



WHITE PAPER

# Intelligent forecasting and agile scenario planning

A comprehensive approach with accelerated time-to-value



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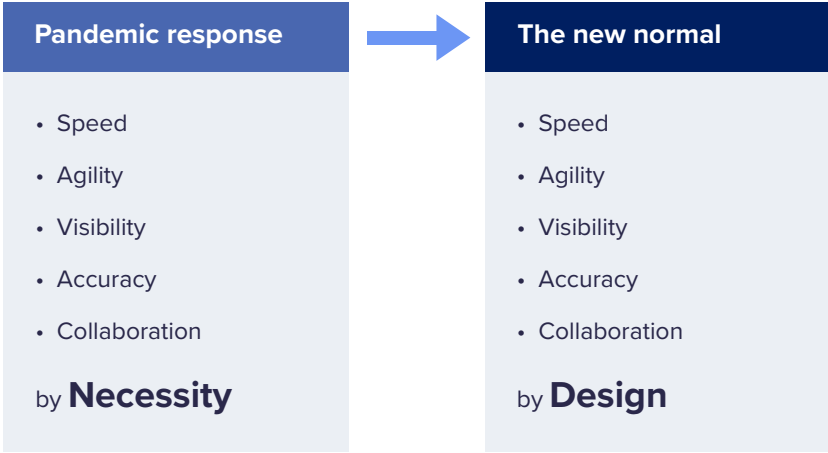
# The tipping point for digital transformation

There was a popular post on LinkedIn and Twitter some time back, with a question “Who led your company’s digital transformation?” The options included C-level titles, such as the CEO, CIO, Chief Digital Officer, and below that, the circled answer: COVID-19. Although digital transformation has been an ongoing journey for most companies, the pandemic response accelerated the shift to digital capabilities at a scale and speed we’ve never seen before. From remote working to new customer engagement models to reinvented supply chains, companies had to drive change in every area of their businesses.

The key themes for business success and resilience that emerged from the pandemic response were: speed, agility, visibility, accuracy, and collaboration. These are critical capabilities for planning and decision-making activities across finance, sales, supply chain, and workforce functions. Although these capabilities were shaped by necessity during the pandemic, on a best-effort basis, the path ahead requires companies to ingrain this into the new operating model ‘by design’, in order to ensure business success and resilience in the new normal.



Figure 1: Shaping planning and decision-making capabilities





# Defining attributes of the new normal

No one really knows what the next three, six, and 12 months will look like, other than the fact that we will continue to see swings in economic recoveries, public health indicators, government responses, consumer behavior, and business activity, at a global and regional level. The principal attribute is uncertainty over the next 12 months, but its ripple effects will transform companies, societies, and economies in more ways than we can possibly imagine or comprehend.

What companies can do to prepare is to better understand the implications for planning and decision-making, and systematically build these capabilities into their forecasting and planning processes. We therefore start by highlighting the key requirements and capabilities needed to support planning, forecasting, and performance orchestration in these uncertain times.

## Decision timescales

Embracing agility as a core tenet requires companies to empower business leaders to act decisively and fast. Agile decision-making practices allowing business leaders to adapt and improvise on the fly are here to stay for most companies, as is uncertainty. For finance and operations leaders, that means compressing planning cycles from quarters and months to weeks and days. Organizations that revert to old behaviors and processes—such as periodic, static, and siloed forecasts and plans—will be at high risk of not being able to recover from declines in revenue and market share for a long period of time.

## Scenario planning

Scenario planning is an essential process when dealing with uncertainty. It allows companies to steer clear of the false premise of a single forecast, or the risk of indecision or inaction, or not being able to pivot quickly enough. With economic, social, political, and public health conditions evolving on a daily basis, the need for robust scenario-based forecasting and planning has never been greater.

Companies need to assess the impact of various scenarios not just on financial metrics (revenue, costs, cash flow, and liquidity), but also operational measures (related to products, customers, workforce, supply chains, etc.). Furthermore, traditional categorization of scenarios such as “best-case”, “worst-case”, and “most-likely”, are no longer pertinent. Companies need to model, forecast, and plan for several very diverse scenarios, including edge cases and business continuity scenarios. This includes taking into consideration potential and dramatic political, economic, and public health risks. And, this whole process needs to be rapid and ongoing, and based on the latest external and internal data.

## Granular forecasts

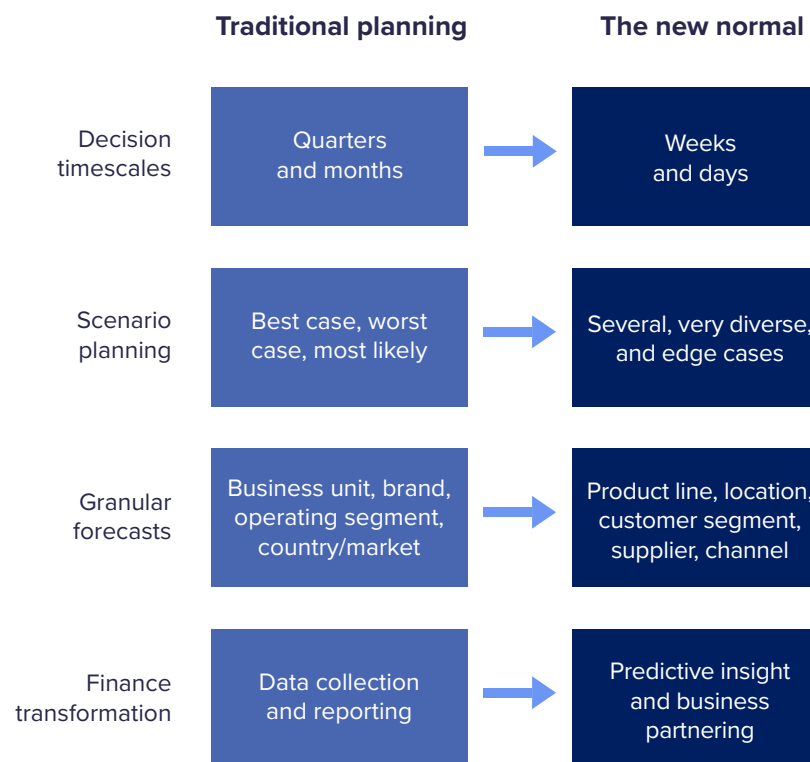
Most finance organizations have mature forecasting capabilities—such as driver-based and rolling forecasts—by business unit (BU), brand, operating segment, and country/market. A key takeaway from the pandemic was that granular forecasts—by product line, item, location, customer segment, supplier, channel, etc.—are more important than ever, for finance and operations teams. These insights are lost when forecasting only at aggregate levels, and not having this level of visibility or insight could result in major financial and operational challenges. For example, global supply chains are highly vulnerable to disruptions at a country or local level, and this can have a huge impact on the overall business and financial results.

## Finance transformation

In these challenging times, CFOs and their finance teams are at the center of helping companies balance disruption and recovery, predict and protect revenue, optimize workforce, and manage supply chain risk. Finance teams need to build confidence and trust with the C-suite and board, by providing wide-ranging forecasts and plans for multiple scenarios, and their impact on business performance. At the same time, finance teams need to work closely with HR, sales, and supply chain teams to operationalize these plans, monitor results closely, and continuously update forecasts and plans to manage business performance. And this needs to be linked back to corporate and business unit strategic plans.

This has truly been the tipping point for digital transformation in finance, accelerating the shift from data collection and reporting to predictive insight and business partnering, driving greater collaboration across functions, enabling businesses to be more agile, proactive, and resilient.

Figure 2: Defining attributes of the new normal



# Why a “complete solution” approach

Forecasting and planning needs have changed in every possible area—breadth, depth, speed, frequency, and accuracy—all of which are needed at the same time. Incremental improvements to current processes and temporary solutions merely trade off one benefit for another, and continue to strain resources. It is time to move to a truly scalable, intelligent end-to-end solution.

A complete solution approach addresses all of the requirements and capabilities needed to support forecasting and planning across the company in the new normal:

- Rapid and continuous forecasting and planning.
- Scenario-based forecasts with external and internal data.
- Granular forecasts and insights.
- Agile collaboration between finance and operations teams.

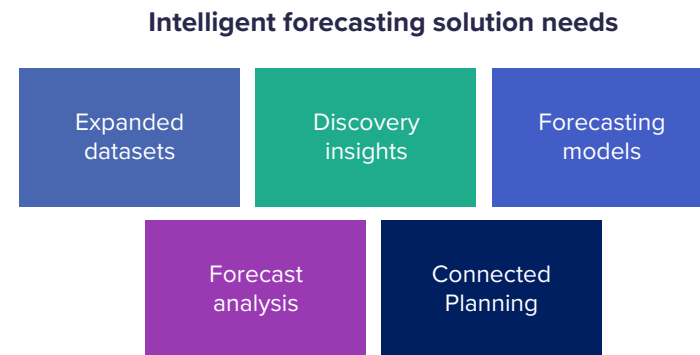
This particularly underscores the need for expanding input datasets to include real-time internal data, as well as relevant external data, leading indicators, and drivers. Inspecting and analyzing these datasets to identify key patterns, trends, and insights is a key next step. These expanded datasets and discovery insights significantly improve the performance and accuracy of predictive and AI/ML forecasting models. However, selecting the right forecast method or algorithm, based on the data and use case, is equally important.

All of these are areas that finance and operations teams struggle with, due to lack of in-house tools and specialized IT resources such as data scientists

and data engineers. On one hand, spreadsheet-based models have severe limitations to support intelligent forecasting and planning, in just about every area. On the other hand, a pure-play AI/ML platform tool is not the right solution either, because these tools are disconnected from the core forecasting and planning process. This creates more siloes and friction across the process, inhibiting speed, agility, and collaboration.

For all of these reasons, companies need to take an end-to-end or “complete solution” approach to intelligent forecasting and planning. This approach is illustrated in the figure below, and we will expand on each of its key components in the next section.

Figure 3: Intelligent forecasting complete solution approach





# Key components of intelligent forecasting

## Expanded datasets

Whereas traditional forecasting models largely extrapolate based on internal historical data, intelligent forecasting solutions leverage real-time internal data, as well as external data such as economic, consumer, and industry data. For example, in a post-pandemic world, consumer behavior will have changed and continue to evolve constantly based on economic, societal, political, and public health dynamics. Similarly, B2B buyer priorities have changed in many industries, including high-tech, manufacturing, healthcare, and business services. Unless companies are able to capture and incorporate these insights into their forecasting models, forecasts are likely to both be highly inaccurate as well as not provide the granular insights needed for important decisions. Capturing these external signals often require partnerships or integrations with third-party data sources.

## Discovery insights

As with any big-data problem, finding the intelligence in the data is a critical step. The volume, variety, and velocity of expanded internal and external datasets can often be too much for forecasting models to directly consume. Most companies therefore look to first pre-process or analyze these expanded datasets to find key patterns, trends, and leading indicators. An intelligent correlation engine is a key capability that helps identify the internal and external factors that have strong correlation with business metrics such as sales, volume, costs, and profitability.

Leading industries such as CPG and retail have always leveraged market and consumer insights to guide commercial and demand planning. In the new normal, this has now become a business imperative for all companies, as has incorporating these insights on a continuous basis, as opposed to periodic planning cycles.

## Forecasting methods

Companies use a variety of methods for different types of estimations or forecasts, including statistical, AI/ML, driver-based, rule-based, and applying expert judgement. When the algorithm or method selection is driven by a multi-method approach, based on the data and the use case, companies stand to benefit from improved forecast accuracy. However, in most companies the choice of method is largely driven by the availability of tools, and many organizations are still stuck with using spreadsheets for forecasting. Although this was a major limitation even in the pre-COVID times, continuing to use spreadsheet-based models for enterprise forecasting exacerbates financial and operational risks in the new normal. Using an intelligent forecasting engine that can inspect the data and automatically select the best forecasting algorithm enables finance and operations teams to handle an ever-increasing need for more timely, accurate, and granular forecasts.



## Forecast analysis

With the number and frequency of forecasts constantly increasing, forecasting teams need to be able to better analyze forecasts, track accuracy, and continuously improve forecasting models. Analytics such as variance analysis (plan vs. forecast vs. actuals), sensitivity analysis, explainability, accuracy (e.g. MAPE), and scenario analysis, are key requirements for most forecasting use cases today.

Furthermore, evaluating the accuracy of forecasting models over different time periods leveraging different datasets helps improve the performance of these models. This is especially an advantage with AI/ML forecast models, where forecast accuracy improves with more training data.

Scenario-based forecasts and analysis have become a mandatory forecasting practice for most finance and operations teams. Scenarios may be defined by any combination of assumptions, drivers, factors, and time periods. Forecasts for multiple scenarios are then continuously evaluated and updated based on changing external and internal factors.

Finally, planners need to be able to review forecasts, make adjustments, if necessary, based on qualitative factors and expert judgement, and submit forecasts for planning and decision-making.

## Connected Planning

Maintaining forecasting and planning processes on the same platform provides strategic and operational benefits such as greater speed, accuracy, visibility, and agility. Examples include sales forecasts connected to demand planning, revenue and opex forecasts connected to workforce planning, volume forecasts connected to call center planning, etc.

The corresponding forecasting and planning models leverage common datasets, hierarchies, drivers, scenarios, and other common metadata. These common datasets can be managed in a central planning repository, often referred to as a planning data hub.

As forecasts are updated, connected plans are also updated automatically. This allows finance and operations teams to spend less time on data collection, and more time on analysis, predictions, and decision-making. Connected forecasting and planning also enables finance teams to play a more effective role in business partnering, driving greater collaboration across functions, and rapidly moving from analysis to action.

Putting all of this together, what emerges is a blueprint for an end-to-end view of intelligent forecasting, shown in Figure 4, highlighting key components and capabilities.

Figure 4: Intelligent forecasting complete solution components

Expanded datasets	Discovery insights	Forecasting models	Forecast analysis	Connected Planning
<b>Internal</b> Finance Sales Supply Chain	Trends Correlations Leading indicators Drivers Benchmarks KPIs	Statistical AI/ML Driver-based Rule-based Multi-method Custom	Variances Sensitivity Explainability Accuracy Scenarios Adjustments	Finance Sales Supply Chain Marketing Workforce Customer service



# Application areas for intelligent forecasting

Forecasting and planning happen in every area of the business. Intelligent forecasting is especially a business imperative in areas where teams are being asked to push the envelope in every dimension—breadth, depth, speed, frequency, and accuracy—of forecasting and planning. We see this industry trend and business need in the following key application areas and use cases.

## Corporate FP&A

Corporate FP&A teams are responsible for developing, aggregating, and updating financial plans, budgets, and forecasts across the company's business and operating segments. Core use cases include long-range planning, annual operating plan, and monthly/quarterly/rolling forecasts for revenue, opex, capex, P&L, balance sheet, and cash flow. Regulated industries such as banking, insurance, healthcare, energy, telecom, and others may have additional forecasting use cases for compliance purposes.

With FP&A teams being asked to provide more forecasts, more frequently for C-level, board, and investor guidance, intelligent forecasting can considerably speed up the process of producing baseline forecasts. These forecasts can then be supplemented with additional analysis of variances, scenarios, risks, and opportunities, to inform planning and decision-making.

## Business unit (BU) FP&A

BU FP&A teams are responsible for developing and updating business unit- or operating segment-specific plans, budgets, forecasts, and management reports. Core use cases—long-range plans, annual operating plans, and monthly/quarterly/rolling forecasts—need to interlock with corporate-level financial plans, including aligning on definitions, hierarchies, drivers, and scenarios.

At the same time, BU FP&A teams need a lot of flexibility to be able to plan and forecast at a much more granular level using advanced modeling and predictive methods, across a wider range of financial and operational metrics, and for different types of operating segments, such as by:

- Line of business: e.g. banking, insurance, asset management, etc.
- Business model: e.g. B2C, B2B, B2B2C
- Type of operating segment: e.g. revenue center, cost center, or profit center
- Operating segment by country/region

The current environment has accelerated the transformation of FP&A from past reflection to predictive insight and business partnering. This requires finance teams to work a lot more closely with sales, marketing, supply chain, and HR teams to develop forecasts, monitor results closely, and continuously update forecasts and plans to manage business performance.

Intelligent forecasting therefore becomes an indispensable tool for BU FP&A teams to better support the business functions and orchestrate business performance.



## Sales forecasting

Sales forecasts are the starting point and connective tissue for all other forecasts—revenue, opex, workforce, supply chain—and related planning activities. Sales guidance drives the rest of the business plan. Improving the accuracy of sales forecasts therefore drives performance improvements throughout the organization.

The COVID-19 pandemic has shifted consumer and business buying behavior in the near-term indeed, but its lasting consequences will remain for a long period of time. Industries such as retail, travel and hospitality, real estate, consumer services, and business services will likely see lasting uncertainty in sales and revenue. Traditional sales forecasting models based on historical data and trends are not compatible with the new normal. Incorporating external data and insights, multi-method forecasting, dynamic and collaborative adjustments, and scenario-based forecasts and adjustments at a granular level are all must-have capabilities for sales forecasting.

B2C and B2B sales forecasting processes are very different, but they both stand to benefit from all of the above intelligent forecasting capabilities. In addition, connecting sales forecasts dynamically to finance, marketing, and supply chain planning allows both B2C and B2B organizations truly leverage the value from intelligent forecasting.

## Demand management

Supply chain agility has emerged as a top priority for companies, now more than ever, to protect and grow revenue and margins. The pandemic exposed critical gaps in supply chain planning capabilities for most companies—especially the lack of agility, visibility, and collaboration—across demand planning, sales and operations planning (S&OP), and supply planning areas.

Global uncertainty continues to drive change in consumer, business, and government response at a pace and scale we've never seen before. As a result, accurately forecasting demand for products and services is extremely hard, rendering traditional demand planning approaches obsolete. Companies are therefore shifting to an integrated demand management approach, which brings together demand planning, demand sensing, demand shaping, and sales and operations planning, into a unified process.

The diminishing value of traditional demand planning and history-based statistical modeling underscores the need for intelligent forecasting, which integrates external and internal data and insights, AI/ML algorithms, scenario modeling, forecast value added (FVA) analysis, and collaboration across demand management processes. This creates a path forward for companies to achieve new levels of insight, foresight, and oversight in demand management, significantly improving forecast accuracy, and supply chain agility and resilience.

## Workforce planning

Workforce-related costs account for the largest share of operating expense for most companies. Accurately forecasting workforce demand and optimizing capacity and resourcing is therefore a top priority for finance and HR departments. The headcount forecast is a key input to revenue plans, opex forecasts, business unit plans, operational plans, and agile/continuous planning and decision-making.

In today's environment, HR and finance leaders are tasked with making tough workforce-related decisions at a rapid pace amid constant change. Understanding drivers and impact at a granular level are key requirements for capacity and resource planning. Companies also need more external data and insights—such as economic data, public health data, and customer insights—for almost all workforce planning and forecasting use cases.

A key example is call center planning. Traditional call center forecasting tools largely model based on historical volume and internal factors. Poor forecast accuracy results in overstaffing or understaffing, which in turn results in higher costs or bad customer service. Intelligent forecasting leveraging real-time data and insights from sales, marketing, finance, HR, and external sources helps improve forecast accuracy, reduce costs, and enhance the customer experience.

Strategic and forward-thinking C-suite executives champion a mandate for intelligent forecasting and planning spanning these core areas, with finance playing a central role in driving the overall strategy, roadmap, and capabilities across these areas.

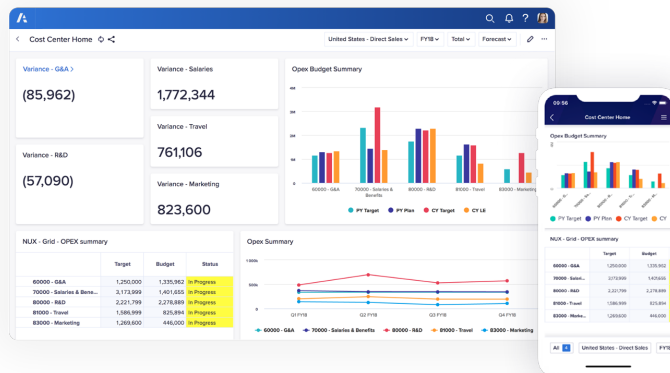
Figure 5: Intelligent forecasting key application areas



# The Anaplan platform: optimized for intelligent forecasting

As a purpose-built platform for Connected Planning, Anaplan's unified platform connects data, people, and plans across the business to enable dynamic, collaborative, and intelligent forecasting and planning. This represents a paradigm shift from the traditional approach to forecasting and planning, where departments and teams use a patchwork of disconnected tools and manual processes that are overly complex, slow, inefficient, and error-prone. Key attributes of the Anaplan platform that address today's challenges and needs include powerful modeling capabilities, embedded intelligence, engaging user experience, enterprise scalability, and a highly extensible ecosystem. Specific capabilities and solution components optimized for intelligent forecasting include:

- Modeling with expanded datasets.
- Intelligence.
- User experience and collaboration.
- Complete solutions.



## Modeling with expanded datasets

Anaplan's HyperModel™ technology combined with a powerful in-memory calculation engine empowers teams to combine large amounts (billions of data points) of external data with internal historical data to develop more accurate, granular, and dynamic forecasts. It also enables scenario modeling and planning with expanded datasets, and any number of dimensions such as time, location, product, customer, channel, expense, etc. These capabilities allow organizations to quickly anticipate complex external changes and assess the impact on operational and financial metrics.

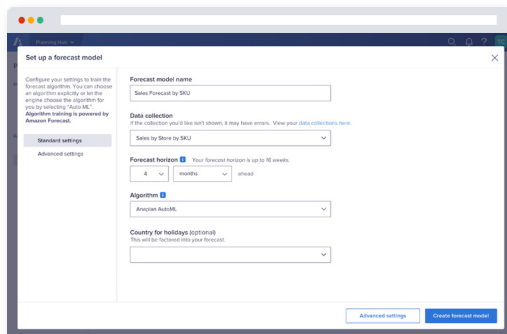
Empowering cross-functional teams (finance, sales, and supply chain) to combine their datasets, and collaborate by leveraging a single source of truth, drives greater speed, visibility, and forecast accuracy.

Anaplan's HyperModeling™ capabilities aggregate our large data sets in one model, making it easier to analyze trends, spot opportunities, and create agile forecasts for all products in the market. — Unilever

## Intelligence

A core tenet of Anaplan's "intelligence" strategy is business user ready, intuitive, UI-driven capabilities. Users can leverage over 30 predictive forecasting algorithms and select the best-fit method, based on the data and the use case. Users can also leverage Anaplan's Optimizer function to analyze hundreds of variables and constraints and let optimization and ML capabilities solve for an optimal answer, such as maximizing yield or minimizing costs. Anaplan Predictive Insights captures and analyzes millions of external data points and leading indicators, and uses AI and ML algorithms to predict buyer intent, enabling intelligent sales forecasting and sales planning.

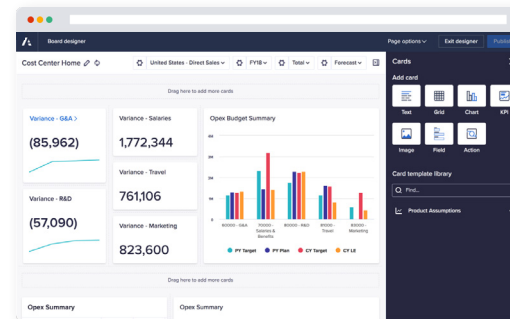
Anaplan PlanIQ™ enables seamless integration with third-party AI/ML platforms and custom ML models, allowing customers to leverage their investments in these tools and integrate into their forecasting and planning processes. Anaplan PlanIQ with Amazon Forecast combines the powerful Connected Planning platform from Anaplan with the intelligent AI, ML, and deep learning capabilities from Amazon to generate precise future forecasts, fast. PlanIQ with Amazon Forecast enables teams across supply chain, sales, finance, and human resources to improve the accuracy of their predictions, make forecasting more accessible to business users, and automatically track new insights for optimized decision-making.



## User experience and collaboration

A critical success factor for intelligent forecasting solutions is engaging the right users, at the right time, with the right insights, to enable rapid forecasting and planning. Anaplan's engaging user experience allows teams to personalize user views—from discovery to scenarios and forecasts, to analysis and planning—specific to a use case or user persona. Key participants and decision makers such as finance leaders, sales leaders, and supply chain leaders, can have their own personalized views, while enabling cross-functional collaboration, process orchestration, and intelligent automation. Companies can also collaborate on the same platform with partners, customers, and suppliers.

This collaborative and process-centric approach is a key driver of efficiency and effectiveness for forecasting and planning.



Anaplan has transformed how we work and collaborate, enabling agile planning.

— Microsoft

## Complete solutions

Anaplan provides complete solutions for intelligent forecasting and planning in all of the key areas identified in this whitepaper: finance, sales, supply chain, workforce, and customer service. Each of these solutions take an end-to-end view of the forecasting process, from expanded datasets, to scenarios and forecasts, to analysis and planning. This approach eliminates siloes and friction across the process, empowers teams with the right data and insights, and enables organizations to rapidly move from analysis to action.

The complete solution approach combines the best of both worlds:

- Allows teams to leverage all of the horizontal platform capabilities, such as modeling with expanded datasets, predictive and AI/ML functions, user experience and collaboration.
- Accelerates time to value with unified solutions for corporate FP&A, business unit FP&A, sales forecasting, demand management, and workforce planning.



Increasingly, value isn't driven by knowing how things work. It's driven by knowing how things work together.

— Unum

## Conclusion

Orchestrating business performance today requires new levels of agility, insight, and collaboration across financial and operational planning activities. CFOs and their finance teams are at the center of helping companies balance disruption and recovery, predict and protect revenue, optimize workforce and costs, and manage supply chain risk. Intelligent forecasting and agile scenario planning capabilities are critical for all planning and decision-making in today's environment. A complete solution approach accelerates time-to-value by eliminating siloes, friction, and complexity across forecasting and planning processes.

Key application areas for intelligent forecasting include corporate and business unit FP&A, sales forecasting, demand management, and workforce planning. Strategic and forward-thinking C-suite executives champion a mandate for intelligent forecasting and planning spanning these core areas, with finance playing a central role in driving the overall strategy, roadmap, and capabilities.

Anaplan's platform combines powerful modeling capabilities, embedded intelligence, engaging user experience, enterprise scalability and extensibility, and unified solutions for finance, sales, supply chain, and workforce planning use cases. This approach combines the best of both worlds—best-in-class platform capabilities for intelligent forecasting and unified solutions for financial and operational planning. This provides an accelerated path forward for companies to achieve new levels of performance orchestration to ensure business success and resilience in the new normal.

# About Anaplan

Anaplan, Inc. (NYSE: PLAN) is a cloud-native enterprise SaaS company helping global enterprises orchestrate business performance. Leaders across industries rely on our platform—powered by our proprietary Hyperblock® technology—to connect teams, systems, and insights from across their organizations to continuously adapt to change, transform how they operate, and reinvent value creation. Based in San Francisco, Anaplan has over 20 offices globally, 175 partners and approximately 1,500 customers worldwide.

To learn more, visit [anaplan.com](https://anaplan.com)

