

A Forrester Total Economic Impact™  
Study Commissioned By Blue Yonder  
November 2020

# The Total Economic Impact™ Of Blue Yonder® Luminare™ Planning

Cost Savings And Business Benefits  
Enabled By Luminare Planning

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## ABOUT FORRESTER CONSULTING

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# Executive Summary

## Benefits And Costs



Reduction in inventory carrying costs:

**\$61,456,612**



Reduction in out-of-stock costs:

**\$32,971,861**



SaaS service fees:

**\$9,324,154**

Blue Yonder provides a supply chain platform that helps customers optimize their supply chain operations and improve key metrics, such as reducing inventory, increasing fill rates, reducing logistics costs, and reducing out-of-stock costs. Ultimately, any improvements in these important metrics correlates to higher revenue, lower costs, better gross margins, and increased working capital for businesses that achieve them. Blue Yonder commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by consuming Luminate™ Planning.

The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Luminate Planning on their organizations. To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed several customers with years of experience using Luminate Planning.

Prior to using Blue Yonder, the customers had a combination of legacy application and spreadsheet-based planning processes that were neither standardized nor capable of providing full visibility to the company's supply chain, which inhibits centralized planning. The legacy application had performance issues even though the company's data was spread across multiple instances of the application. The spreadsheet-based planning was highly manual and inefficient. It also produced suboptimal results and made a single view of planning data impractical. This environment frustrated executives trying to develop best practices and hindered business growth.

Customers were able to effectively address these problems and challenges with Blue Yonder. By using Luminate Planning, they were able to absorb the spreadsheet-based planning activities and retire their legacy applications while maintaining integration with enterprise resource planning (ERP) and management resource planning (MRP) solutions. Executives created standard processes and shared best practices across the enterprise. With full visibility to supply chain data, management was able to improve planning and fulfillment activities. Analysts had a better understanding of key metrics and clearer insights on how to improve.

The focus of this study is on Blue Yonder's Luminate Demand Planning, Fulfillment and Inventory Optimization solutions. The implementation scenario is Blue Yonder's software-as-a-service (SaaS) solution.

Forrester considered additional scenarios for companies of differing sizes and profiles. Two alternative scenarios are in Appendix B.

## Key Findings

**Quantified benefits.** The following risk-adjusted present value (PV) quantified benefits are representative of those experienced by the companies interviewed. The impact of inventory-related improvements led to a 10% reduction in inventory and a three-year value totaling \$99.7 million.



**ROI**  
**524%**



**Benefits PV**  
**\$129.8**



**NPV**  
**\$109.0**



**Payback**  
**<3 months**

- › **The reduction in inventory carrying costs is valued at \$61.5 million over three years.** Customers saw a 10% improvement in forecast accuracy, which led to more inventory reductions without negatively affecting order fulfillment. Blue Yonder allowed customers to have a single solution instance and to run inventory optimization algorithms for the entire company, allowing broader sourcing of inventory. Customers were able to standardize planning processes leading to better planning practices and better outcomes.
- › **The reduction in out-of-stock inventory is valued at \$33.0 million over three years.** Due to planning improvements, broadening inventory sourcing, and corporatwide visibility on inventory data with a single tool, customers have been able to increase their revenue by reducing stockouts by approximately 25%.
- › **The decrease in dead inventory write-offs is valued at \$5.3 million over three years.** Customers found that they could reduce safety stock and better optimize both inventory placement and fulfillment across distribution centers, leading to reductions in obsolescence, shrinkage, product loss, etc.

In addition, customers saw other benefits which totaled \$30.1 million, including:

- › **The reduction in transportation costs is valued at \$20.6 million over three years.** Customers saw: 1) a 0.75% reduction in transportation costs due to the ability to fill orders from any distribution center and 2) a reduction in unplanned transfers and expedited deliveries due to previous inventory sourcing issues.
- › **The decommissioned on-premises legacy planning application and reduction in resource costs are valued at \$7.9 million over three years.** Customers that transitioned from a legacy planning system were able to fully retire the prior system without losing valuable integration with other applications. They also were able to gain both labor and resource productivities in the process.
- › **The increased efficiency of demand forecasting is valued at \$1.4 million over three years.** Customers were able to standardize their planning process, institute best practices, eliminate work-arounds due to performance issues with their legacy application, and minimize the use of spreadsheets within planning. This led to planner productivities that reduced overall planner demand while covering business growth and the creation of a center of excellence (COE).
- › **The elevated productivity for non-planner reporting and analysis is valued at \$223,817 over three years.** Customers were able to centralize supply chain data and switch to using just Blue Yonder for reporting and analysis. This leads to an average productivity increase of 1 hour per week for supply chain managers, financial analysts, and others who look at supply chain data.

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

- › **Customer satisfaction.** In addition to the 25% reduction in out-of-stock costs, order-to-delivery times have been reduced, on average, by over 30%. Blue Yonder customers interviewed believe that these improvements have increased their customers' satisfaction and led to additional revenue.

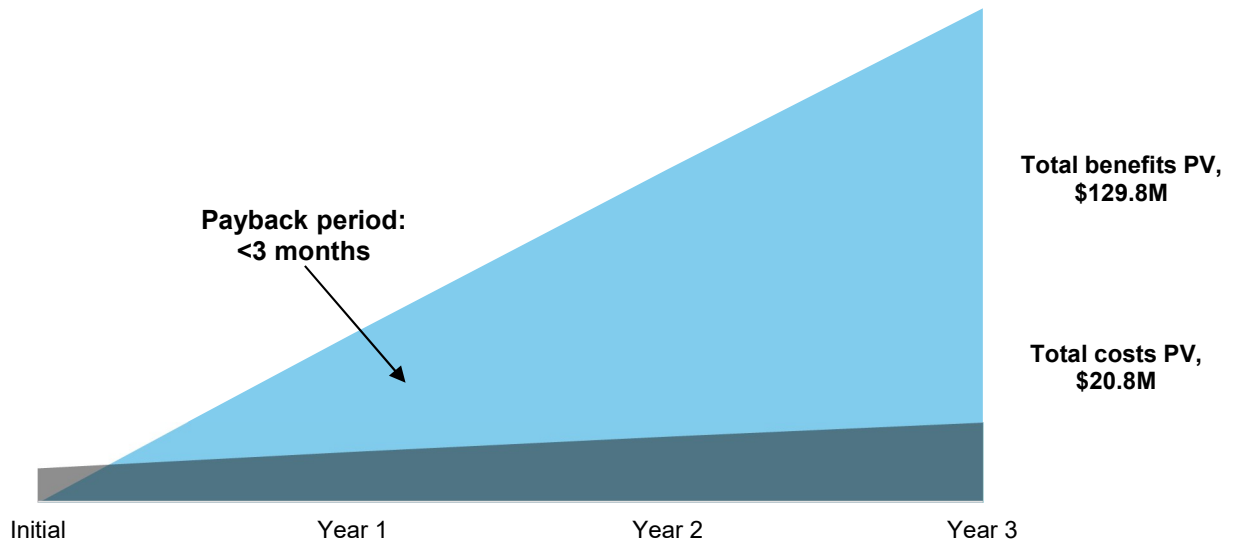
- › **Reduction in overestimating demand.** Forecasting improvements reduce overestimating demand, which will increase revenue by reducing markdown actions to clear out excess inventory.
- › **Employee satisfaction.** Through the implementation of the Blue Yonder solution, the following capabilities have all improved employee satisfaction: standardization of supply chain processes; elimination of application performance issues; visibility to all supply data with a single tool; improved business outcomes; and ease of use.
- › **Additional productivity improvement in manufacturing operations.** When the Blue Yonder solutions are used in tandem with the company's Master Planning and Production Planning solutions, organizations saw a reduction in temporary labor and/or overtime in the factory.
- › **Central and integrated planning system.** Management feels more in control of the whole supply chain planning process.
- › **Partnership.** All customers spoke highly of the Blue Yonder employees. As stated by one customer: "Blue Yonder people are a huge piece on how they add value. They are committed to helping customers adopt new technologies to improve their business."
- › **Working capital.** With an average inventory reduction of 10%, customers can invest those dollars in other ways.

**Costs.** The interviewed organizations experienced the following risk-adjusted PV costs over three years:

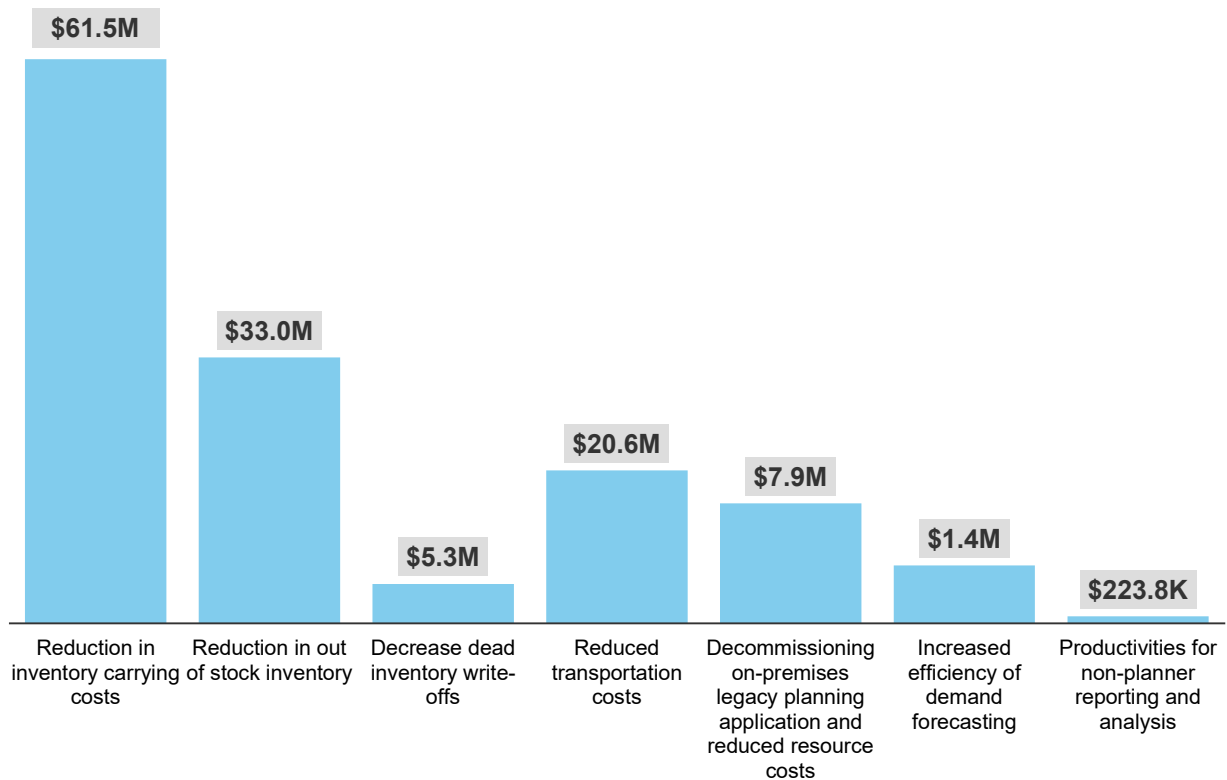
- › **SaaS service fees of \$9.3 million over three years.** Blue Yonder bases SaaS service fees on the number of stock keeping units (SKUs) within distribution centers. The composite organization used a realistic sizing for a company with: \$10 billion in annual revenue, 15 million item locations, and a starting inventory of \$1 billion.
- › **Implementation costs, which include consulting expenses and client labor, are valued at \$8.9 million over three years.** Blue Yonder implementations typically utilize either Blue Yonder consultants or partner consultants. The composite organization utilized a 24-week standard Blue Yonder consulting package with realistic client labor to support the implementation.
- › **The cost of staffing a COE organization is valued at \$2.6 million over three years.** This cost is based on a three-person supply chain COE to support the planning organization with process improvement, best practices sharing, special projects, problem resolution, and cross-covering planners.

Forrester's interviews with four existing customers and subsequent financial analysis found that an organization based on these interviewed organizations experienced benefits of \$129,796,354 over three years versus costs of \$20,807,699, adding up to a net present value (NPV) of \$108,988,655 and an ROI of 524%.

## Financial Summary



### (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 Blue Yonder Luminate Planning.

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 Blue Yonder Luminate Planning can have on an organization:



### **DUE DILIGENCE**

Interviewed Blue Yonder stakeholders and Forrester analysts to gather data relative to Luminate Planning.



### **CUSTOMER INTERVIEWS**

Interviewed four organizations using Blue Yonder 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 Blue Yonder Luminate Planning's impact: benefits, costs, flexibility, and risks. Given the increasing sophistication that enterprises have regarding ROI analyses related to IT investments, Forrester's TEI methodology serves to provide a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

## DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Blue Yonder 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 Blue Yonder Luminate Planning.

Blue Yonder 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.

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

# The Blue Yonder Customer Journey

## BEFORE AND AFTER THE BLUE YONDER INVESTMENT

### Interviewed Organizations

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

INDUSTRY	REGION	INTERVIEWEE	ANNUAL REVENUE
Beverage	Latin America	Logistics COE manager	>\$25 billion
Supply chain management	Global	Chief technology officer	>\$10 billion
Supply chain service	India	Head of supply chain planning	>\$20 billion
Distributor	United States	Supply chain manager	>\$10 billion

### Key Challenges

The four interviewees had common challenges that they wanted to resolve when they investigated moving to Blue Yonder, including:

- › **Lacking a centralized planning solution.** Customers lacked a central planning solution due to legacy systems which could not scale to either the size of their organization or a large percentage of their planning organization using spreadsheets. As a result, the organization lacked control, had limited standardization, minimal sharing of best practices, and no means to fully understand the end-to-end supply chain. Customers recognized that there were numerous areas where optimization algorithms were not optimally serving the organization due to these weaknesses.
- › **Limiting flexibility and growth.** Customers were not able to organize their planning organization to align with their business; for example, it was not possible to have specialty products managed by a planner with specific skills. The supply chain organization was hindering corporate growth in one organization.
- › **Lacking a planning partner.** It was apparent to customers that their planning tool provider's primary business was not planning. Their support organization lacked in-depth knowledge of supply chain nuances. One customer noted that the company would frequently address problems by doing trial-and-error actions rather than work with the vendor's support organization.

"Our planning tool had good optimizers, but performance issues led to us [having] to plan within five separate regions, which meant that we had suboptimal planning because we knew that low cost manufacturing in one region could not support other regions."

*Logistics COE manager,  
beverage industry*



### Solution Requirements

The interviewed organizations searched for a solution that could:

- › Provide centralized control.
- › Enable standardization.
- › Provide one instance for the entire company.
- › Eliminate siloed data.

"We had an opportunity to grow rapidly, but [we] knew that we couldn't accomplish it with our existing planning processes."

*Head of supply chain planning,  
supply chain service*





- › Provide a single reporting and analysis tool.
- › Provide advanced machine learning algorithms for demand planning and inventory optimization.
- › Scale to support significant business growth.
- › Provide flexibility to support both standard and specialized planning.

## Key Results

The interviews revealed that key results from the Blue Yonder investment include:

- › **A single-instance, supply chain planning solution.** Customers were able to consolidate multiple legacy planning solution instances into a single Blue Yonder instance, while also eliminating spreadsheet-based planning processes within two years. Machine learning algorithms span the entire company's supply chain without performance issues.
- › **Enabling central controls, standardization, and best practices.** Customers' management now feel that they have control over the entire supply chain organization. Processes have been standardized and best practices are being shared.
- › **Supply chain optimization.** Customers have seen significant improvements in high visibility supply chain KPIs, with associated positive business value. Some results include: a 10% improvement in forecast accuracy; a 10% reduction in inventory; a 25% reduction in out-of-stock costs; order-to-delivery time reduction of 30%; business growth without an increase in planners; and a 10% dead inventory reduction.
- › **Flexibility to deal with growth or environment changes.** Customers' flexibility improved to meet known requirements and unforeseen changes. A customer whose number one reason for selecting Blue Yonder was to meet expected rapid growth, has no regrets with the change. Customers were able to reassign planners based upon geographic or product needs. As for the unknown, two customers noted that Blue Yonder's capabilities have helped them adjust due to COVID-19's effect on their business.
- › **A business partner.** Customers consider Blue Yonder to be a supply chain partner. They find that Blue Yonder's support team is knowledgeable and helpful. They have found that Blue Yonder consultants are very capable even in customers' less populated regions.

## Composite Organization

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

"We wanted a vendor whose core business was planning tools."

*Logistics COE manager,  
beverage industry*



"During this new world, Blue Yonder has allowed us to mitigate costs while keeping our service levels high and providing real value."

*Supply chain management, chief  
technology officer*



"Blue Yonder's people go out of their way to expand the skill and knowledge of the people they are working with. It is a relationship, a commitment. I think that it is outstanding."

*Head of supply chain planning,  
supply chain service*



› **Description of composite.** The composite organization has \$10 billion in revenue, 15 million item locations, and a starting inventory of \$1 billion, which is 10% of their revenue. Since the focus here is on demand planning and fulfillment and inventory optimization, the composite organization may be either a distributor or a manufacturer dealing only with finished goods. The composite organization has some geographical breadth, with multiple regions and multiple distribution centers per region. The more highly populated regions use a legacy planning tool that has multiple application instances due to the size of the organization, while the remaining regions use spreadsheets for planning. There is no central repository for the supply chain data, and there are multiple tools being used for reporting and analysis.

› **Deployment characteristics.** Planners are either located at a regional level or a distribution center. There are limited planning standards and no effective means to ensure compliance. Best practices only exist within regions, if at all.

The legacy application has both scaling issues and an application instance per larger region to minimize performance issues. The running of planning and inventory optimization algorithms are based upon what the application can handle versus what the supply chain organization would prefer.

The spreadsheet-based planning has significant standardization issues and visibility challenges. Attempts to consolidate planning data from the spreadsheets has had limited success at a region level and even less success at a corporate level.

Reporting and analysis are challenging for supply chain management, corporate-level analysts, and other non-planning analysts. Not only is there no central datastore for the supply chain data, but there are also multiple tools needed to do the multiple partial analyses, which are necessary to approach a corporate view.

› Forrester evaluated two alternative composite organizational scenarios to better understand the NPV and ROI for organizations much larger than the composite organization:

- Scenario number 1 (0.1x composite): \$1 billion annual revenue, \$100 million inventory, and 1.5 million item locations, with an ROI of 187% and an NPV of \$9.6 million.
- Scenario number 2 (2x composite): \$20 billion annual revenue, \$2 billion inventory, and 30 million item locations, with an ROI of 570% and an NPV of \$220 million.

See **Appendix B** for more details on these two scenarios.



### Key assumptions:

\$10 billion in revenue

15 million item locations

\$1 billion in inventory

Multiple regions

Inventory managed:

- 90% legacy planning tool
- 10% spreadsheet-based planning

# 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	Reduction in inventory carrying costs	\$22,500,000	\$24,806,250	\$27,286,875	\$74,593,125	\$61,456,612
Btr	Reduction in out-of-stock inventory	\$12,656,250	\$13,289,063	\$13,953,516	\$39,898,828	\$32,971,861
Ctr	Decrease dead inventory write-offs	\$1,966,500	\$2,119,163	\$2,282,175	\$6,367,838	\$5,253,733
Dtr	Reduced transportation costs	\$7,695,000	\$8,292,375	\$8,930,250	\$24,917,625	\$20,558,086
Etr	Decommissioning on-premises legacy planning application and reduced resource costs	\$3,145,489	\$3,176,944	\$3,208,714	\$9,531,147	\$7,895,863
Ftr	Increased efficiency of demand forecasting	\$551,250	\$579,375	\$607,500	\$1,738,125	\$1,436,382
Gtr	Productivities for non-planner reporting and analysis	\$90,000	\$90,000	\$90,000	\$270,000	\$223,817
Total benefits (risk-adjusted)		\$48,604,489	\$52,353,169	\$56,359,029	\$157,316,687	\$129,796,354

## Reduction In Inventory Carrying Costs

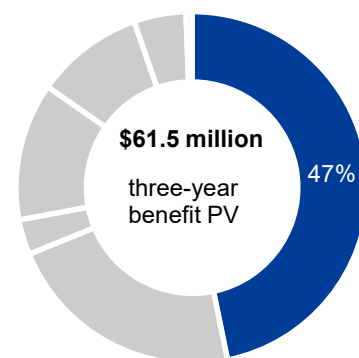
Interviewed customers found that they were able to reduce their inventory by 10% which leads to a reduction of the inventory carrying costs, such as warehousing space, warehouse labor, insurance, etc. There were a broad set of improvements that led to this result:

- › **Forecast accuracy was improved by 10%.** Customers saw improvements in the planning process due to retiring spreadsheet-based planning, improved planning algorithms, and the ability to do what-if analysis.
- › **A single instance of planning, inventory optimization, and fulfillment.** Customers were not only able to plan across their entire geographic footprint, due to performance and scaling improvements, but they were also able to run planning and optimization processes more frequently as they had full inventory visibility.
- › **Planning process improvements.** The standardization of planning processes, the creation of a planning COE, regular sharing of best practices, and the ability to optimize planning roles by geography and product types have led to the ability to optimize the planning process.

Forrester identified potential risks, including organizational alignment that allows certain improvements, varying customer carrying cost percentages, and the quality of existing planning processes.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$61,456,612.

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 more than \$129.8 million.



**Reduction in inventory carrying costs: 47% of total benefits**

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.

## Reduction In Inventory Carrying Costs: Calculation Table

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
A1	Revenue		\$10,000,000,000	\$10,500,000,000	\$11,025,000,000
A2	Inventory as % of revenue		10%	10%	10%
A3	Inventory managed by prior planning application		90%	90%	90%
A4	Base inventory plus inventory growth	$A1 \cdot A2 \cdot A3$	\$900,000,000	\$945,000,000	\$992,250,000
A5	Reduction in inventory	% improvement	10%	10%	10%
A6	Carrying cost	%	25%	25%	25%
A7	Reduction in inventory cost	$A4 \cdot A5 \cdot A6$	\$22,500,000	\$23,625,000	\$24,806,250
A8	Inventory managed by spreadsheets	%	10%	10%	10%
A9	Inventory associated with prior planning with spreadsheets	$A1 \cdot A2 \cdot A8$	\$100,000,000	\$105,000,000	\$110,250,000
A10	Reduction in inventory	% improvement	10%	15%	20%
A11	Carrying cost	%	25%	25%	25%
A12	Reduction in inventory cost	$A9 \cdot A10 \cdot A11$	\$2,500,000	\$3,937,500	\$5,512,500
At	Reduction in inventory carrying costs	$A7 + A12$	\$25,000,000	\$27,562,500	\$30,318,750
	Risk adjustment	↓10%			
Atr	Reduction in inventory carrying costs (risk-adjusted)		\$22,500,000	\$24,806,250	\$27,286,875

## Reduction In Out-Of-Stock Inventory

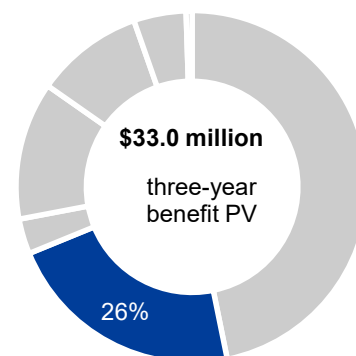
Customers saw out-of-stock rates decrease by an average of 25%, this was based upon the maturity of their original processes and industry-related challenges that they were able to address. Note that a \$100 reduction in stockouts leads to approximately a \$50 increase in revenue.

Improvements that led to this outcome include:

- › **Planning improvements.** Customers have been able to better align inventory across distribution centers while decreasing overall inventory levels. They have accomplished this by utilizing Blue Yonder's planning processes and inventory optimization algorithms.
- › **Broadening inventory sourcing.** Customers noted that they have eliminated their siloed regions, allowing order fulfillment to occur from more than one distribution center, when necessary.
- › **Visibility supporting better decisions.** Prior to Blue Yonder, customers relied upon multiple tools and disparate data sources for reporting and analysis, which was less effective in dealing with sourcing exceptions due to the lack of inventory visibility.

Forrester identified potential risks, including historical stockout levels, industry level margins, and the customer-specific opportunities for stockout improvements.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$32,971,861.



Reduction in out-of-stock inventory: 26% of total benefits

## Reduction In Out-Of-Stock Inventory: Calculation Table

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
B1	Annual revenue		\$10,000,000,000	\$10,500,000,000	\$11,025,000,000
B2	Historical stockout ratio		7.5%	7.5%	7.5%
B3	Stockout improvement	% improvement	25%	25%	25%
B4	Revenue loss from stockout		50%	50%	50%
B5	Margin		15.0%	15.0%	15.0%
Bt	Reduction in out-of-stock inventory	$B1*B2*B3*B4*B5$	\$14,062,500	\$14,765,625	\$15,503,906
	Risk adjustment	↓10%			
Btr	Reduction in out-of-stock inventory (risk-adjusted)		\$12,656,250	\$13,289,063	\$13,953,516

## Decrease Dead Inventory Write-Offs

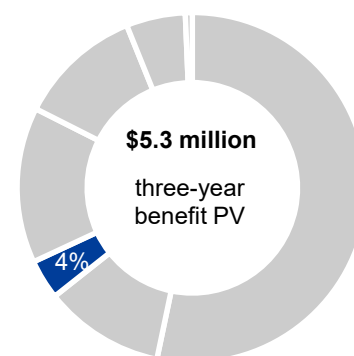
Customers saw an average 10% reduction in inventory write-offs due to obsolescence, shrinkage, product loss, etc. Inventory write-offs varied considerably across clients. This was mostly due to product type variations. Investigation, administration, and disposal costs associated with the write-offs were also varied based upon product types.

Improvements that led to this outcome include:

- › **Rightsizing inventory.** The inventory optimization module, particularly as it applies to safety stock, was the top reason customers gave for their reduction in dead inventory.
- › **Optimized placement and sourcing.** Customers found that the correct placement of inventory and the ability to source from additional destinations reduced dead inventory.

Forrester identified potential risks, including the level of original write-offs occurring and the relationship of product types with write-offs.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$5,253,733.



Decrease dead inventory write-offs: 4% of total benefits

## Decrease Dead Inventory Write-Offs: Calculation Table

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
C1	Revenue		\$10,000,000,000	\$10,5500,000,000	\$11,025,000,000
C2	Inventory as % of revenue		10%	10%	10%
C3	Dead inventory write-off as % of total inventory		2%	2%	2%
C4	Dead inventory	$C1*C2*C3$	\$20,000,000	\$21,000,000	\$22,050,000
C5	Additional cost for disposal, investigation, administration	%	15%	15%	15%
C6	Reduction in dead inventory	%	8%	9%	10%
Ct	Decrease dead inventory write-offs	$C4*(1+C5)*C6$	\$2,185,000	\$2,354,625	\$2,535,750
	Risk adjustment	↓10%			
Ctr	Decrease dead inventory write-offs (risk-adjusted)		\$1,966,500	\$2,119,163	\$2,282,175

## Reduced Transportation Costs

Customers saw an average 0.75% reduction in transportation costs after they implemented Blue Yonder. Productivities to transportation include:

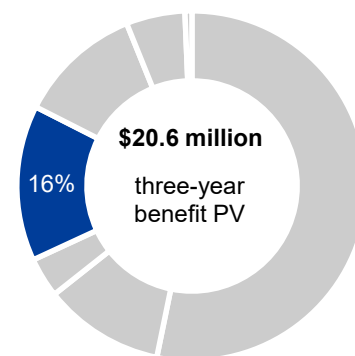
- › **Optimal stocking points.** When executing an order, customers frequently had:
  - Limited visibility into inventories from all distribution centers.
  - Their application's order fulfillment algorithms would only be able to work without performance issues including inventories from an incomplete set of distribution centers.

› **Reduction in unplanned transfers and expedited deliveries.**

Customers saw a reduction in unscheduled transfers between distribution centers as well as special shipments from secondary distribution centers to complete orders.

Forrester identified potential risks, including the degree in which inventory data can be centrally accessed, the quality of reporting tools, and the quality of the fulfillment application capabilities.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$20,558,086.



Reduced transportation costs: 16% of total benefits

### Reduced Transportation Costs: Calculation Table

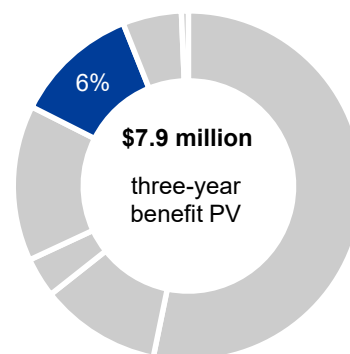
Ref.	Metric	Calculation	Year 1	Year 2	Year 3
D1	Revenue		10,000,000,000	10,500,000,000	11,025,000,000
D2	Transportation cost as percent of revenue		12%	12%	12%
D3	Transportation cost	D1*D2	1,200,000,000	1,260,000,000	1,323,000,000
D4	Productivities in transportation	%	0.7125%	0.73125%	0.750%
Dt	Reduced transportation costs	D3*D4	\$8,550,000	\$9,213,750	\$9,922,500
	Risk adjustment	↓10%			
Dtr	Reduced transportation costs (risk-adjusted)		\$7,695,000	\$8,292,375	\$8,930,250

## Decommissioning On-Premises Legacy Planning Application And Reduced Resource Costs

Customers with existing planning, fulfillment, and inventory optimization tools were able to decommission them. The composite organization had an application, with multiple instances, supporting all three capabilities covering 60% of their inventory, while the other 40% of inventory was managed using spreadsheets and other manual efforts.

Outcomes of decommissioning the on-premises legacy planning application include:

- › **Elimination of licensing.** The legacy application was completely retired because the customers implemented Blue Yonder. It is important to note that customers transitioned from having multiple instances of the legacy application to only having one instance with Blue Yonder. Also, all integrations with other application modules were kept.



Decommissioning on-premises legacy planning application and reduced resource costs: 6% of total benefits

- › **IT resource costs.** Customers were able to reduce IT resource costs, both labor and resource usage, with the Blue Yonder implementation. This was due to a combination of consolidating from multiple application instances of the legacy system into a single instance of Blue Yonder, as well as lower resource requirements with Blue Yonder.

Forrester identified potential risks, including the number of legacy application instances and the resource requirements of the legacy system.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$7,895,863.

Decommissioning On-Premises Legacy Planning Application And Reduced Resource Costs: Calculation Table					
Ref.	Metric	Calculation	Year 1	Year 2	Year 3
E1	Licensing for prior planning application		\$3,039,120	\$3,069,511	\$3,100,206
E2	Reduced IT resource costs		\$455,868	\$460,427	\$465,031
Et	Decommissioning on-premises legacy planning application and reduced resource costs	E1+E2	\$3,494,988	\$3,529,938	\$3,565,237
	Risk adjustment	↓10%			
Etr	Decommissioning on-premises legacy planning application and reduced resource costs (risk-adjusted)		\$3,145,489	\$3,176,944	\$3,208,714

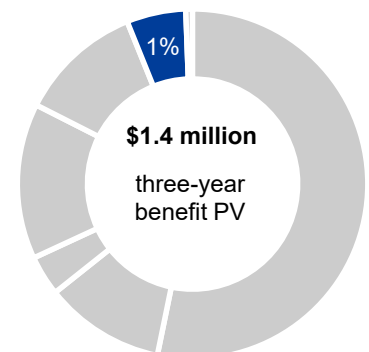
## Increased Efficiency Of Demand Forecasting

Customers saw planner effectiveness improve with efficiency improvements, leading to a reduction in labor required for planning activities. Customers either saw a decrease in planning resources or no change in planning resources even with growing revenues.

As the improvements were significant for planners who were using the legacy application, they were even greater for those who were utilizing spreadsheets. Note that the composite organization also created a planning COE organization, which is staffed with planners. Observed demand forecasting efficiencies include:

- › **Standardization and best practices.** Customers were able to improve their planning process as part of the transition to Blue Yonder. Planners became more open to sharing best practices with each other while also working with the planning COE.
- › **Improvements over the legacy-based planning.** Typically, customers were satisfied with the planning algorithms, but they ran slow and could not scale to plan for the whole organization. Customers are not only able to run Blue Yonder algorithms for the whole company, but they are also able to run those algorithms more frequently.
- › **Spreadsheet-based planning elimination.** Customers saw even greater increases in productivity with the transition from planning in spreadsheets to Blue Yonder. The transition to fully eliminating the spreadsheet-based planning took longer due to skillset challenges and required cultural changes. The composite organization retired 50% of the spreadsheet-based planning in Year 1 and an additional 25% each of the next two years.

Forrester identified potential risks, including the assumptions that a COE was created and the distribution of managed inventory took place between the legacy application and spreadsheets.



Increased efficiency of demand forecasting: 1% of total benefits

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$1,436,382.

### Increased Efficiency Of Demand Forecasting: Calculation Table

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
F1	Number of planners using prior tool		55	55	55
F2	Planner productivity using Blue Yonder	% reduction	10%	10%	10%
F3	Salary	annual	\$100,000	\$100,000	\$100,000
F4	Reduction in planning labor cost	$F1 * F2 * F3$	\$550,000	\$550,000	\$550,000
F5	Number of planners using spreadsheets for planning		5	5	5
F6	Planner productivity using Blue Yonder	% reduction	12.50%	18.75%	25.00%
F7	Planner labor cost		\$100,000	\$100,000	\$100,000
F8	Reduction in labor cost associated with spreadsheets for planning	$F5 * F6 * F7$	\$62,500	\$93,750	\$125,000
Ft	Increased efficiency of demand forecasting	$F4 + F8$	\$612,500	\$643,750	\$675,000
	Risk adjustment	↓10%			
Ftr	Increased efficiency of demand forecasting (risk-adjusted)		\$551,250	\$579,375	\$607,500

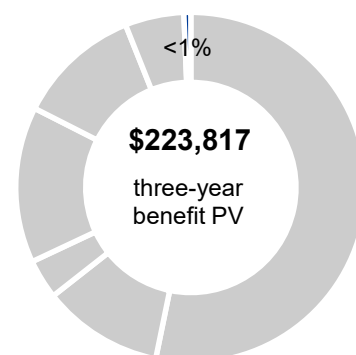
## Productivities For Non-Planner Reporting And Analysis

Customers found that productivities from improved reporting and analysis capabilities went well beyond the planners. Supply chain management, finance, and other non-planner supply chain roles benefit from Blue Yonder's reporting and analysis capabilities. Productivities that customers have seen include:

- › **Data centralization.** Centralized data enables optimizing planning, manufacturing levels, inventory balances, planning, and logistics across the entire organization. The significance of the centralization scales with how often and to what degree the customers previously used spreadsheets to do their work.
- › **Single tool for reporting and analysis.** Customers used multiple tools to do reporting, and they were unable to have a real-time view of inventory levels across the organization, etc. All customers use Blue Yonder for their primary reporting and analysis needs.

Forrester identified potential risks, including customers who have created an effective data warehouse, with a strong reporting and analysis tool, to support their needs.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$223,817.



Productivities for non-planner reporting and analysis: <1% of total benefits



## Productivities For Non-Planner Reporting And Analysis: Calculation Table

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
G1	Managers and analysts	FTE	40	40	40
G2	Percent time savings	1 hour per week	2.5%	2.5%	2.5%
G3	Average labor cost		\$100,000	\$100,000	\$100,000
Gt	Productivities for non-planner reporting and analysis	$G1 \cdot G2 \cdot G3$	\$100,000	\$100,000	\$100,000
	Risk adjustment	↓10%			
Gtr	Productivities for non-planner reporting and analysis (risk-adjusted)		\$90,000	\$90,000	\$90,000

## Unquantified Benefits

In addition to the previously stated benefits of the Blue Yonder Luminate Planning solution, there are numerous additional benefits which do not have specific financial implications. The customers benefited in the following ways:

- › **Customer satisfaction.** Customers had two major improvements leading to improved customer satisfaction: 1) improved order-to-delivery time, on average, by over 30% and 2) reduced out-of-stock costs, on average, by approximately 10% of the time. Customers could not translate this improvement in service to a specific increase in revenue, although they believe it has led to more sales.
- › **Reduction in overestimating demand.** Forecasting improvements reduce overestimating demand, which will increase revenue by reducing markdown actions to clear out excess inventory.
- › **Employee satisfaction.** Employees appreciate the following capabilities which have been provided through the Blue Yonder solution: standardization; ease of use; the elimination of prior limitations, such as a single planning instance; the ability to view any subset of the company's data with a single tool; the elimination of spreadsheet models; and the elimination of performance issues. In addition, the broad outcome improvements have further improved morale.
- › **Potential for additional productivities in manufacturing operations.** When Blue Yonder Demand Forecasting, Inventory Optimization, and Fulfillment solutions are used in tandem with the company's Master Planning and Production Planning solutions, organizations can potentially increase the value achieved through a reduction in temporary labor and/or overtime in the factory. As the Master Planning and Production Planning solutions were not the focus of this study, these benefits are not measured nor included in the report.
- › **Central solution providing controls and leading to standardization and best practices.** Managers feel that they have control over the whole planning process, which has allowed them to standardize processes and implement best practices. The Blue Yonder implementation allowed some of the organizations to implement a COE organization, which they believe provides much needed value.

"We are able to work more closely with our customers now and let the Blue Yonder system, with its analytics, handle the optimization."

*Head of supply chain planning, supply chain service*



"We are geographically dispersed and Blue Yonder supports us in all of our regions with a single, centralized solution."

*Logistics COE manager, beverage industry*



- › **Partnership.** Customers spoke highly of the Blue Yonder team, from sales through consulting through support. They find them to be both knowledgeable and interested in improving their businesses.
- › **Single instance solution with performance issues resolved.** Although it is a component of some quantifiable productivities, the ability to provide a single instance of a solution while eliminating historical performance issues provides efficiency and effectiveness improvements that are difficult to quantify.
- › **Working capital.** An average inventory reduction of 10%, which has been the case with these customers, has quantifiable benefits that cannot be used in an ROI model. The money saved may be used for other opportunities while manufacturing capacity for plants, and storage facilities within distribution centers, can be managed more effectively.

“We get an entire view for requirements planning in one window. It is so much better than what the team was doing in the past.”

*Head of supply chain planning,  
supply chain service*



## 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 Luminate Planning and later realize additional uses and business opportunities, including:

- › **Scaling.** In addition to providing a single instance solution for their current state, customers are comfortable that Blue Yonder will grow with them. They believe that the solution architecture will support growth well beyond where they are today.
- › **Aligning planners to geographical and product needs.** Customers have been able to adjust their planner’s assignments, shifting roles based upon product types and geography. For example, one customer has optimized their planner assignments to have geographically focused planners for one set of products and regionally focused planners for other products.
- › **What-if capabilities.** The logistics COE manager in beverage industry noted, “We are able to do what-if analyses to adjust to coronavirus-related supply and demand changes.”

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

# Analysis Of Costs

## QUANTIFIED COST DATA AS APPLIED TO THE COMPOSITE

Total Costs							
Ref.	Cost	Initial	Year 1	Year 2	Year 3	Total	Present Value
Htr	SaaS service fees	\$0	\$3,714,480	\$3,751,625	\$3,789,141	\$11,255,246	\$9,324,154
Itr	Implementation costs — consulting expenses and client labor	\$8,909,653	\$0	\$0	\$0	\$8,909,653	\$8,909,653
Jtr	Cost of staffing COE organization	\$0	\$1,035,000	\$1,035,000	\$1,035,000	\$3,105,000	\$2,573,892
	<b>Total costs (risk-adjusted)</b>	<b>\$8,909,653</b>	<b>\$4,749,480</b>	<b>\$4,786,625</b>	<b>\$4,824,141</b>	<b>\$23,269,899</b>	<b>\$20,807,699</b>

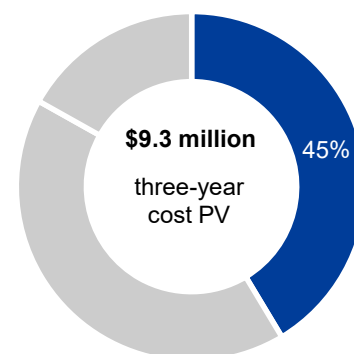
The table above shows the total of all costs across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total costs to be a PV of more than \$5.1 million.

## SaaS Service Fees

Blue Yonder contracts include service fees that are based upon either a SKU count across locations, referred to as item location count, for a SaaS implementation or application sizing characteristics for on-premises or infrastructure-as-service (IaaS) implementations. The composite organization has a SaaS implementation, and its pricing is based upon a reasonable size for a company with \$10 billion in annual revenue, 15 million item locations, and \$1 billion in starting inventory. Discounting is not uncommon and has been applied here. Price increases are due to a combination of business growth, product strategy changes, and market forces causing a change in product mix.

Forrester identified potential risks, including a variation in the distribution center/SKU relationship and discounting.

To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of \$9,324,154.



**SaaS service fees:  
45% of total costs**

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.

## SaaS Service Fees: Calculation Table

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
Ht	SaaS service fees		\$0	\$ 3,376,800	\$3,410,568	\$3,444,674
	Risk adjustment	↑10%				
Htr	SaaS service fees (risk-adjusted)		\$0	\$3,714,480	\$3,751,625	\$3,789,141

## Implementation Costs — Consulting Expenses And Client Labor

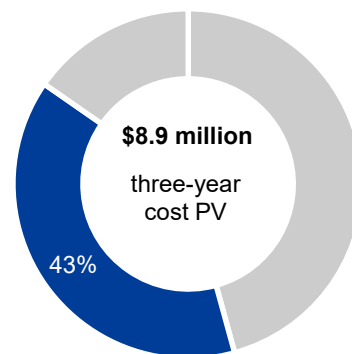
All four customers utilized Blue Yonder consulting or consulting from a Blue Yonder partner, typically with similar deliverables and costs. The composite organization uses Blue Yonder consulting for a standard 24-week SaaS implementation of Blue Yonder Luminate Planning, with demand planning, fulfillment, and inventory optimization. Client labor estimates are typical for what Blue Yonder sees in their SaaS implementations.



### Twenty-four weeks: Total implementation and deployment time

Forrester identified potential risks, including adjustments to the standard consulting offerings.

To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of \$8,909,653.



Implementation costs — consulting expenses and client labor: 43% of total costs

**Implementation Costs — Consulting Expenses And Client Labor: Calculation Table**

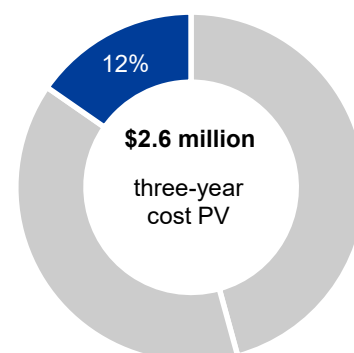
Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
I1	Implementation consulting cost		\$7,164,621			
I2	IT staff assigned to implementation		60			
I3	Implementation duration	24 weeks	24			
I4	Average time requirement per employee		33.3%			
I5	Average weekly labor cost		\$1,950			
I6	IT staff assigned to implementation	$I2 \times I3 \times I4 \times I5$	\$935,064			
I1	Implementation costs — consulting expenses and client labor	$I1 + I6$	\$8,099,685	\$0	\$0	\$0
	Risk adjustment	↑10%				
I1r	Implementation costs — consulting expenses and client labor (risk-adjusted)		\$8,909,653	\$0	\$0	\$0

## Cost Of Staffing COE Organization

Some of the customers implemented a central COE organization, achieving very positive results for the planning organization. The composite organization staffed the COE organization with three planners. Their roles include standardization, best practices, special projects, dealing with crises, and cross-covering for other planners.

Forrester identified potential risks, including varying labor rates and staffing, based upon goals, skill level expectations, etc.

To account for these risks, Forrester adjusted this cost upward by 20%, yielding a three-year, risk-adjusted total PV of \$2,573,892.



Cost of staffing COE organization: 12% of total costs

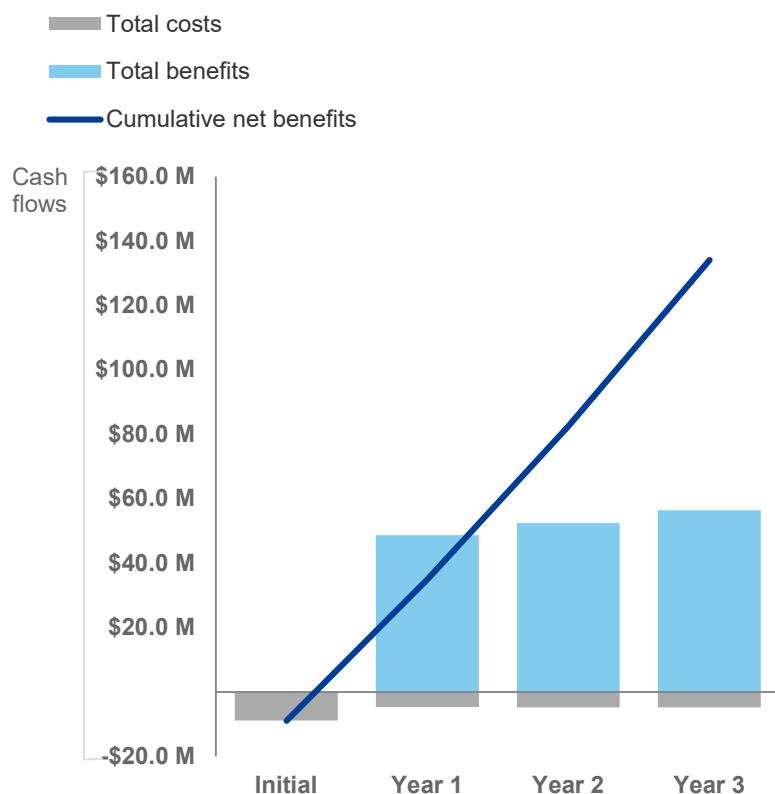
### Cost Of Staffing COE Organization: Calculation Table

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
J1	Center of excellence team	FTE		9	9	9
J2	Annual fully burdened labor cost			\$100,000	\$100,000	\$100,000
Jt	Cost of staffing COE organization	J1*J2	\$0	\$900,000	\$900,000	\$900,000
	Risk adjustment	↑15%				
Jtr	Cost of staffing COE organization (risk-adjusted)		\$0	\$1,035,000	\$1,035,000	\$1,035,000

# 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)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total costs	(\$8,909,653)	(\$4,749,480)	(\$4,786,625)	(\$4,824,141)	(\$23,269,899)	(\$20,807,699)
Total benefits	\$0	\$48,604,489	\$52,353,169	\$56,359,029	\$157,316,687	\$129,796,354
Net benefits	(\$8,909,653)	\$43,855,009	\$47,566,544	\$51,534,888	\$134,046,788	\$108,988,655
ROI						524%
Payback period						<3 months

# Blue Yonder Luminate™ Planning: Overview

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

Today's supply chains are facing a new era of uncertainty defined by growing needs to reduce waste and improve sustainability. To deliver, planners must overcome short term disruptions and gain more accurate forecasts with less manual effort. Supply chain operations personnel must establish and execute on strategic objectives while proactively managing near term variability. And COOs and Chief Supply Chain Officers must maximize the use of labor, factory, distribution, and transportation resources to deliver an efficient and excellent customer experience.

To help ensure new levels of supply chain agility and resiliency, Blue Yonder is delivering the industry's most powerful, intelligent supply chain platform, which is the foundation of Luminate Planning and its advanced functionality.

Luminate™ Planning uses artificial intelligence, machine learning, big data, robust algorithms, and predictive analytics to intelligently predict potential problems and opportunities, offer cognitive recommendations for action, and pivot production, inventory, and labor plans to minimize risk and deliver with confidence.

Using the powerful capabilities of Luminate Planning with machine learning, users can achieve powerful business results and competitive advantage, through:

- Revenue growth with no increase in inventory levels
- Reduced out of stocks
- Improved planner productivity
- Increased forecast accuracy
- Reduced order-to-delivery times

## **Boundaryless, Always-On Planning**

Luminate Planning bridges organizational silos and gaps in planning timeframes with “one version of the truth” and an integrated, workflow-based user experience. It is specifically designed to help close gaps between: 1) demand and supply planning; 2) the upstream and downstream suppliers and distribution channels; and 3) strategic operations planning and tactical supply chain execution.

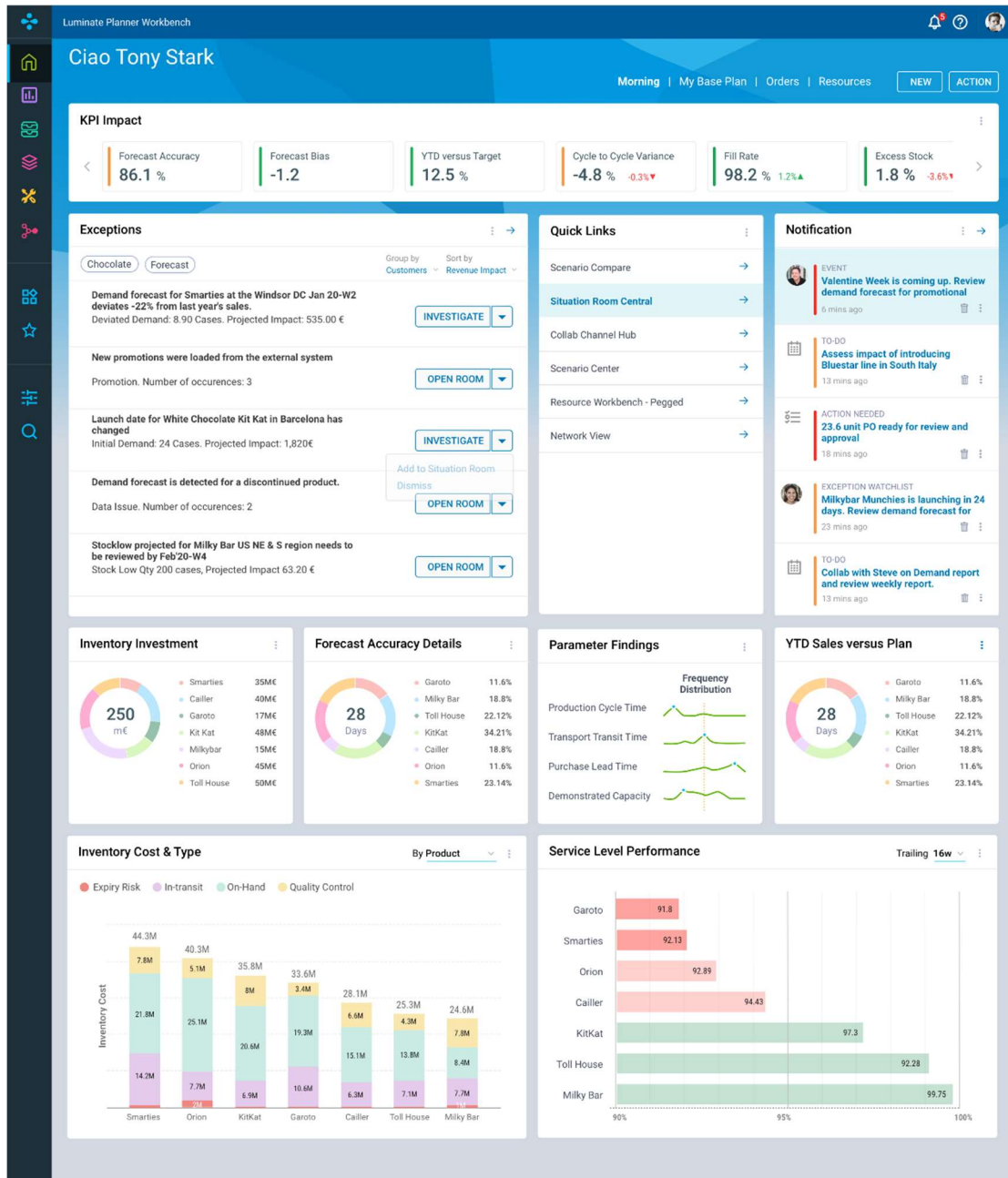
## **Pervasive Intelligence**

Luminate Planning provides pervasive intelligence through the power of machine learning, providing supply chain planners with cognitive digital assistance and recommendations for action. It improves planner productivity and provides more accurate forecasts, disruption predictions, dynamic segmentation, and exception prioritization.

## **Reimagined Luminate User Experience**

The day in life of planners is being transformed with the reimagined Luminate User Experience. Blue Yonder's new user experience is workflow-driven, where users can easily create situation rooms, collaborate, gain visibility and orchestration end-to-end, see potential disruptions and opportunities before they happen, receive prescriptive advice on appropriate actions, and maintain organizational learning.

# Highly Configurable Dashboard



The Blue Yonder Luminate Planning user interface makes it easy to navigate the planning workflow and visualize insights. It features a highly configurable dashboard that serves as a focal point for planners, displaying demand and supply performance information, as well as notifications, exceptions, and analytics, while enabling workflows to resolve exceptions, collaborate, and make decisions.

Luminate Planning turns the supply chain into a friction-free, end-to-end global commerce engine that helps you to profit more, waste less, and build a better planet using the industry's smartest end-to-end cognitive, connected and curated digital fulfillment platform.

For more information, see <https://blueyonder.com/solutions/luminate-planning>



# 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 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: Luminate Planning ROI Estimator

Blue Yonder commissioned Forrester to develop a [Luminate Planning ROI Estimator](#) that is based upon the Forrester Consulting TEI Study. The ROI tool can provide a high-level estimate of the Total Economic Impact of Blue Yonder Luminate Planning for organizations considering Luminate Planning (registration is required).

Two additional scenarios are provided below showing the ROI percentage and NPV, along with the results for the composite organization. The two scenarios have five attributes that vary from the composite organization: 1) annual revenue; 2) percent inventory planning managed by spreadsheets; 3) the number of planners using spreadsheets for planning; and 4) the number of planners using applications for planning (attributes from the estimator that remained constant are presented below the results for the two scenarios).

Luminate Planning ROI Estimator For Composite And Two Scenarios: ROI And NPV Calculation Table			
Metric	Scenario #1	Composite Org	Scenario #2
Annual organization revenue	\$1,000,000,000	\$10,000,000,000	\$20,000,000,000
Inventory item location count	1,500,000	15,000,000	30,000,000
% inventory planning managed by spreadsheets	40%	10%	10%
# planners using spreadsheets for planning	20	5	5
# planners using an application for planning	20	55	75
Estimated three-year return on investment (ROI %)	187%	524%	570%
Estimated three-year net present value (NPV)	\$9,555,146	\$108,988,655	\$219,867,970

Attributes that remained constant across the composite organization and the two scenarios are as follows:

Luminate Planning ROI Estimator For Composite And Two Scenarios: Common Values Table	
Metric	Common Values
Anticipated annual revenue growth	5%
Inventory as % of revenue	10%
Average operating margin	15%
Average historical stockout ratio as % of revenue	7.5%
Average dead inventory write-off as % of total inventory	2%
Average transportation costs as % of revenue	12%