, finding an IT administrator from a HR, logistics, and cost perspective was very difficult, as the systems engineer explained: “For a small business, [an on-premises ERP] is a lot of money and you need a dedicated IT person to maintain it. That’s a major problem — it’s very difficult to find an IT administrator for a small business because they don’t have much to do. Either we can’t find them, or when they join the company, they leave pretty quick.” Further, given the lack of internal expertise, the EPC contractor needed to hire a consultant to advise hardware purchases for every upgrade. “With Dynamics 365,” shared the systems engineer, “I’m not worried about my hardware or performance, we never have had a performance issue. Now I’m investing in making sure customizations can be ported to the new version, instead of IT hardware consultants, and it’s a true value.”
- › The manager of business applications for the energy infrastructure company described the improved upgrade process with Dynamics 365 for Finance and Operations: “Our technical debt position is much better — a huge improvement. Although we still maintain several key integrations with boundary applications, our position is far more stable when making upgrades – we don’t have to worry about the ‘house of cards’ falling apart on us. Our inventory of supported boundary applications was much larger than it is now, with each requiring additional maintenance and testing during each upgrade.”
- › The systems engineer for the EPC contractor described significant administration savings: “In the last two years [since adopting Dynamics 365], I haven’t spent any time maintaining the system. I’m just rolling out new features or upgrading the system to the new version. We’ve done three upgrades, and the upgrades have become much easier.”
- › The general retailer’s director of IT and operations described saving over \$100,000 a year in hardware and software for retail store deployment: “We open five to six stores a year, and we no longer have to purchase store servers anymore. It saves us a ton of money on hardware because [Dynamics 365] synchronizes directly to the cloud.”
- › The EPC contractor’s systems engineer described, “[Prior to moving to Dynamics 365] most of my time was just wasted on managing the hardware for the old on-premises ERP, making sure it was performing well rather than focusing on new problems that are developing.” He continued, “We were getting a lot of pressure to hire someone to



Legacy cost avoidance: 14% of total benefits

“With Dynamics 365, I’m not worried about my hardware or performance, we never have had a performance issue. . . . In the last two years [since adopting Dynamics 365], I haven’t spent any time maintaining the system. I’m just rolling out new features or upgrading the system to the new version.”

*Systems engineer,
EPC contracting*



“Our technical debt position is much better — a huge improvement. Although we still maintain several key integrations with boundary applications, our position is far more stable when making upgrades – we don’t have to worry about the ‘house of cards’ falling apart on us. Our inventory of supported boundary applications was much larger than it is now, with each requiring additional maintenance and testing during each upgrade.”

*Manager of business applications,
energy infrastructure*



maintain the system or move to a cloud ERP. We thought it was a good time to adapt, and we went live on public cloud. We never even considered private cloud because we don't want that maintenance and thought it would not return any value to the company."

- › Moving to cloud ERP streamlined IT administration for the energy infrastructure company, as the manager of business applications explained: "Desktop support for [hundreds of] users used to require a local client installation which was difficult to maintain. The client often encroached on regular Windows version updates, and WAN users needed additional remote connection software [other third-party tools] just to access the application. Now, under a SaaS format, we no longer have to deal with any of that [local client installations]. Dynamics 365 in the cloud is anywhere and accessible through virtually any device, and it's just as secure — if not more secure — than it was before."

"We open five to six stores a year, and we no longer have to purchase store servers anymore. It saves us a ton of money on hardware because [Dynamics 365] synchronizes directly to the cloud."

*Director of IT and operations,
general retail*



Forrester measured the value of avoided legacy costs using the following model. The composite organization:

- › Avoids annual licensing fees of \$2 million for legacy ERP solutions.
- › Avoids \$250,000 in expected annual costs to refresh hardware for ERP hosting, manufacturing and distribution, and retail sites.
- › Avoids \$100,000 in annual maintenance costs for legacy hardware.
- › Reallocates 20 systems administrators to other value-add IT tasks that were previously devoted to legacy ERP support. Systems administrators were paid a fully burdened annual salary of \$120,000.

Forrester evaluated the following impact risks in modeling the value of this benefit for the composite organization:

- › Legacy ERP costs for licensing, maintenance, and hardware can vary significantly based on an organization's prior ERP solutions.
- › The number of reallocated systems administrators will vary depending on organization size and ERP complexity.
- › The average annual salary for systems administrators will vary based on region, experience, and system complexity.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of \$10,631,292.



20 FTEs: reduced number of on-premises system administrators.

Legacy Cost Avoidance: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
E1	Avoided legacy licenses		\$2,000,000	\$2,000,000	\$2,000,000
E2	Avoided refreshes of legacy server, manufacturing, and retail hardware		\$250,000	\$250,000	\$250,000
E3	Avoided legacy maintenance		\$100,000	\$100,000	\$100,000
E4	Number of reallocated legacy systems administrators		20	20	20
E5	Fully burdened systems administrator annual salary		\$120,000	\$120,000	\$120,000
E6	Systems administration labor savings	E4*E5	\$2,400,000	\$2,400,000	\$2,400,000
Et	Legacy cost avoidance	E1+E2+E3+E6	\$4,750,000	\$4,750,000	\$4,750,000
	Risk adjustment	↓10%			
Etr	Legacy cost avoidance (risk-adjusted)		\$4,275,000	\$4,275,000	\$4,275,000

Unquantified Benefits

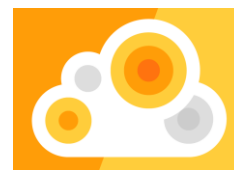
Organizations experienced a variety of additional benefits that could not be financially quantified in this study. Unquantified benefits of Dynamics 365 for Finance and Operations evaluated by Forrester include:

› **Delivered via the cloud.** Consuming Microsoft Dynamics 365 for Finance and Operations as a service provides significant labor savings and lets organizations focus on improving their businesses rather than maintaining the ERP. This also enabled regular updates, as opposed to prior on-premises solutions that may have only had a couple of upgrades over a two-decade period.

- The energy infrastructure company's manager of business applications explained: "As an end user, I want the latest and greatest and I want to be able to bring that to my clientele. That was part of our company's cloud-first mindset, whereas with our old ERP, we took only two upgrades over its 15-year lifespan. As you can imagine, that became a diminishing platform for us and we weren't fully realizing the value of what an ERP could and should be providing to the organization."
- The automotive manufacturer required a cloud solution simply because the company didn't have the IT overhead required to support anything other. The ERP manager expanded, "For a small company like us, it was important to get on a system quickly and not have to manage operating system and software upgrades, database management, scaling, sizing, all of those kinds of things."
- The entertainment agency's ERP manager explained how her organization's view of cloud updates has transformed since adopting Dynamics 365: "It's been more than a year now; at the beginning pushing changes to production was a very different process for us. We were really concerned about it and stressed out. We thought, 'We're losing visibility, we're losing control, and we have to request changes, we can't push the code whenever we want.' But now, we have learned, and we love it. We love it because we actually shift that responsibility over to Microsoft, so we don't have to worry about it. Now, we build our process very differently and once changes are ready, we just send the package over and they take care of it."

› **Enhanced system performance.** Microsoft Dynamics 365 for Finance and Operations provided excellent reliability, availability, and performance for all interviewed customers. This was essential, as the cost ramifications due to ERP downtime in wasted costs and lost or delayed orders can be massive.

- In their two years of usage of Dynamics 365 for Finance and Operations, the EPC contracting company has experienced no downtime, except for planned maintenance. The systems engineer described: "The performance between [our legacy on-premises system] and Dynamics 365 is not even comparable. It's a completely different game. The on-premises system was very slow . . . and we couldn't get the true performance of the ERP, even after investing a lot on hardware for performance. . . . We used to run a process that would shut down the application due to inadequate hardware every month; now, our availability is 100%."



Delivered via the cloud

"As an end user, I want the latest and greatest and I want to be able to bring that to my clientele. That was part of our company's cloud-first mindset, whereas with our old ERP, we took only two upgrades over its 15-year lifespan. As you can imagine, that became a diminishing platform for us and we weren't fully realizing the value of what an ERP could and should be providing to the organization."

*Manager of business applications,
energy infrastructure*



Enhanced system performance

"The performance between [our legacy on-premises system] and Dynamics 365 is not even comparable. It's a completely different game."

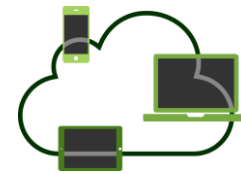
*Systems engineer,
EPC contracting*



› **Improved user experience.** Dynamics 365 provided flexibility to access systems anytime, anywhere, and from any device. Further, the user interface was a significant improvement for users with a more modern, familiar look and feel supported by strong training materials such as Task Guides. A positive user experience can also help organizations better attract, hire, and retain employees.

- The chief operating officer for a specialty foods brand explained that users found Dynamics 365 to be more comfortable, with a similar look and feel to other office applications — especially when compared to the brand’s “painful” legacy system. Younger users used to look at the old system as a joke; now, new users can be trained much faster and have a more modern experience. He elaborated, “When we’re trying to hire someone, they have options. It may not be the first thing they use in making their decision, but a bad system that makes no sense definitely plays a role in discouraging new employees. They’re going to say, ‘You have a 25-year-old system? What is this? You guys aren’t with it.’ Staying modern with the workforce has become a requirement, and Microsoft definitely delivers on that.”
- The EPC contractor’s systems engineer also described user benefits, “The employee experience is good. We’ve had better user adoption than with the on-premises solution because the user interface is a lot easier and cleaner. New functionalities, like Task Guides, have really helped users do self-paced training. They don’t feel awkward asking questions because everything is documented on the screen, it’s telling them where to click. It’s also really helped them get engaged.”
- The automotive manufacturer’s ERP manager valued the mobility of Microsoft Dynamics 365 for Finance and Operations: “One nice thing about Dynamics 365 is that I can take a laptop out on the production floor or do whatever I need to do off a hotspot. That’s the positive side of cloud — I can be anywhere and be connected.”
- Dynamics 365 enabled the energy infrastructure company to change its ERP development process and deliver greater value to users and clients, explained the manager of business applications: “The qualitative feedback that we’re getting from clients and end users is very positive. We’ve moved from waterfall delivery to Agile scrum delivery fueled by an actively managed production backlog, and users are now receiving enhancements on a more frequent basis. The shift in our delivery model has been very impactful to the team supporting the ERP.” Describing the resulting culture shift, he continued: “End users that used to be very critical of our ERP now ask, ‘What’s next? What’s on the horizon?’. [Dynamics 365] has helped us shift our focus for application management from a ‘keeping the lights on’ stance to a more forward-looking posture. Now, our application roadmap is not only about maintenance, but it also includes growth related initiatives. It’s hugely transformational for users.”

› **Agility for acquisitions and new lines of business.** Organizations can very easily deploy new sites and retail stores, integrate business acquisitions, or launch new lines of business and use cases with Dynamics 365 enabling. This enables:



Improved user experience

“One nice thing about Dynamics 365 is that I can take a laptop out on the production floor or do whatever I need to do off a hotspot. That’s the positive side of cloud — I can be anywhere and be connected.”

ERP manager, automotive manufacturing



“End users that used to be very critical of our ERP now ask, ‘What’s next? What’s on the horizon?’. [Dynamics 365] has helped us shift our focus for application management from a ‘keeping the lights on’ stance to a more forward-looking posture. Now, our application roadmap is not only about maintenance, but it also includes growth related initiatives. It’s hugely transformational for users.”

Manager of business applications, energy infrastructure



- Agility to quickly launch new subsidiaries was key to the automotive manufacturer, as the ERP manager described: “Our business is basically a holding company of seven company entities. One of the nice things about Dynamics 365 is that we created a configuration and template and could copy most of the parameters for a new company pretty quickly.”
- Dynamics 365 was essential for a recent small business acquisition made by the specialty foods brand. This small business had been doing everything manually, and with Dynamics 365, the specialty foods brand was able to build out and integrate a complete finance, supply chain, planning, purchase, production, and sales environment for the acquisition. Without Dynamics, the brand expected that it would have been simply impossible to build out the necessary technology and would have likely only integrated the business’s general ledger. Thanks to the new system, the brand was able to get its acquisition to market months earlier with a fraction of the effort, and further avoided at least 1,000 hours in additional labor for manual data management. The chief operating officer explained: “We acquired a company last year and built their business and configured the processes in [Dynamics 365]. It was great to build it out and have it all in one place; before, we would not have been able to do it at all.”
- The ERP manager for the entertainment agency described how, during a recent acquisition in Asia, they were able to fully launch their Dynamics 365 system with only one week of work: “One of the big benefits that we got from moving to the cloud is the ease of rolling out [Dynamics 365] to a subsidiary. You don’t have to install anything, you can just send the URL and that’s it, they’re on.” Without the cloud ERP, the agency estimated it would have taken six to eight times more labor to roll out systems for their new subsidiary.
- The interviewed automotive manufacturer has doubled revenue every year since launching five years ago. Their original systems have been unable to scale given the volume of transactions and data, and they were becoming unstable — the company needed to move fast. In adopting an ERP, the manufacturer hoped to aggregate all transactions across their seven different subsidiary companies.

Better security, governance, and fraud prevention. Replacing legacy solutions, especially environments with multiple siloed systems, helps companies better manage and protect their data. Dynamics 365 offers robust security in the cloud, lifting the burden off of on-premises systems administrators. Further, unified real-time data helps immediately identify violations or incidents — and improved technology reduces the ability of systems to be breached or be victim to fraud.

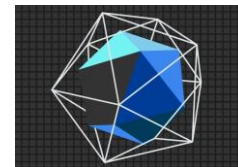
- Security and ease of access is essential for the entertainment agency with users across North America, South America, Europe, and Asia across multiple business units. Dynamics 365 has helped enable the agency’s digital transformation by replacing the manual paper processes and systems with a cloud solution with workflows and automation. Employees enjoy having access to systems in their browser rather than a dedicated application, and when they open the application, they immediately see a new knowledge and communication center.



Agility to deploy and integrate new business elements saves labor and enables faster time-to-market.

“We acquired a company last year and built their business and configured the processes in [Dynamics 365]. It was great to build it out and have it all in one place; before, we would not have been able to do it at all.”

Chief operating officer, specialty foods manufacturing and retail



Better security, governance, and fraud prevention

“Governance, completeness, and stability is paramount for a business like ours.”

Manager of business applications, energy infrastructure



- The general retailer installed new payment terminals with Dynamics 365 that can handle both chip credit cards and mobile payment apps, which has simultaneously improved security, reduced the risk of fraud, and reduced friction at the register. While the exact cost is currently unknown to the retailer, the risk is significant as the vice president of IT described: “We’re seeing more and more fraud claims, and in 2015, there was a liability shift to the merchants if a card with a chip was swiped. We were seeing more and more fraud charges because we were taking all of the cards as a swiped card instead of a chip card.” Switching to chip cards and mobile payment apps, combined with point-to-point encryption, significantly reduces the retailer’s fraud risk.
- The vice president of IT for the general retailer identified an important auxiliary benefit from the Dynamics 365 deployment: the organization was finally able to upgrade all their retail machines to Windows 10, and are now keeping pace with Microsoft’s continuous upgrade cycle. Previously, they lagged many years behind the official schedule, only upgrading from Windows XP to Windows 7 in the final hours of support. This change has important security ramifications for the retailer, helping reduce the risk of breaches and potential monetary and consumer trust losses.
- The general retailer also updated its 1D barcode scanners to 2D scanners, enabling scanning of QR codes on tags and labels and mobile coupons from customers. This led to an additional security improvement: retail staff now logs in using barcodes rather than passwords. Previously, many cashiers had memorized their managers’ passwords and used them instead of asking the manager to come over and handle exception cases. This led to loss prevention issues, as cashiers wielded much greater system capabilities than they were supposed to. With the new barcodes, the manager’s badge must be scanned for any special function thereby preventing clerks from using their information when the manager is not present.

“In 2015, there was a liability shift to the merchants if a card with a chip was swiped. [Before Dynamics 365], we were seeing more and more fraud charges because we were taking all of the cards as a swiped card instead of a chip card.”

Vice president of information technology, general retail



Building applications in Power Apps. Organizations can build applications to provide additional capabilities to employees with minimal development expertise and no risk of breaking the ERP even during upgrades. Use cases will vary, but applications can help improve productivity, data accuracy, or even sales.

- The entertainment agency uses Dynamics 365 combined with Power BI to connect talent and buyers based on prior history, demographics, and predictive insights — ultimately helping drive additional sales.
- Power Apps capabilities were extremely important for the energy infrastructure company, as the manager of business applications explained: “Power Apps is very impactful. We had a solution that we rolled out for operations inspections that’s integrated with our enterprise asset management solution. For years, this process was manually walking the [site], taking notes, and going back to the desktop computer to enter data and tee up unplanned maintenance work orders. Now, through the Power Apps, we’re able to go out into the field with a mobile device, take pictures of the [item] that needs attention, and integrate it into our enterprise asset management system



Build applications leveraging core data

to kick off a work order automatically.” He continued, “We’re looking at the Power Apps platform to extend the ERP into application development for invoices approvals, purchase requisitions, and more through mobile devices.”

- The EPC contractor leveraged the common data model behind Dynamics 365 combined with common apps to create applications that extend the ERP without risk. In the past, the business would avoid touching the ERP and would develop siloed applications with extensive investment and labor required from developers and infrastructure experts. Now, the business can utilize Dynamics entities, the common data model, Power Apps, and Azure SQL to create its own applications outside of the ERP with live data and no risk; all without development expertise. “To build an application, you needed to invest in a special project with infrastructure and a hired developer. Now, we are able to write our own apps without any help. The guy who wrote our last app is a manufacturing engineer,” shared the systems engineer. He continued: “The common data model platform is a game changer. Your applications are in a different platform, totally independent of the ERP, so the ERP can be updated without any doubts that it might break. It is true software-as-a-service (SaaS).”

“To build an application [before Dynamics 365], you needed to invest in a special project with infrastructure and a hired developer. Now, we are able to write our own apps without any help. The guy who wrote our last app is a manufacturing engineer.”

*Systems engineer,
EPC contracting*



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 Microsoft Dynamics 365 for Finance and Operations and later realize additional uses and business opportunities, including:

- › **Integrate with Microsoft Dynamics 365 CRM capabilities.** Combining finance, retail, and supply chain data with customer-facing CRM could provide significant benefits for forecasting, sales productivity, and increased revenues. “I can now manage the information that I couldn’t see before,” described the automotive manufacturer’s ERP manager. He continued: “I’ve got all the bells and whistles and integration across the Microsoft stack. We have the core in place, and I can do the analysis from the backend. This will be good when it comes to CRM and the future things I want to do, which are important to me at a strategic level.”
- › **Implement internet of things (IoT) for greater efficiency and automation.** Using IoT devices, production, warehousing, shipping, and distribution could be highly automated with reduced labor needed for data entry and increased accuracy of retail system visibility. The automotive manufacturer’s ERP manager looks to the future with retail, Power BI, and IoT, hoping to incorporate IoT data streams into dashboards and to move its sales online for representatives and dealers to place and manage orders themselves.
- › **Use machine learning and artificial intelligence layered on common data.** From image recognition to automating field service, machine learning offers a variety of use cases with significant potential. The energy infrastructure company is looking at using its ERP data from Dynamics 365 in the development of machine learning and artificial intelligence efforts, as the manager of business applications

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.

described: “Our business is really interested to know more about machine learning and what it can bring. . . . It’s machine learning coupled with this artificial intelligence technology that I think will really bring it home. Drones and image recognition are areas we’re pretty excited about, and we see it’s within our reach. It’s not something foreign and [Microsoft] has proven out that it works.” Describing another goal, he continued, “We’re really excited about leveraging the Power platform to go beyond the limited benefits of traditional financial reporting into deeper business insights and analytics.”

- › **Leverage call center, field service, or shipping capabilities.** These additional modules as part of Microsoft Dynamics 365 for Finance and Operations could drive further efficiency for staff and service level benefits for customers, with potential cost savings and revenue increases as a result.

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

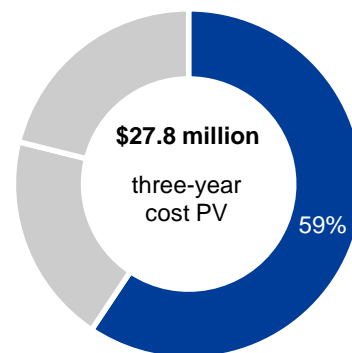
Total Costs							
REF.	COST	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Ftr	Implementation	\$18,227,362	\$10,476,380	\$0	\$0	\$28,703,742	\$27,751,344
Gtr	Licensing	\$0	\$3,630,000	\$3,674,880	\$3,719,760	\$11,024,640	\$9,131,802
Htr	Support and management	\$0	\$3,688,300	\$4,342,237	\$3,907,174	\$11,937,710	\$9,877,143
	Total costs (risk-adjusted)	\$18,227,362	\$17,794,680	\$8,017,117	\$7,626,934	\$51,666,093	\$46,760,289

Implementation

ERP systems are the core of any business, and implementations are time extensive and heavily scrutinized. Forrester’s interviews found that most organizations took a phased approach with the Dynamics 365 implementation, slowly rolling off of old systems and enhancing capabilities to reduce the risk of disruption. Implementation speed was generally very fast for an ERP rollout, with three deployments fully completed in under one year and the other four completed in 12 to 24 months. Experiences described to Forrester include:

- › The energy infrastructure company conducted a one-year Phase 1 launch followed by a nine-month Phase 2 launch. After one successful major upgrade with the implementation partner, the company has moved to the six-month release cadence and handles updates internally. The company’s manager of business applications described achieving minimal disruption with the launch of Dynamics 365 for Finance and Operations: “The go-live ‘storm’ period was exceptionally short — we were very pleased with it, and think it was a sign of tremendous success of the implementation to me. One of the better measures of success is not just being on time and on budget, but how well the application is adapted [by users] and how we were able to minimize the amount of disruption during the storm period.”
- › The specialty foods company identified over \$4 million in implementation costs, and ongoing support costs at approximately 10% of their annual license fees. Total licensing costs have been reduced annually, however, primarily due to system consolidation. The brand replaced a set of four systems: 1) a 25-year-old core ERP that no one understood; 2) a poorly-integrated warehouse management system; 3) a call center and online order management system; and 4) a homegrown, siloed retail point of sale system. A new ERP system was clearly needed. The company sought to avoid excess modifications, and the team did not feel capable of continuing to manage its own infrastructure. A cloud implementation of Dynamics 365 for Finance and Operations was ultimately selected; and while the original plan was to do it all at once, it was clear the company’s legacy data and processes were not ready for primetime. The company de-risked by taking a phased deployment over two years, avoiding major changes during its peak seasonal season.

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 almost \$47 million.



Implementation:
59% of total costs

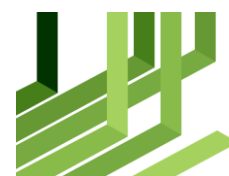
- › The automotive manufacturer’s ERP manager compared the Dynamics 365 implementation to a prior ERP implementation he was involved in: “I went through an [alternative ERP] implementation previously, and we took a year just to blueprint it — let alone do anything with it. Here, we executed and handled projects as quickly as we could . . . we are ahead because we didn’t wait for a calmer implementation time, and we dealt with the change and learned much on the fly.”
- › Implementation was a challenge for the apparel brand, as the company ran into unexpected complications that delayed go-live by approximately six months and drove up support costs. However, the deployment itself went very well with systems fully replaced in only a couple of days. The following three months, which turned out to be the biggest shipping months in the company’s history, went smoothly with Dynamics 365 completely handling the high level of throughput.
- › Despite the challenging implementation, the director of IT for the apparel brand believes that Dynamics 365 was the right choice, as its prior solution lacked necessary capabilities for the brand’s long-term success. She explained: “Our brand has very steep growth plans, and we needed a system that could flex with it.” While the brand had to make approximately 200 customizations, it avoided a much more challenging implementation where the director of IT predicted the business could have needed well over 1,000 customizations.
- › The director of IT and operations at the general retailer cited Microsoft’s partnership with his organization and the implementation partner as an important value add: “It was interesting to see how engaged and involved our Microsoft representative was. He worked on our behalf with our implementation partner to ensure everything got done. He really supported us when we had some challenges during the implementation period. If it wasn’t for him, I don’t know where we’d be.”

Forrester measured the value of implementation costs using the following model. The composite organization:

- › Conducts a two-phase implementation of Microsoft Dynamics 365 for Finance and Operations:
 - Phase 1 is a 12-month rollout of core ERP capabilities for manufacturing, finance, and the supply chain which is completed during the Initial period in this model.
 - Phase 2 is a 12-month rollout of ERP enhancements and customizations along with rollout of retail capabilities, which is conducted during the course of “Year 1” and live by the beginning of Year 2.
- › Dedicates 40 IT staff to Phase 1 implementation and 20 IT staff to Phase 2 implementation.
- › Dedicates 100 business workers for 30% of their time to design, manage, and test the Phase 1 implementation.
- › Dedicates 130 business workers for 20% of their time to Phase 2 implementation, including one manager per retail store.
- › Pays IT staff an average fully burdened salary of \$120,000 per year.
- › Pays business workers an average fully burdened salary of \$120,000 per year.
- › Incurs third-party implementation costs of \$8 million for Phase 1 and \$4 million for Phase 2.

“The go live ‘storm’ period was exceptionally short – we were very pleased with it, and think it was a sign of tremendous success of the implementation to me. One of the better measures of success is not just being on time and on budget, but how well the application is adapted [by users] and how we were able to minimize the amount of disruption during the storm period.”

Manager of business applications, energy infrastructure



Phased deployment:
12 months per phase,
with up to 40 IT staff and
up to 130 business
workers involved.

- › Purchases \$1 million in new hardware including scanners, devices, and point of sale terminals to replace legacy hardware.

Forrester evaluated the range of variance in the following implementation risks in modeling the value of this cost for the composite organization:

- › Implementation costs varied widely for interviewed customers, depending upon their prior environment, use cases, deployed modules, needed hardware, customization needs, and company size.
- › Some companies chose to manage the process themselves, while others turned to a third-party implementation partner to lead the effort.
- › Implementation time ranges lasted from as little as three months to over two years, and most were done in a multi-phase deployment. Of the seven implementations, five were completed on schedule, one experienced delays due to internal process and data issues, and one experienced delays resulting from the implementation partner.

This model reflects a conservative estimation of implementation costs, effort, and timelines based off of the interviews with a longer timeline and greater costs than most experienced. To further account for these risks and potential over-runs, Forrester additionally adjusted this cost upward by 15%, yielding a three-year risk-adjusted total PV of \$27,751,344.

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.

Implementation: Calculation Table

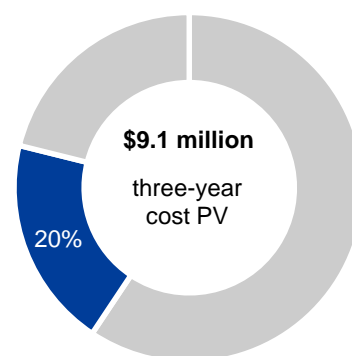
REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
F1	IT staff fully burdened monthly salary	\$120K/12	\$10,000	\$10,000		
F2	Business worker fully burdened monthly salary	\$85K/12	\$7,083	\$7,083		
F3	Implementation: number of months (Phase 1 and Phase 2)		12	12		
F4	Implementation: number of IT FTEs		40	20		
F5	Implementation: percent of IT staff time dedicated		100%	100%		
F6	Implementation: number of business worker FTEs		100	130		
F7	Implementation: percent of business worker time dedicated		30%	20%		
F8	Internal Implementation costs	$F3 * F4 * F5 * F1 + F3 * F6 * F7 * F2$	\$7,349,880	\$4,609,896		
F9	Third-party implementation fees		\$8,000,000	\$4,000,000		
F10	Manufacturing, warehousing, and retail hardware		\$500,000	\$500,000		
Ft	Implementation	$F8 + F9 + F10$	\$15,849,880	\$9,109,896	\$0	\$0
	Risk adjustment	↑15%				
Ftr	Implementation (risk-adjusted)		\$18,227,362	\$10,476,380	\$0	\$0

Licensing

Microsoft Dynamics 365 for Finance and Operations is priced on a per month, per user or device basis. The license is all inclusive like other software-as-a-service (SaaS) products with no initial purchase fees, maintenance costs, or server costs. Forrester measured the value of licensing costs using the following model. The composite organization:

- › Employs 2,000 FTEs in its corporate offices, of which 15% utilize enterprise licenses with Power Apps licenses, 15% utilize enterprise licenses, and 40% utilize activity licenses.
- › Employs 5,000 FTEs in the manufacturing and warehousing divisions, with users utilizing devices at a 5 FTE to 1 device ratio.
- › Licenses are priced at a monthly rate of \$190 for enterprise licenses, \$40 for Power Apps licenses, \$50 for activity licenses, \$75 for device licenses, and \$170 for retail licenses.
- › Operates 100 retail stores in Year 1, 110 stores in Year 2, and 120 stores in Year 3. Each store utilizes two licenses.

The exact breakdown of licenses per department and use case will vary for every organization. To account for this variability, Forrester adjusted this cost upward by 10%, yielding a three-year risk-adjusted total PV of \$9,131,802.



**Licensing:
20% of total costs**

Licensing: Calculation Table

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
G1	Enterprise users	30% of corporate workforce		600	600	600
G2	Enterprise licenses	G1*\$190*12		\$1,368,000	\$1,368,000	\$1,368,000
G3	Activity users	40% of corporate workforce		800	800	800
G4	Activity licenses	G3*\$50*12		\$480,000	\$480,000	\$480,000
G5	Retail users	2 licenses per retail location		200	220	240
G6	Retail licenses	G5*\$170*12		\$408,000	\$448,800	\$489,600
G7	Number of devices	5:1 line worker to device ratio		1,000	1,000	1,000
G8	Device licenses	G7*\$75*12		\$900,000	\$900,000	\$900,000
G9	Power Apps users	50% of enterprise users		300	300	300
G10	Power Apps licenses	G9*\$40*12		\$144,000	\$144,000	\$144,000
Gt	Licensing	G2+G4+G6+G8+G10	\$0	\$3,300,000	\$3,340,800	\$3,381,600
	Risk adjustment	↑10%				
Gtr	Licensing (risk-adjusted)		\$0	\$3,630,000	\$3,674,880	\$3,719,760

Support And Management

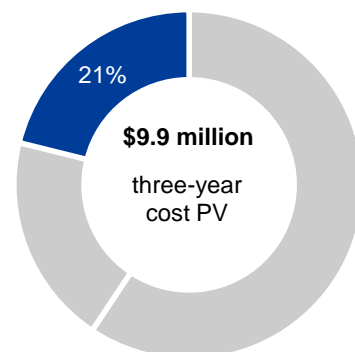
Most interviewees identified that Microsoft Dynamics 365 for Finance and Operations required less support and management than their legacy on-premises environments. However, significant resources must still be dedicated to maintenance, customizations, upgrades, and training for users. Most companies ultimately managed the environment themselves, but several utilized the support of a third-party partner. Support experiences described to Forrester by interviewees include:

- › The retailer has found upgrades to be simpler than their prior solution, which involved significant effort and timing. Registers and servers had to be upgraded simultaneously, with every single register needing to be updated in person. With Microsoft Dynamics 365 for Finance and Operations, upgrades are now centrally controllable from the IT department. The interviewees indicated that updates still aren't easy, however, as they do not have direct access to servers and customizations — even those provided by the independent software vendors (ISVs) — sometimes get broken. Overall, the organization has saved considerable labor for updating but has yet to achieve “effortless” SaaS-style updates.
- › The entertainment agency's 10 systems administrators spend approximately 80% of their time supporting Dynamics 365. The ERP manager described how the upgrade process has changed dramatically with Dynamics 365: “[Microsoft] just rolls out updates, and you don't even know about it. They ship new features and they just roll it out to your code, and your extension customizations are not impacted.”
- › As a startup company with limited ERP experience, the automotive manufacturer has struggled with some growing pains. It has been a challenge getting the workforce up to speed on core ERP business concepts and system capabilities, and there was significant work for users trying to do their jobs while also needing to implement and learn a new system at the same time. The challenges were expected and met, however, and the transformation needed to be done quickly. “We could have delayed, spent more time on training and taken our time — or we can rip the band-aid off and move through the implementation pain as quickly as possible. The CEO knew that the current system was a risk, so we decided to rip the band-aid off.” He continued, “We went from zero technology to transacting across all facets of business whether inventory procurement, productions, sales, and we have even integrated devices on the shop floor.”

Forrester measured the value of support and management using the following model. The composite organization:

- › Directly supports the ERP with 15 FTEs in Year 1 increasing to 20 FTEs in Year 2 and Year 3 with full rollout of the retail system. IT staff are compensated with a fully burdened salary of \$120,000 per year.
- › Retains additional support escalation from a third-party partner at a rate of 10% of total licensing costs.
- › Pays for third-party upgrade services to help them adapt to the six-month upgrade cycle and set up appropriate testing and automation.
- › Employs six trainers in Year 1 increasing to 12 trainers in Year 2 with the rollout of retail sites to ensure systems are being properly used.

Management and support will vary for every organization based on size,



Support and management:
21% of total costs

“[Microsoft] just rolls out updates, and you don't even know about it. They ship new features and they just roll it out to your code, and your extension customizations are not impacted.”

*ERP manager,
entertainment agency*



complexity, and use case. Forrester has conservatively estimated costs at the higher range of reported costs; to reflect the risk that variation may occur, Forrester additionally adjusted this cost upward by X%, yielding a three-year risk-adjusted total PV of \$9,877,143.

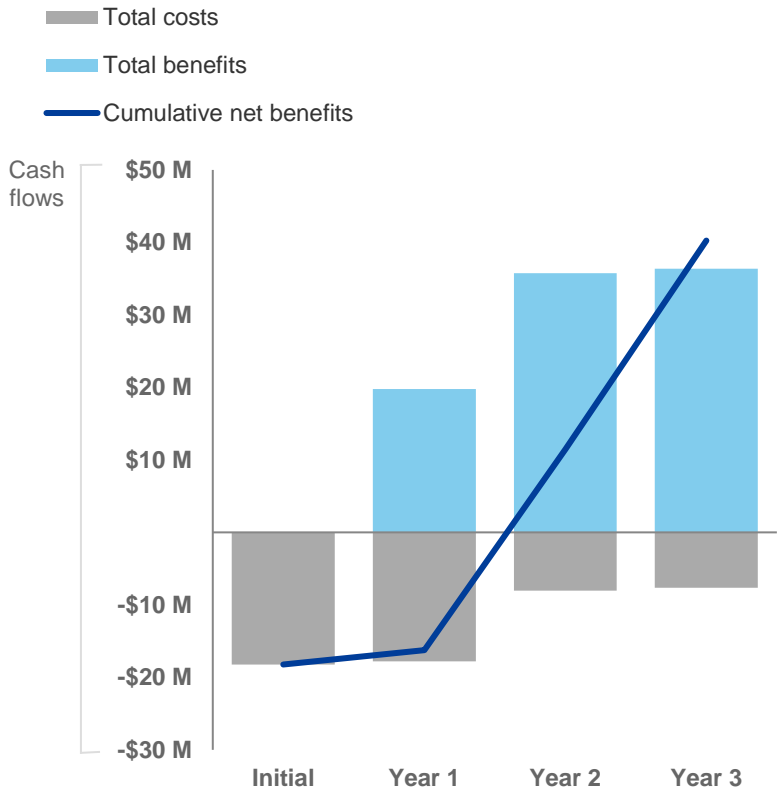
Support And Management: Calculation Table

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
H1	Third-party upgrade services			\$800,000	\$400,000	\$0
H2	Third-party support services	Gtr*10%		\$363,000	\$367,488	\$371,976
H3	Number of IT staff supporting Dynamics 365			15	20	20
H4	Systems administrator fully burdened annual salary			\$120,000	\$120,000	\$120,000
H5	Number of trainers			6	12	12
H6	Trainer fully burdened annual salary			\$65,000	\$65,000	\$65,000
H7	Ongoing internal labor	H3*H4+H5*H6		\$2,190,000	\$3,180,000	\$3,180,000
Ht	Support and management	H1+H2+H7	\$0	\$3,353,000	\$3,947,488	\$3,551,976
	Risk adjustment	↑10%				
Htr	Support and management (risk-adjusted)		\$0	\$3,688,300	\$4,342,237	\$3,907,174

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	(\$18,227,362)	(\$17,794,680)	(\$8,017,117)	(\$7,626,934)	(\$51,666,093)	(\$46,760,289)
Total benefits	\$0	\$19,760,740	\$35,770,080	\$36,388,880	\$91,919,700	\$74,865,861
Net benefits	(\$18,227,362)	\$1,966,060	\$27,752,963	\$28,761,946	\$40,253,607	\$28,105,572
ROI						60%
Payback period						20 months

Microsoft Dynamics 365 for Finance and Operations: Overview

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

Dynamics 365 for Finance and Operations

Dynamics 365 for Finance and Operations unifies business management across finance, manufacturing, retail, supply chain, warehouse, inventory, and transportation management with built-in predictive analytics and intelligence to help enterprises run a modern global business. It provides organizations with a service that can support their unique requirements and rapidly adjust to changing business environments without the hassle of managing infrastructure.

Elevate your financial performance. Close books faster, deliver robust reporting, increase profitability with predictive intelligence, and ensure global compliance.

- › **Share a 360-degree view of your business.** Bring organizational visibility by unifying your financials and business operations to provide real-time and predictive insights for data-driven decisions to capitalize on opportunities for growth.
- › **Improve financial performance.** Gain global visibility into the financial health of your business with role-based workspaces that provide core KPIs, charts, and financial performance to help drive accountability, efficiency, and growth.
- › **Increase profitability.** Drive margin revenue growth with a centralized, global financial management solution that delivers robust financial intelligence and embedded analytics in real-time.
- › **Expand your business in new markets.** Whether you want to optimize across subsidiaries, acquire companies, or expand organically, you can go live in weeks across many countries and languages.

Run smarter with connected operations. Bring speed, agility, and efficiency to your manufacturing to optimize production planning, scheduling, operations, and cost management.

- › **Achieve operational excellence.** Accelerate the speed and accuracy of your business operations with streamlined processes that effectively coordinate people, assets, and resources to reduce costs, improve service levels, and drive growth.
- › **Drive strategic innovation.** Connect your global operations and reorient growth discussions from static views focused on historic data to dynamic views of future trends, opportunities, and strategic options.
- › **Select best-fit manufacturing processes.** Optimize manufacturing processes based on current demand and market trends by creating a mix of discrete, lean, and process in a single, unified solution to support your processes across the supply chain.
- › **Improve operational procedures.** Optimize manufacturing parameters for each product family, including make to stock, make to order, pull to order, configure to order, and engineer to order.

Automate and streamline your supply chain. Modernize your supply chain to maximize customer satisfaction and profitability with unified, advanced warehouse and inventory management to improve material sourcing, fulfillment, and logistics.

- › **Modernize business logistics.** Optimize fulfillment and reduce costs by synchronizing logistics across sites, warehouses, and transportation modes.

Discover how Microsoft is helping customers accelerate the speed of doing business by empowering people to make smarter decisions, transform business processes faster, and drive rapid business growth.

- › **Get ahead with predictive insights.** Gain visibility and control across all sites and warehouses for proactive responses to issues. Leverage existing customer data to effectively identify customer lifetime value, profitability, and buying trends.
- › **Streamline procurement.** Reduce procurement costs and gain greater control by automating procure-to-pay processes.
- › **Unify processes from sales to fulfillment.** Seamlessly connect sales and purchasing with logistics, production, and warehouse management for a 360-degree view of your supply chain.

Deliver unmatched workforce productivity. Provide a single source of global business intelligence that drives productivity from assets and resources, aligns employees toward strategic goals, and enables real-time responses to the changing demands of customers, partners, and employees.

- › **Provide a single source of intelligence.** Leverage deep data and process integration across Dynamics 365, Microsoft 365, LinkedIn, and third-party applications for a centralized source of intelligent information that saves your employees time and enables them to collaborate across your organization and supply chain to make better and faster decisions for optimum business outcomes.
- › **Empower and engage employees.** Create an agile, mobile, always connected work environment that bridges the skills gap and brings people, data, and processes together to improve business productivity and results. Enable fast user actions and decisions with over 50 role-based workspaces that provide embedded Power BI interactive data visualizations, giving them a high-level view of key business metrics and the ability to drill down into the transactions and KPIs to monitor the pulse of your business and accelerate performance.

Innovate with a modern and adaptable platform. Drive innovation with an intelligent application that is easy to tailor, scale, extend, and connect to other applications and services you already have to make full use of existing investments.

- › **Enable flexible deployment.** Drive continuous business growth with rapid, hybrid deployment options that adjust to changing requirements, comply with regulations, and maximize existing investments. Use a combination of cloud, hybrid, and on-premises deployments to meet your global business requirements of today and have the flexibility and ease to change as your business needs evolve over time.
- › **Adapt quickly.** Accelerate time to market and adapt the application to your needs with no-code visual editors and tools that make it easy to build and deploy web and mobile apps. Manage your growing and global business by rapidly deploying new subsidiaries in record time with the ability to copy an existing legal entity's setup to a new company, allowing the onboarding of a new location to be quick and consistent with the company's best practices.
- › **Extend and connect.** Automate processes across Dynamics 365 applications and third-party systems for a unified experience.

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.