## **FORRESTER**<sup>®</sup>

## The Total Economic Impact™ Of Microsoft Dynamics 365 Supply Chain Management

Cost Savings And Business Benefits Enabled By Dynamics 365 Supply Chain Management

AUGUST 2021

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#### ABOUT FORRESTER CONSULTING

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### **Executive Summary**

Businesses seek flexible and integrated solutions to assist their journey towards growth and profitability, measure and optimize financial and operational results, and meet structured management and reporting requirements. A Forrester research report noted, "These solutions must be designed for a digital business, using the latest AI and visualization techniques, and must sit inside or alongside the most popular digital operations platform suites."

Supply chain is one of the many areas where organizations face challenges. This includes the lack of visibility into their end-to-end supply chain, the inability to meet changing customer demand, disparate systems and outdated technology, and a lack business continuity during disruptions. Microsoft Dynamics 365 Supply Chain Management is a solution that enables customers to have better visibility into their supply chain network. This allows customers to plan better, provides more agility, and maximizes asset uptime, allowing them to operate smoothly and profitably even during disruptions.

Microsoft commissioned Forrester Consulting to conduct a Total Economic Impact<sup>™</sup> (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying <u>Dynamics 365</u> <u>Supply Chain Management</u>.<sup>23</sup> The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Dynamics 365 Supply Chain Management on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed five organizations with experience using Dynamics 365 Supply Chain Management. For the purposes of this study, Forrester aggregated the experiences of the interviewed customers and combined the results into a single <u>composite organization</u>.

Prior to using Dynamics 365 Supply Chain Management, the customers typically used on-



premises solutions to manage their supply chain. These solutions were often heavily customized to adapt to each organizations' unique business needs, and thus required significant resources to maintain and manage. As the business's demand grew, this prior infrastructure struggled to keep up. Heavy customization meant the system could not be updated or that it was expensive to do so. These limitations led to a high cost of maintaining the prior infrastructure, lower productivity, and lengthened overall supply chain time due to delays in different phases of the process.

After the investment in Dynamics 365 Supply Chain Management, the customers gained better visibility into their supply chain organization, which allowed them to identify issues faster and gather analytics for further improvements. Key results from the investment include better operational efficiency from improved time-to-market and asset utilization, as well as gained insights that translates to increased customer satisfaction and revenue.

#### **KEY FINDINGS**

**Quantified benefits.** Risk-adjusted present value (PV) quantified benefits include:

- Increased production volume capacity from 10% to 15% faster time-to-market. Improved insights into the supply chain allowed organizations to identify bottlenecks and move products along their supply chains faster. Customers opened up time, which they used to increase production volume. Over three years and an estimated total of 150,000 annual production volume, the increased production volume from faster time-to-market is worth nearly \$24.3 million.
- Improved operational efficiency from 2% to 3% reduction in unplanned machine downtime. Dynamics 365 Supply Chain Management provided enhanced visibility, which allows organizations to better understand the utilization of its machine assets. This helps them identify potential issues that could result in unplanned machine downtime. Over three years and 500 manuf acturing machines, the improved operation efficiency from reduced unplanned machine downtime is worth more than \$1.5 million.
- Increased developer productivity of 10% to 50%. Customers that use Dynamics 365 Supply Chain Management noted not having to allocate as many developers' time to maintain and manage the supply chain infrastructure. This means that some developers' time was repurposed for higher-value work. Over three years and 20 developers, the increase in developer productivity is worth over \$0.7 million.
- Increased revenue 5% from better product quality. Interviewees shared that a number of insights and analytics gathered from Dynamics 365 Supply Chain Management, specifically

those related to their organizations' customers' perception of products received, can also be incorporated into the product development process. This translates to additional revenue. Over three years, the improvement in product quality is worth more than \$6.8 million.

 Infrastructure footprint consolidation of 35% to 65% from on-premises to cloud solution. Shifting from a previously on-premises solution to a cloud solution, such as Dynamics 365 Supply Chain Management, allowed organizations to pay less in annual infrastructure spend. They can decommission various legacy infrastructure in a gradual manner. Over three years, this infrastructure footprint consolidation is worth close to \$11 million.

**Unquantified benefits.** Benefits that are not quantified for this study include:

"Dynamics 365 Supply Chain Management provides a solid extendible ERP solution that allows us to tailor the product to our unique business needs at enterprise scale while aligning to our cloud-first technology strategy."

 Director of software engineering, information technology and services

 Flexibility in adapting to unique business supply chain needs. Organizations noted Dynamics 365 Supply Chain Management as a solution that was flexible and customizable enough to adapt to unique business needs. Different features and capabilities can be added or removed depending on the need. Additionally, the solution can be plugged in and integrated with a diverse ecosystem of applications within Microsoft (e.g., other Dynamics 365 products such as Finance or Commerce) or with applications Microsoft-approved partners develop.

- Better customer experience from ensuring on-time delivery. Interviewees touted one key benefit of using Dynamics 365 Supply Chain Management was ensuring that there were no delays in their organizations' product shipments due to enhanced visibility into their supply chain. This meant organizations reduced the risk of them potentially losing customers and business related to delays or lost shipments.
- Improved employee experience. Interviewees shared that their organizations' developers appreciated having the ability to do more customization and have features that help their user experience with the solution, breaking down siloes between teams and functions, and by extension, significantly helping their day-to-day work.
- Better forecasting capabilities that can benefit other partners and stakeholders. Interviewees noted that Dynamics 365 Supply Chain Management enhanced their organizations' forecasting capabilities, which they can choose to pass on to their partners or stakeholders. For external partners, this can be utilized as an additional benefit to collaborate with them. For internal stakeholders, this can turn into further collaborations between teams and departments.

Costs. Risk-adjusted PV costs include:

• Implementation cost of more than \$14.3 million. The composite organization allocates 10 IT staff and 200 business workers for the implementation phase, which takes 1.5 years. Furthermore, implementation phase also involves an implementation partner.

- Dynamics 365 Supply Chain Management subscription cost of nearly \$2.8 million. The subscription fee is composed of the enterprise subscription, driven by the number of users. Additionally, customers can include various addons depending on their use case, as well as purchase additional premier support to ensure they can maximize the benefit from their investment in Dynamics 365 Supply Chain Management.
- Support and management cost of nearly \$6.2 million. Once the solution is implemented, the composite organization allocates 10 IT staff, who dedicate 25% of their time to support and manage the Dynamics 365 Supply Chain Management solution. Additionally, there are five to 10 business workers involved as well. Finally, there is typically continuous third-party support, at least for the first two years.

The customer interviews and financial analysis found that a composite organization experiences benefits of nearly \$44.33M over three years versus costs of less than \$23.27M, adding up to a net present value (NPV) of nearly \$21.06M and an ROI of 90%.



#### Benefits (Three-Year)



#### **TEI FRAMEWORK AND METHODOLOGY**

From the information provided in the interviews, Forrester constructed a Total Economic Impact ™ framework for those organizations considering an investment in Dynamics 365 Supply Chain Management.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that Dynamics 365 Supply Chain Management can have on an organization.

#### DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Microsoft and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.

Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the study to determine the appropriateness of an investment in Dynamics 365 Supply Chain Management.

Microsoft reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.

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



#### DUE DILIGENCE

Interviewed Microsoft stakeholders and Forrester analysts to gather data relative to Dynamics 365 Supply Chain Management.

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#### **CUSTOMER INTERVIEWS**

Interviewed six decision-makers at five organizations using Dynamics 365 Supply Chain Management to obtain data with respect to costs, benefits, and risks.



#### **COMPOSITE ORGANIZATION**

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



#### FINANCIAL MODEL FRAMEWORK

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



#### CASE STUDY

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

# The Microsoft Dynamics 365 Supply Chain Management Customer Journey

Drivers leading to the Dynamics 365 Supply Chain Management investment

Interviewed Organizations							
Industry	Region	Interviewee	Company size				
Information technology and services	Global	Director of software engineering	Hundred million dollars in annual inventory spend and several thousand SKUs across multiple sites				
Food production	North America	IT project manager	High volume shipment six days a week; 24/7 warehouse				
Manufacturing	Global	VP of supply chain execution	Supply chain volume involves millions of SKUs				
General retail	North America	VP of information technology Director of IT and operations	\$100M to \$500M revenue 1,000 to 5,000 FTEs 100 retail stores				
Specialty foods manufacturing and retail	North America	Chief operating officer	\$100M to \$500M revenue 1,000 to 5,000 FTEs 500+ seasonal retail stores				

#### **KEY CHALLENGES**

Before using Dynamics 365 Supply Chain Management, customers typically used an onpremises solution for their supply chain management, which includes solutions such as Microsoft AX. This infrastructure requires significant customization to fit the need of each individual business and often requires significant resources for upgrades, maintenance, and management. Furthermore, the continued hype and investment around cloud technology made business leaders interested in what this emerging technology can do in the supply chain management space.

The interviewees reported that their organizations struggled with common challenges, including:

 Scaling the system, especially for unique or complex supply chain models. Customers shared their frustrations with trying to scale their prior supply chain management infrastructure, which was often too customized or complex to be scaled effectively. The director of software engineering in information technology and services noted, "[When trying] to drive business best practices and consistency to different regions as a global enterprise, [we had to think about] data sovereignty restrictions or contractual requirements with regional partners." The VP of supply chain execution in manufacturing added, "We have a complex manufacturing environment, [which stems from] the constant acquisition and integration of new sites that our company makes." The IT project manager in food production stated, "Our system was so highly customized that we reached a point where we could not upgrade it anymore."

 Significant resource allocation for less productive work. With the prior solution being on-premises and often heavily customized, customers spent internal staff and developers' time on maintaining and managing the infrastructure. This took away from time they could use to improve the business process or work on key initiatives. The director of software engineering in information technology and services shared: "Historically, my support organization had to focus on monitoring memory utilization, server loads, certificate expiration dates, and all those things. We [wanted] a future where we don't have to focus on those infrastructure things and can focus on the health of our business processes."

• End-of-life technology that was cost and labor prohibitive to upgrade. Some of the customers noted that their organizations have not upgraded their prior infrastructure in a while, and thus were in dire need for enterprise technology modernization. The IT project manager in food production shared: "We were basically on a version that was going to be end of life, and there was going to be zero support [for that] version. Our hands were tied, and we had to think about upgrading the system."

"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

#### SOLUTION REQUIREMENTS/INVESTMENT OBJECTIVES

The interviewees' organizations searched for a solution that has:

- Performance and flexibility. When evaluating • supply chain management options, customers touted performance and flexibility as one of the key requirements. This means the solution should be flexible enough to adapt to specific business needs that an organization has without making the solution too complicated that it will be challenging to upgrade in the future. The VP of supply chain execution in manufacturing noted, "We appreciated that we were able to pick functionality that's available in Dynamics 365 Supply Chain Management to pull the exact requirements and specific functions needed." The IT project manager in food production added, "Our company has unique needs and so we sought solutions that could incorporate that complexity."
- Scalability. Customers needed a solution that can easily scale as the organization grows and the business demand evolves. The director of software engineering in information technology and services shared: "This was a very extendable platform and felt like it was a product that we could continue to grow with. With our supply chain model, we needed something that can be efficient as they need to be at the scale at which they are. That is critical."
- The ability to leverage existing knowledge. As a solution that will replace an existing key infrastructure, customers wanted a solution that would allow them to leverage any existing knowledge and would not require them to learn about a new system from scratch. The director of software engineering said: "We used Microsoft AX prior to Dynamics 365 Supply Chain Management. Over the years, we have built tremendous amount of expertise in-house, so walking away from that did not make a lot of financial sense."
- Active support from vendor. When comparing options, customers valued active engagements

from vendors that help them think about how best to implement this solution and take advantage of all its features. The IT project manager in food production explained: "This is a huge investment for us, [and so] you want to feel like you're going in with somebody that understands you and is going to be stand by you and help you if you need anything. I think throughout the evaluation process and talking through our needs and questions, Microsoft [felt like] more of a partner."

- **Cloud technology.** Customers noted that with • the industry shift to the cloud and continued investment made into cloud technology, their business leaders were interested in exploring what this could do for their supply chain business. The director of software engineering shared: "One of the reasons I'm excited about Dynamics 365 is being on Azure and all the rich tool set that affords us moving forward. Azure had [made a lot of] investments into the dataverse, everything from monitoring, selfhealing, and machine learning (ML) to trend analytics and the internet of things (IoT). Looking at a modern cloud-hosted enterprise resource planning (ERP) solution, what's most exciting is how we can continue to drive business value from PowerBI, ML, IoT, Azure monitor, Azure App Insights, and more."
- Opportunities for consolidation. Customers saw the shift to a new supply chain management solution as an opportunity to consolidate their infrastructure spend. The VP of supply chain execution in manufacturing shared: "We're trying to consolidate all of our sites on to Dynamics 365 Supply Chain Management. We want to have one presence and integrate all of the ERP systems that came from our acquisition on to that." From an analytics perspective, some customers also noted seeking one platform that generates their insights. The IT project manager in food production explained: "We used to have multiple systems. We now want one source of

truth where all of our business intelligence is coming from one system."

#### **COMPOSITE ORGANIZATION**

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

**Description of composite.** The composite is a global organization with \$1 billion in revenue, where 80% comes from their original equipment manufacturer (OEM) business. They employ 5,000 employees around the world with 1,000 employees working at offices and 4,000 working at factories. The composite owns 50 manufacturing factories around the globe with 10 machines per factory.

**Deployment characteristics.** The composite uses Dynamics 365 Supply Chain Management as its core platform, which includes production, inventory, and transportation. Their adoption of the solution is gradual, which the number of users with access to Dynamics 365 Supply Chain Management reflects. The number of users grows from 500 users in Year 1 to 750 users in Year 2 and 1,000 users in Year 3.

#### Key assumptions

- \$1 billion in global annual revenue
- 80% in OEM business
- 5,000 employees (1,000 office workers; 4,000 factory workers)
- 50 manufacturing facilities around the globe

### **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	Increased capacity from more responsive scheduling	\$0	\$12,420,000	\$18,630,000	\$31,050,000	\$24,261,458			
Btr	Reduction in unplanned machine downtime	\$496,800	\$621,000	\$745,200	\$1,863,000	\$1,524,739			
Ctr	Increased developer productivity	\$108,000	\$270,000	\$540,000	\$918,000	\$727,032			
Dtr	Incremental gross profit	\$0	\$3,870,900	\$4,838,625	\$8,709,525	\$6,834,421			
Etr	Infrastructure footprint consolidation	\$3,150,000	\$4,500,000	\$5,850,000	\$13,500,000	\$10,977,836			
	Total benefits (risk-adjusted)	\$3,754,800	\$21,681,900	\$30,603,825	\$56,040,525	\$44,325,486			

#### INCREASED PRODUCTION CAPACITY FROM MORE RESPONSIVE SCHEDULING

**Evidence and data.** Customers that use Dynamics 365 Supply Chain Management are able to improve throughput. Assisted by analytics and AI features on the solution, customers can improve their demand forecasting and inventory accuracy, which speeds up different parts of their supply chain. As a result of this acceleration, customers can translate that newfound resource availability into further business productivity or delivery throughput.

Some examples from interviewees' organizations include:

 The IT project manager in food production shared: "Ten percent of our faster time-to-market is attributable to Dynamics 365 Supply Chain Management. This speed increase is due to two factors: 1) the use of one system, so it is easier to get everything set up, go forward, and run it, and 2) one source of truth, which allows internal stakeholder to get the data they need and move products along the supply chain much faster."

- The VP in supply chain execution in manufacturing added: "We've reduced our test environment time from 30 hours down to three. Our nightly master planning takes 3.5 hours, but the goal is by running this microservice, we can complete it in minutes."
- Even more than moving products, customers • have noted replicating initiatives in other regions is much faster due to Dynamics 365 Supply Chain Management. The director of software engineering in information technology and services said: "We used to have nine regional codebases that were copied off an original codebase. Dynamics 365 Supply Chain Management and Azure DevOps have facilitated the creation of a single global codebase that we all collaborate on and deploy globally. Without Dynamics 365 Supply Chain Management, the process would have taken six to 12 months per region and millions of dollars per region. With Dynamics 365 Supply Chain Management, this process takes one to two months, as there is still some work to implement locally. From a delivery throughput standpoint, this has allowed us to deliver 25% more new capabilities on the

platform from the time freed up due to not having to rebuild things over and over again."

"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 are able to now forecast constraints we are 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

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

- An annual production volume of 3,000 units per factory with 50 factories globally.
- An annual revenue of \$1 billion, 80% of which is in the OEM business and a gross margin of 34.5%.
- Increased production capacity due to faster timeto-market attributed to Dynamics 365 Supply Chain Management is 10% in Year 2 and 15% in Year 3.
- As this benefit assumes that the faster time-tomarket is achieved based on gathered insights and analytics around demand forecasting and

inventory accuracy, the model assumes no benefit is realized in Year 1, when the data is still being gathered and analyzed.

 A further 50% utilization rate is applied to assume the amount of excess production capacity that is actually purchased by this composite's customers (i.e., turned into actual gross profit).

**Risks.** Increased production capacity from more responsive scheduling may vary. Specific considerations include:

- Different industries work and realize different gross margin and profit from excess manufacturing production.
- Different manufacturing capabilities impact the annual production volume that can be impacted by Dynamics 365 Supply Chain Management.
- The skill set and capabilities of each individual organization, its brand value, and relations with its customers can impact the utilization of increased production capacity generated from the faster time-to-market.

**Results.** To account for these risks, Forrester reduced this benefit by 10%, yielding a three-year, risk-adjusted total PV of nearly \$24,300,000.



Increased Capacity From More Responsive Scheduling								
Ref.	Metric	Calculation	n Year 1 Year 2 Year 3					
A1	Annual production volume per factory	Composite	3,000 3,000					
A2	Number factories in operations	Composite	50 50					
A3	Annual production volume	A1*A2	150,000 150,000					
A4	Increased production due to more responsive scheduling attributed to Dynamics 365 Supply Chain Management	Interview	10% 15%					
A5	Utilization of the increased production capacity from more responsive scheduling	Assumption	50% 50%					
A6	Total additional production volume sold	A3*A4*A5	7,500 11,250					
A7	Annual revenue	Composite	\$1,000,000,000 \$1,000,000,000					
A8	Gross margin	Assumption	34.5% 34.5%					
A9	Gross profit	A7*A8	\$345,000,000 \$345,000,000					
A10	Percentage of OEM business	Composite	80% 80%					
A11	Gross profit per product	A9*A10/A3	\$1,840 \$1,840					
At	Increased capacity from more responsive scheduling	A6*A11	\$0 \$13,800,000 \$20,700,000					
	Risk adjustment	↓10%						
Atr	Increased capacity from more responsive scheduling (risk-adjusted)		\$0 \$12,420,000 \$18,630,000					
	Three-year total: \$31,050,000	Three-year present value: \$24,261,458						

## REDUCTION IN UNPLANNED MACHINE DOWNTIME

**Evidence and data.** Dynamics 365 Supply Chain Management allows customers to improve operations efficiency via business insights. Interviewees drastically increased their data collection efforts, as Dynamics 365 Supply Chain Management provides their organizations with better visibility into asset availability, utilization, and lifetime value.

These business insights help customers see when a certain production line is not performing correctly or when parts and materials from certain vendors are failing at higher-than-expected rates in real time. The solution empowers customers to solve these

problems immediately. This means organizations that use Dynamics 365 Supply Chain Management can improve their overall equipment effectiveness (OEE). These enhanced insights drive organizations to better anticipate unplanned machine downtime and generate more production from their machines.

Examples shared by interviewees include:

• The IT project manager in food production noted: "We saw a 2.5% to 5% increase in system availability, which maybe does not sound like a lot, but for a 24/7 manufacturer, it makes a difference. Shutting down the system even a little bit makes it very difficult to keep producing. On average, I say that saved us two or three hours every week of machine downtime. [What that translates to is] customer satisfaction. We do not have to reschedule deliveries; we can meet customer orders on time."

 The director of software engineering mentioned: "We heavily leverage Dynamics 365 Supply Chain Management today for fulfillment and warehouse inventory management capabilities. If I am a fulfillment supervisor and I need to make sure all these sales orders get sent today, I have all these capabilities with Dynamics 365 Supply Chain Management to help me."

**Modeling and assumptions.** For the composite organization, Forrester assumes that:

- There are 50 factories around the globe and each factory has 10 machines.
- The incremental output per machine per week is 2% in Year 1, 2.5% in Year 2, and 3% in Year 3.
- The factories operate for 50 weeks in a year.

**Risks.** Operations efficiency related to reduction in unplanned machine downtime may vary. Specific considerations include:

- The number of factories and machines an organization has.
- The average age of operations each machine has, which impacts how they perform and how much incremental output can be further generated.
- The quality of the factory and office staff to take advantage of the asset utilization and inventory insights, and how that can be best translated into reduction in unplanned machine downtime.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of over \$1,500,000.



Redu	Reduction In Unplanned Machine Downtime									
Ref.	Metric	Calculation	Year 1	Year 2	Year 3					
B1	Number of manufacturing machines	Composite	500	500	500					
B2	Average annual gross margin per manufacturing machine	(A9*A10)/B1	\$552,000	\$552,000	\$552,000					
B3	Incremental output per asset per week	Interview	2.0%	2.5%	3.0%					
Bt	Reduction in unplanned machine downtime	B2*B3*50	\$552,000	\$690,000	\$828,000					
	Risk adjustment	↓10%								
Btr	Reduction in unplanned machine downtime (risk-adjusted)		\$496,800	\$621,000	\$745,200					
	Three-year total: \$1,863,000	Three-year present value: \$1	,524,739							

#### INCREASED DEVELOPER PRODUCTIVITY

**Evidence and data.** Dynamics 365 Supply Chain Management allows customers' technical teams to allocate more of their time to higher-value work, rather than maintaining the infrastructure system. Moving to the cloud and reducing customization significantly decreases the need for system administration, which frees up time for developers and technical staff to focus on other, higher-value tasks.

Examples shared by interviewees include:

- The director of software engineering in information technology and services stated: "Ten percent of our organization can now refocus on more productive activities that drive more direct value to the business users. That is 10% of roughly 20 people [that initially had to focus on supporting the infrastructure]. We want them to focus on other things like ensuring payments to vendors, warehouse ability to pick, pack, and ship, and more."
- The IT project manager in food production shared: "Previously, we had three technical members assigned to maintain our manufacturing execution system. Since switching to Dynamics 365 Supply Chain Management, we eliminated two out of the three positions, where we could use the two technical team members for other projects."
- The VP of supply chain execution in manufacturing noted: "The infrastructure team probably have eliminated two or three roles a year in terms of people that initially had to help maintain the system. Additionally, with Dynamics 365 Supply Chain Management, we implemented functionality that had already been successful and proven. If a new vendor comes, a lot of the system administration and portal work is basically handled. [Without Dynamics 365 Supply Chain

Management], I would say I would have needed at least an extra person to handle that."

**Modeling and assumptions.** For the composite organization, Forrester assumes that:

- Twenty developers and technical staff members are needed to maintain the supply chain infrastructure system prior to Dynamics 365 Supply Chain Management.
- In Year 1, 10% of that resource can be reallocated to more productive work. This percentage gradually increases to 25% in Year 2 and 50% in Year 3.
- Of this increase in developer productivity, a 50% productivity recapture rate is applied, assuming not 100% of the newfound free time is applied immediately back into productive work.
- The average annual salary of a developer is \$120,000.

**Risks.** Increased developer productivity may vary. Specific considerations include:

- Prior state of technology, processes, and business insight capabilities and their related efficiency levels.
- Specific use cases and deployed modules of Dynamics 365 Supply Chain Management, and the level of change in day-to-day activities that occurred with deployment.
- Varying size of developers under staff and technical team size, as well as average annual salary

**Results.** To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of more than \$727,000.



Incre	ncreased Developer Productivity								
Ref.	Metric	Calculation	Year 1	Year 2	Year 3				
C1	Number of developers needed to maintain SCM infrastructure system prior to Dynamics 365 Supply Chain Management	Composite	20	20	20				
C2	Percentage of resource consolidation attributed to Dynamics 365 Supply Chain Management	Interview	10%	25%	50%				
C3	Productivity recapture	Assumption	50%	50%	50%				
C4	Average annual salary	Assumption	\$120,000	\$120,000	\$120,000				
Ct	Increased developer productivity	C1*C2*C3*C4	\$120,000	\$300,000	\$600,000				
	Risk adjustment	<b>↓10%</b>							
Ctr	Increased developer productivity (risk-adjusted)		\$108,000	\$270,000	\$540,000				
	Three-year total: \$918,000	Three-year prese	ent value: \$7	727,032					

#### **INCREMENTAL GROSS PROFIT**

**Evidence and data.** Customers pointed to the fact that Dynamics 365 Supply Chain Management allowed them to generate real-time analytics. Included in these analytics were insights into customers' perceptions, which organizations can incorporate into their product development process. By extension, the real-time analytics played a role in increasing their overall product quality.

- The IT project manager in food production noted: "Having real-time data meant we can make immediate decisions on the quality of our products that are shipped to customers. This ensures our quality stays at a high level. I can probably attribute 5% in increased revenue due to improvements in our product quality."
- The VP of supply chain execution in manufacturing shared: "Since moving over to Dynamics 365 Supply Chain Management, we've increased our transaction volume by multiple folds because we now have all these functionalities that we never had before. For example, we can explore different ways to do things [along our supply chain]."
- The director of software engineering in information technology and services added: "Our organization is probably still a little bit immature, but the next couple years, I think we can fully take advantage of [the surrounding ecosystem around Dynamics 365 Supply Chain Management, such as] Power Platform and Dataverse. There is a lot more opportunity there."

**Modeling and assumptions.** For the composite organization, Forrester assumes that:

- The incremental margin increases attributed to improved product quality is 4% in Year 2 and 5% in Year 3.
- Similar to other benefits relying on evaluation of analytics and generated insights, the composite

is does not realize benefits in Year 1, as it is still collecting the information and making sense of it.

- Incremental gross profit from improved product quality is assumed to equally split attribution to people (internal staff), process (business design), and product (Dynamics 365 Supply Chain Management). Thus, a further 33% attribution is applied in the model.
- This composite conservatively assumes that this benefit only affects the OEM business, representing 80% of total revenue and has a 34.5% gross margin.

**Risks.** Incremental gross profit related to improved product quality may vary. Specific considerations include:

- The industry the company operates in, which impacts the level of revenue and gross margin realized.
- The complexity of the overall business and the type of analytics that can be integrated into the product development process.
- The quality of people and process at the organization, which impacts the attribution split of incremental gross profit from improved product quality among people, process, and product.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of over \$6,800,000.



Incre	ncremental Gross Profit							
Ref.	Metric	Calculation	Year 1	Year 2	Year 3			
D1	Gross income	A9		\$345,000,000	\$345,000,000			
D2	Incremental margin increases due to improved product quality	Interview		4%	5%			
D3	Percentage attributed to Dynamics 365 Supply Chain Management	Assumption		33%	33%			
Dt	Incremental gross profit	D1*D2*D3	\$0	\$4,554,000	\$5,692,500			
	Risk adjustment	<b>↓15%</b>						
Dtr	Incremental gross profit (risk-adjusted)		\$0	\$3,870,900	\$4,838,625			
	Three-year total: \$8,709,525	Three-y	ear present	value:\$6,834,42	:1			

#### INFRASTRUCTURE FOOTPRINT CONSOLIDATION

**Evidence and data.** As organizations adopt Dynamics 365 Supply Chain Management, they retire their legacy — often on-premises — system and migrate to a cloud solution. This results in cost savings due to organizations no longer needing to pay as much for server maintenance and system administration. In some cases, organizations also realized cost avoidance, where to scale the prior environment to have the same capabilities as they have on Dynamics 365 Supply Chain Management would have been significantly more expensive.

Specific examples shared by interviewees include:

 The director of software engineering in information technology and services estimated the cost the organization would have paid compared to what they pay for Dynamics 365 Supply Chain Management to be five to one, noting, "We would have to look at procuring more solutions, including best-in-class WMS platform, integrate that with our ERP, bring in other package software, and potentially building more custom apps internally, as well as the cost of supporting all that."

- The IT project manager in food production shared: "[Since switching,] we immediately saved money because we do not have the on-prem servers and the maintenance needed for them. Combining that with the cost avoidance of what we would have spent without Dynamics, I would say [the current spend] is 30% to 35% [cheaper]."
- The VP of supply chain execution in manufacturing claimed to have "four or five different legacy ERPs that have been decommissioned in the past year [due to Dynamics]."

**Modeling and assumptions.** For the composite organization, Forrester assumes that:

- The annual supply chain management infrastructure spend without Dynamics 365 Supply Chain Management is equivalent to 1% of the composite's annual revenue.
- The percentage of infrastructure that can be retired annually due to Dynamics 365 Supply Chain Management is 35% in Year 1, 50% in

Year 2, and 65% in Year 3, reflecting the gradual adoption and implementation of the solution throughout the composite's global operation.

**Risks.** Infrastructure footprint consolidation may vary based on:

- The complexity in the use case of the prior infrastructure, which impacts the speed of which percentage can be retired every year due to migration to Dynamics 365 Supply Chain Management.
- The average annual spend of the prior infrastructure.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of almost \$11,000,000.



#### Infrastructure Footprint Consolidation

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
E1	Annual cost of prior SCM infrastructure	Assumption	\$10,000,000	\$10,000,000	\$10,000,000
E2	Percentage of infrastructure retired annually due to Dynamics 365 Supply Chain Management	Interview	35%	50%	65%
Et	Infrastructure footprint consolidation	E1*E2	\$3,500,000	\$5,000,000	\$6,500,000
	Risk adjustment	↓10%			
Etr	Infrastructure footprint consolidation (risk-adjusted)		\$3,150,000	\$4,500,000	\$5,850,000
	Three-year total: \$13,500,000	Thre	ee-year present valu	e:\$10,977,836	

#### **UNQUANTIFIED BENEFITS**

Additional benefits that customers experienced but were not able to quantify include:

- Flexibility in adapting to unique business supply chain needs. Organizations noted Dynamics 365 Supply Chain Management is flexible and customizable enough to adapt to different business needs. Different features and capabilities can be added or removed depending on the need. The VP of supply chain execution in manuf acturing noted: "When some of our sites are ready for a more mature process, Dynamics 365 Supply Chain Management enables us to leverage something that we know is proven to be successful in our other sites. Without Dynamics 365 Supply Chain Management, we would probably be limited to less sophisticated solutions for our operations."
- Better customer experience. Organizations shared that Dynamics 365 Supply Chain Management ensured that there were no delays in their product shipments to customers. The enhanced visibility into the supply chain was a key factor, as it allowed organizations to reduce the risk of potentially losing customers and business related to delays or lost shipping. The IT project manager in food production stated: "A big thing in our industry is when we promise to get something delivered, it has to get there on time. If we fail, we could lose our customers' order and confidence."
- Improved employee experience. Organizations shared that their employees appreciated having the ability to do more customization and have features on Dynamics 365 Supply Chain Management. This helped their user experience with the solution and, by extension, their day-today work. Collaboration between teams and functions is enhanced since the solution can be customized in a way that breaks down siloes. The director of software engineering shared:

"Being able to build workspaces tailored to certain processes, I think that really improves the user experience. It affords [our team] more flexibility to adjust the solution according to their needs."

Better forecasting capabilities that can benefit other partners and stakeholders. Interviewees shared that Dynamics 365 Supply Chain Management enhanced their organizations' forecasting capabilities, which they can pass on to their partners or stakeholders as additional benefit. For external partners, this can be utilized as an additional benefit to collaborate with them. For internal stakeholders, this can turn into further collaborations between teams and departments. The IT project manager in food production touted, "With Dynamics 365 Supply Chain Management, we were able to give our packaging suppliers a little bit longer term forecast of at least six months of rolling production schedule."

> "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 wideopen 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

#### FLEXIBILITY

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement Dynamics 365 Supply Chain Management and later realize additional uses and business opportunities, including:

- Scalability for continued growth into the future. Interviewees highlighted the scalability of Dynamics as a solution, and the fact that the solution allows their organizations to start their digital transformation from any specific priority area that works best for them. The Director of Software Engineering noted that Dynamics 365 Supply Chain Management "felt like a product that we could continue to grow with. It's a solid extendable platform that allows us to tailor the product to our unique business needs at enterprise scale while aligning to our cloud-first technology strategy."
- Having a trusted partner to tackle new initiatives. Interviewed customers shared that choosing Dynamics means buying into the Microsoft ecosystem that can support both current and future endeavors. The IT project manager in food production explained: "The impact [from using Dynamics 365 Supply Chain Management] is you have experts from Microsoft handling infrastructure. The cloud technology gives you access from different opportunities we never thought about before."

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

### **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	\$14,317,500	\$0	\$0	\$0	\$14,317,500	\$14,317,500	
Gtr	Dynamics 365 Supply Chain Management subscription	\$0	\$781,000	\$1,144,000	\$1,507,000	\$3,432,000	\$2,787,686	
Htr	Support and management	\$0	\$3,135,000	\$2,585,000	\$1,567,500	\$7,287,500	\$6,164,050	
	Total costs (risk- adjusted)	\$14,317,500	\$3,916,000	\$3,729,000	\$3,074,500	\$25,037,000	\$23,269,236	

#### IMPLEMENTATION

**Evidence and data.** Customers often use Dynamics 365 Supply Chain Management as a core solution to their supply chain organization, and thus implementations are often time extensive and heavily scrutinized. Interviewees shared that this often led their organizations to prefer a phased approach, where they start with a smaller number of business units or geographies to implement before expanding to other parts of the organization.

- The director of software engineering in information services and technology explained that their organization went through a multiyear journey of over 10 instances of AX and Dynamics 365 Supply Chain Management solutions, noting: "For us, it's a bigger undertaking than just a technical upgrade. It was more of a business transformation." The organization's implementation involved a number of external implementation partners with some partners having more strategic elements exploring potential applications in areas of interest, while others were more tactical and leveraged from a workforce augmentation standpoint.
- The IT project manager in food production started with six to eight months for proof-of-concept.

Then, implementation was split into two pieces, starting with implementing the financial and maintenance piece, before continuing with the supply chain piece. Their entire implementation process took 1.5 to two years because they did some customizations. They involved about 25 workers, who dedicated 25% of their time, as well as 10% to 20% of its technical team. They leveraged Microsoft's Fast Track team to help with implementation, as well as involved an additional external implementation partner.

• The VP of supply chain execution in manuf acturing shared that their organization purchased a Support Engineer from Microsoft to serve as an in-house engineer to help with implementation. Their organization also divided implementation into two phases, starting with a six-month phase before continuing with a much longer, more complex, and higher-risk second phase. This implementation also involved an external implementation partner. Internally, they involved 2,000 users across 40 to 45 different sites.

**Modeling and assumptions.** For the composite organization, Forrester assumes that:

- Time for implementation takes 1.5 years, involving 10 IT staff dedicating 100% of their time, and 200 business workers dedicating 30% of their time.
- The average annual salary of the IT staff is \$120,000, while the average annual salary for the business work is \$85,000.
- The cost to involve additional implementation partner to help with implementation is \$3,000,000.

**Risks.** The following risks could affect the cost of implementing Dynamics 365 Supply Chain Management:

- The complexity of the organizations' prior environment and use case, which can impact the time for implementation and the number of people involved.
- The priority of this solution relative to other initiatives, which also impacts the resources that

the organization is willing to allocated to this implementation process.

• The degree of involvement from external implementation partners, which can help speed up the process but can also cause confusion and further delays due to process and data issues.

**Results.** To account for these risks, Forrester adjusted this cost upward by 15%, yielding a three-year, risk-adjusted total PV of over \$14,300,000.



Imple	ementation						
Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	
F1	Time for implementation (years)	Composite	1.5				
F2	Number of IT staff involved in implementation	Composite	10				
F3	Average annual salary for IT staff	Assumption	\$120,000				
F4	Percent of IT staff time dedicated	Interview	100%				
F5	Number of business worker involved in implementation	Composite	200				
F6	Average annual salary for business worker	Assumption	\$85,000				
F7	Percent of business worker time dedicated	Interview	30%				
F8	Professional service/implementation partner	Assumption	\$3,000,000				
Ft	Implementation	F1*((F2*F3*F4)+(F5*F6*F7))+F8	\$12,450,000	\$0	\$0	\$0	
	Risk adjustment	15%					
Ftr	Implementation (risk-adjusted)		\$14,317,500	\$0	\$0	\$0	
	Three-year total: \$14,317,500 Three-year present value: \$14,317,500						

## DYNAMICS 365 SUPPLY CHAIN MANAGEMENT SUBSCRIPTION

**Evidence and data.** Dynamics 365 Supply Chain Management is priced on a per month, per user basis. The subscription fee is all inclusive like other software-as-as-service (SaaS) products with no initial purchase fees, maintenance costs, or server costs. Forrester measured the value of the licensing costs using the following model.

**Modeling and assumptions.** For the composite organization, Forrester assumes that:

- 500 users use the solution in Year 1, which gradually increases to 750 users in Year 2 and 1,000 users in Year 3.
- The monthly cost per user is assumed to be \$100.
- Additional add-on services purchases, which can include an embedded in-house engineer to help with implementation, totals \$50,000 per year.
- The composite is also assumed to purchase Premier support of \$60,000 in Year 1, \$90,000 in Year 2, and \$120,000 in Year 3, reflecting the increasing complexity of the use case of Dynamics 365 Supply Chain Management at the composite organization, which requires more support to maximize the benefit.

**Risks.** The following risks could affect the Dynamics 365 Supply Chain Management subscription cost:

- Type and intensity of users.
- The complexity of the use case, which can impact the types of add-ons and level of support purchased.
- The length of the contractual agreement.

**Results.** To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of nearly \$2,800,000.



Dynar	Dynamics 365 Supply Chain Management Subscription									
Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3				
G1	Number of users	Composite		500	750	1,000				
G2	Enterprise subscription	G1*\$100*12		\$600,000	\$900,000	\$1,200,000				
G3	Add-on environment	Assumption		\$50,000	\$50,000	\$50,000				
G4	Premier support	G2*10%		\$60,000	\$90,000	\$120,000				
Gt	Dynamics 365 Supply Chain Management subscription	G2+G3+G4	\$0	\$710,000	\$1,040,000	\$1,370,000				
	Risk adjustment	<b>↑10%</b>								
Gtr	Dynamics 365 Supply Chain Management subscription (risk-adjusted)		\$0	\$781,000	\$1,144,000	\$1,507,000				
	Three-year total: \$3,432,000	Three-year present value: \$2,787,686				i				

#### SUPPORT AND MANAGEMENT

**Evidence and data**. Interviewees identified that Dynamics 365 Supply Chain Management required less support and management than their organizations' legacy on-premises environment. However, significant resources must still be dedicated to maintenance, customization, upgrades, and training for users. All interviewees' organizations involving third-party partners for support and management, although to a lesser degree of involvement compared to the implementation phase.

 The IT project manager in food production shared: "After everything was implemented, we had a stabilization phase where we worked out any bugs we found and get users trained, up to speed, and comfortable with using the solution. We extended our agreement with our implementation partner to help through this phase. We have four people managing the system from our side. This is more managing change requests, enhancement requests, and managing the upgrade and user security. Since we do not have any hardware, our ongoing cost is much less to our prior solution."

 The VP of supply chain execution in manufacturing added, "We have the same group who was involved in implementation now helping with maintenance and management of the system from our end."

**Modeling and assumptions.** For the composite organization, Forrester assumes that:

- Ten technical employees dedicate 25% of their time to support and management of the system.
- In Year 1 and 2, 10 business workers will dedicate 100% of their time to help train and get the different office and factory workers familiar with how best to utilize the solution. This number is reduced to five business workers in Year 3 with the assumption that people are familiar with the solution and requires less support.
- As the adoption of the solution is gradual, there is still a percentage of maintenance cost for the prior solution, which gradually declines year-over-year.

- The annual maintenance cost of prior solution is assumed to be 20% of the total infrastructure cost of the prior solution.
- Third-party support is involved in Year 1 and 2 with gradual decline in involvement.

**Risks.** Support and management will vary for every organization based on size complexity and use case.

**Results.** To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of nearly \$6,200,000.



#### Support And Management

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	
H1	Number of IT staff involved in maintenance	Composite		10	10	10	
H2	Percentage of dedicated time to maintain solution	Interview		25%	25%	25%	
H3	Average annual salary for IT staff	Assumption		\$120,000	\$120,000	\$120,000	
H4	Total spend for IT staff	H1*H2*H3		\$300,000	\$300,000	\$300,000	
H5	Number of business workers involved in maintenance	Interview		10	10	5	
H6	Average annual salary for business worker	Assumption		\$85,000	\$85,000	\$85,000	
H7	Total spend for business worker	H5*H6		\$850,000	\$850,000	\$425,000	
H8	Annual maintenance cost of prior solution	Assumption		\$1,300,000	\$1,000,000	\$700,000	
H9	Third-party support	Assumption		\$400,000	\$200,000	0	
Ht	Support and management	H4+H7+H8+H9	\$0	\$2,850,000	\$2,350,000	\$1,425,000	
	Risk adjustment	10%					
Htr	Support and management (risk-adjusted)		\$0	\$3,135,000	\$2,585,000	\$1,567,500	
	Three-year total: \$7,287,500		Three-year present value: \$6,164,050				

## **Financial Summary**

#### CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS



#### Cash Flow Chart (Risk-Adjusted)

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

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

#### Cash Flow Analysis (Risk-Adjusted Estimates)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total costs	(\$14,317,500)	(\$3,916,000)	(\$3,729,000)	(\$3,074,500)	(\$25,037,000)	(\$23,269,236)
Total benefits	\$0	\$3,754,800	\$21,681,900	\$30,603,825	\$56,040,525	\$44,325,486
Net benefits	(\$14,317,500)	(\$161,200)	\$17,952,900	\$27,529,325	\$31,003,525	\$21,056,250
ROI						90%
Payback period (months)						22

## Appendix A: Total Economic Impact

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

#### TOTAL ECONOMIC IMPACT APPROACH

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

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

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

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

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

## 

#### PRESENT VALUE (PV)

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

#### NET PRESENT VALUE (NPV)

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



#### **RETURN ON INVESTMENT (ROI)**

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



#### **DISCOUNT RATE**

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



#### PAYBACK PERIOD

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

## **Appendix B: Endnotes**

<sup>3</sup> This Total Economic Impact study is a refresh of a previous original <u>Total Economic Impact study on Microsoft</u> <u>Dynamics 365 For Finance and Operations</u>. Some interviewed customer quotes are taken from the original study.

<sup>&</sup>lt;sup>1</sup> "Now Tech: Digital Operations Planning and Analytics, Q1 2021," Forrester Research, Inc., March 26, 2021. <sup>2</sup> 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

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