



ASSOCIATION FOR  
FINANCIAL  
PROFESSIONALS

AFP® GUIDE TO

# Driver-based Modeling and How it Works

FP&A Guide Series

Issue 11





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PROFESSIONALS

# AFP® GUIDE TO Driver-based Modeling and How it Works

## FP&A Guide Series

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## Introduction

Facing greater market volatility, a fast-changing business environment, and a constant push from senior management to improve the planning process, more FP&A teams are incorporating driver-based modeling into their forecasting methodology. “Technically, the definition [of a driver-based model] is building a model that has any kind of calculation that references some other variable, i.e., a driver,” said Mitch Max, CEO and president of BetterVu.

In the case of FP&A specifically, according to Sholape Kolawole, EPM transformation associate principal at The Hackett Group, “Driver-based modeling is a way to leverage operational metrics that have a mathematical relationship with financial outcomes, particularly revenue or expense items in the P&L or the balance sheet.” Thus, he said, “driver-based planning is the process of using those metrics to drive outcomes. It’s about what moves the needle and identifying the operational/financial relationships.”

According to Pras Chatterjee, senior director of product marketing at SAP for Enterprise Performance Management, the key is to look at the number and metrics and identify what they’re comprised of. “Numbers are not just absolute,” he said. “You’ve got to understand the different variables that comprise the numbers and see how granular you need to go based on those drivers.” Price X quantity is the most basic model. “But you can go deeper than that,” he said. “For example, look at turnover, sales-force attrition, etc.”

For FP&A, the concept brings a multitude of benefits. Not only does it help the group increase the frequency and accuracy of the forecast, but it also engenders closer collaboration with business leadership. After all, while finance must lead the effort, it cannot uncover key drivers all by itself. It needs to work

directly with business owners to identify the drivers that have the most impact on financial performance. In addition, driver-based models give finance the ability to better support management decision-making and provide actionable information. As FP&A professionals seek a more strategic role in the organization, they can add tremendous value by providing critical business-driver data to management with plenty of time to take action to change and improve corporate performance.

“One reason we see an uptick is that companies are dealing with a lot of uncertainty and volatility,” said David Axson, managing director of Accenture’s Strategy, CFO & Enterprise Value practice. “Historically, companies used historic data to trend their financial budgets and forecasts. They used last year’s data to predict next year’s performance. That’s no longer sufficient,” he said. “Companies need to look at activity that’s occurring now to see what’s driving financial performance in the future.”

Ultimately, as more companies move to a rolling forecast, realizing it’s no longer sufficient to look forward only to the end of the year, driver-based models will become more commonplace. Simply looking out 12 months does not give companies enough time to course-correct, as the recent AFP FP&A Guide, “Implementing a Rolling Forecast: Success Factors and Pitfalls,” outlined. A rolling forecast allows FP&A professionals to play a leading role in strategic discussions and communications by providing management with a range of possibilities that are dependent on market conditions or the actions of competitors. The benefits they provide increase lead time for senior management, thus allowing executives to make important decisions on how to allocate key resources in order to drive continued profitability.

## What is driver-based modeling?

“Driver-based modeling and planning use operational drivers to predict financial results,” said Philip Peck, vice president of Financial Transformation at consulting firm Peloton. These models are essentially equations that represent mathematical relationships between key operational drivers (e.g., volume, rates, conversion ratios, brand awareness, etc.) and anticipated financial outcomes.

In the process of creating a driver model, a business translates financial metrics, such as labor costs, into a series of operational metrics, which may include volume, headcount, overtime, throughput, and quality. “The core idea is to identify independent variables that allow you to plan and forecast the dependent variable or outcome measures,” Peck explained. “Focusing on those operational drivers enables an organization to understand, plan around, and influence those critical elements that have the greatest impact on financial performance,” he said.

According to Craig Schiff, owner of consultancy BPM Partners, scenario modeling, which basically includes different versions of the drivers, is closely linked to driver-based modeling. “For most companies there’s a base case, e.g., we’ll grow unit sales by X%, then there’s a best case and a worse case,” he said. As the company moves through the year, it can adjust planning and operations by sliding into these different scenarios by adjusting the drivers.” By identifying the drivers and being able to tweak them based on predetermined scenarios, “the business can be prepared to run in different ways,” he said. “This is a key component of driver-based modeling — use multiple versions of it to drive decisions.”

Driver-based models are also tied to key performance indicators (KPIs). Drivers fall under the banner of performance management and enterprise planning, according to Schiff. “While KPIs are in a world unto themselves, they are measures that help companies know how to achieve their goals. They therefore should be very similar to the business drivers of the driver-based models. It’s what matters in the business,” Schiff explained. “All of these elements go hand in hand.”

According to Tony Levy, business unit executive of Business Analytics at IBM Software Group, if a consumer packaged-goods company is looking

at revenue, a driver model might look at the baseline volume (historical trend), plus the activity volume (current or future initiatives/promotions) multiplied by price, minus discounts. “That can be very simple or a little more complex,” Levy said. What’s important is to separate baseline volume from activity-based volume, according to Levy. Most businesses can use historical data to extrapolate the baseline volume. But that number doesn’t know anything about the volume that’s a result of current or future promotions and marketing initiatives. It’s the sum of both that makes up the unit volume forecast.

Another possible sales model might use a formula that takes the number of sales opportunities (# opportunities) X the average size of those opportunities (\$/opportunity) X the win conversion rate (%), which equals the sales forecast, Levy explained. Models can also apply to the cost side. “Most often the drivers are operational in nature,” he said. “Through the model, we take the operational cause and model the financial effect. The output of the model is often a financial measure.”

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According to Vic Datta, CEO of consulting firm Resilicore, “It [driver-based modeling] is about the relationship between revenue-generating activity and the costs associated with those activities.” In the current environment that may mean a staffing requirement per 100 customers. That’s a driver of cost or efficiency. “Those models integrate the planning process across the enterprise. They bring

the connection between actions and business activity in various parts in the organization together,” he said. “In many companies, those activities are siloed. People want to own their processes. They’re not taking a cross-organizational approach.”

According to Axson, the trick is identifying the items that directly impact or “drive” the financial results. By the time the results of a market or operational event hits the P&L or balance sheet, it’s too late to do anything about it. The driver is an element such as an event that occurs in the marketplace or business decisions made that resulted in those financial outcomes. For example, each sale starts with a call inquiry, an RFP, someone walking into the shop or logging onto the website. All of these are drivers of sales. They are the reasons a company would see an uptick, or downtrend, in their sales figures and hence revenue.

Not everyone needs to use it. “Driver-based modeling is often approached at the corporate level, not in the depth of the organization,” said Jeff Wuest, president and CEO of consulting firm SynFin and an ex-P&G FP&A practitioner. “It enables the high-level view of a multibillion organization and an understanding of the company from a geographic and business standpoint, allowing a volume-driven, decision-based forecasting and budgeting process at the consolidated level. The high-level driver model lets FP&A see what changes in the key business drivers affect the overall forecast.”

According to Wuest, the approach focuses on the creation of the forecast and the budget by focusing on the drivers that have the biggest impact on results. The process should include involving experts with the knowledge to identify those drivers outside and inside of finance. “Finance corrals them together to make sure that experts, particularly outside finance, understand the benefits of driver-based modeling and buy into it,” said Wuest.

While driver-based modeling is not a new concept, according to Peck, with the advent of big data, predictive analytics, near-real-time access to data and information, and more advanced analytics tools and applications, these same driver models can be enhanced and extended by taking advantage of the volume, variety, and velocity associated with big data and non-traditional data sources.

## **Case Study 1:**

### **Tufts Health Plan**

**At Tufts Health Plan, driver-based models underpin the forecasting and planning cycle. They help FP&A and management to understand and manage expected revenue and expenses with plenty of lead time. That’s particularly important as the healthcare company faces a more volatile and competitive market environment.**

“Driver-based modeling is understanding the key operational metrics of the business and using those to project forward the company’s cost or revenue structure,” said David Mann, director of Financial Planning and Performance at Insurer Tufts Health Plan. Mann has always relied on models to help think about the business. It was especially the case when he was head of FP&A at a fast-growing SAAS company, where the company had to focus on the entire customer acquisition funnel — from lead generation forward.

At Tufts, Mann relies on driver-based modeling in the forecasting and planning cycle to figure out expected revenues and manage expenses. Driver-based models are also integral to his sensitivity analysis work in areas that experience more volatility, e.g., a high-growth market or new markets. “Using driver-based modeling is particularly effective in areas of high levels of variability,” Mann said.

To identify the right drivers requires work on multiple facets, according to Mann. First, it’s about collaborating with frontline stakeholders. “It’s working across the business to identify similar drivers,” he said. In the case of customers, he works with a large customer support team. The other factor is materiality. “The question is: What are the drivers that really impact revenue and expenses?” he said. “What are the things that really make a big difference?”

At Tufts, which is in the health insurance space, identifying the right drivers typically starts with how many members are using the product. Next, they look at what they’re paying the company year over year. “I look at medical cost ratios as well to see how those are

changing,” he said. “For example, the percent of medical cost vs. premiums.”

That sort of analysis is part of the day-to-day work of FP&A and its monthly forecasting process. “You have to be cautious when looking at driver trends over time,” said Mann. “You have to be careful to tease out the difference between systemic changes and one-off events.” For example, last winter the company saw medical costs fall and profits rise in the Northeast. As it turned out, the trend was a product of the bad weather experienced in the region that winter — weather so bad that it prevented people from going to the doctor. Obviously, this wasn’t a long-term trend. “It was a false alarm,” he said.

Mann has found a number of benefits to this model-based approach. Perhaps the biggest, he noted, is increased efficiency: “It allows me to do sensitivity analysis more quickly. I can validate the numbers, and understand the assumptions,” he said. Another primary benefit is that it allows him to have a better conversation about the business with its various stakeholders. The conversation is no longer about absolute dollars, now it’s about the indicators and drivers of their operations.

But getting to these benefits can take some time and effort. Finance and operations need to work closely together. There are other considerations, however, such as the quality of the operational data, whether other stakeholders are looking at the business in the right way and identifying the right drivers, and whether the company’s leadership is comfortable having the conversation about integrating drivers and finance. “That’s a cultural component,” said Mann.

For companies seeking to adopt a driver-based modeling approach, Mann had this advice: “Keep it simple and focus on the things that are most material; there’s no need to boil the ocean,” he said. “Seek stakeholder alignment and have a good plan as to what you’re going to approach first.”

## Is driver-based modeling more popular?

“The concept of driver-based modeling and planning is definitely not new, and in various forms has been used for quite a while,” reported Peck. “That said, given the imperative in today’s increasingly complex and uncertain environment to deliver improved business insights, faster cycle times, enhanced ‘what-if’ modeling capabilities, and for FP&A to be a true business partner, organizations are increasingly looking to adopt, systematically implement, and institutionalize driver modeling principles in their organizations,” he said.

Without these models, companies cannot become the agile organizations they need to become in order to succeed in today’s environment. “Driver models are essential to support the movement toward more dynamic planning, i.e., being faster and more agile around adjusting and modifying the plans, budgets, and forecasts using more advanced analytical techniques, and leveraging predictive models (driver models) to improve the quality and accuracy of forecast outputs,” said Peck.

According to Madison Laird, CEO of Aglytyx, while companies have been building models for some time, they may not have labeled them as such. What is changing, however, is not the popularity of the models, but their accuracy and efficacy. “That has improved and will continue to improve,” said Laird, “as our understanding of business drivers increases.” That’s particularly true in the area of the quantification of the effects of these drivers on financial results. “As those improve, our confidence in our driver-based models will improve as well,” Laird said.

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According to a 2015 study by The Hackett Group, 78 percent of companies rely on driver-based planning.

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According to a 2015 study by The Hackett Group, 78 percent of companies rely on driver-based planning. The survey also showed that top performers typically leverage the methodology toward revenue and gross margin, and less so for expenses. That’s not

to say FP&A can't apply it to expenses. The Hackett Group is currently working with a client from the asset management industry that has a keen interest in controlling expenses, because its revenues are chiefly market based. Clearly there are more opportunities for companies to use driver-based modeling in forecasting and planning expenses.

IBM has found a similar trend. "We've been talking about driver-based modeling forever," Levy noted. "Anecdotal evidence suggests that more companies are using the approach," he said. In the past, when he asked for a show of hands, 25 percent would indicate that they were using driver-based modeling. "Now it's 75 percent," he said. "That begs the question, why not 100 percent?"

By looking at BPM Partners' older data, Schiff noted that while driver-based modeling was always talked about, the adoption wasn't there. In the past year especially, that has changed. "People knew about it and spoke about it," he said. "Now it's everywhere."

Either companies are doing it or wanting to do it. "People come to us when they're trying to get a new technology to automate — as they're coming off a spreadsheet environment," said Schiff. "Driver-based modeling is something that they often can't accomplish with their current system. It's a reason to look to technology to try to move forward, either because it's something they'd like to do or because they are doing it painfully and want to do it more easily," he said. "Across the board, companies are either using driver-based models or they intend to; it's important to people."

The reason adoption and interest are so widespread is that people are trying to forecast more frequently, according to Schiff. "People are moving at the extreme to continuous forecasting, or at least to more frequent forecasting," he said. "That's much easier to do with driver-based models." Those forecasts don't have to go into such deep detail, and they can be more easily updated on a regular basis. "Since business is changing at a much faster pace, companies need to more frequently update their assumptions," said Schiff. "Driver-based modeling is an ideal tool to accomplish that."

Another reason driver-based models are more popular, according Wuest, is the increasing availability and visibility of data that's enabled by

greater adoption of ERPs and other technologies. Still, he noted, skepticism remains. "Some companies are not sure how to gain access to the key drivers, while others are so ingrained in their traditional fixed process they simply cannot see how to change. The companies that have done this best are rich in data and make sure that they integrate operational budget and forecasting with their FP&A process," he said.

According to Max, driver-based modeling is used more often is large part because the technology to enable it is now available and affordable, particularly in multi-dimensional scale over a time series. The technology allows companies to build a transparent calculation model, and to separate the calculation into rates and drivers. As a result, Max sees a lot less resistance to its adoption, compared to the use of Excel where multiple, complex formulae are needed.

Working at SAP with their planning solutions, Chatterjee definitely sees greater interest in driver-based models. "The question we often get is how many calculations we can do? Can we access information in real time?" he said. "Companies want to bring the calculation into their planning environment and are interested in how seamless and real-time it can be," he added.

## When is driver-based modeling applicable?

According to Max, forecasting is one of the first areas where driver-based models can be applied. "As a basic example, if I'm forecasting a product or series of products, and have a price, the driver is typically volume; it's a simple metric calculation of rate multiplied by volume. It's applicable in many volume-sensitive calculations, but it can also be used for non-volume-sensitive items, for example, you can apply a driver-based calculation to payroll and multiply by average salary," Max said.

"What's important is the level of detail. Even drivers have different levels of detail," The Hackett Group's Kolawole said. The level of detail should be aligned with its applicability to each planning cycle. For example, a quick monthly forecast or the strategic plan would call for a less-detailed driver approach.

According to Datta, "The models enable the company to move away from allocation-based

## Breaking the Model Down

According to IBM's Levy, there are at least three types of models that feed into the company's planning process:

### 1. The human model.

That one is based on human judgment and requires an expert. It's cumbersome and biased.

### 2. The driver-based model.

This model is forward-looking and based on live data.

### 3. The statistical model.

These models are based on historical data that can be used to generate forecasts. Their benefit is that they may be simpler than a driver-based model. They rely on historical data to discover a pattern.

Baseline volume can be derived from a statistical model based on trailing 12-24 months of historical data. However, activity-based volume may be based on human judgment that is aware of the relevant marketing initiatives impacting future periods. "Then you can bring it together with a mathematical, driver-based model," he said. "A good forecast uses all three modeling techniques."

budgeting to a more anticipatory approach, with an 'activity-based' costing approach as the precursor. Driver-based models are outcome based, rather than the more traditional inward-looking models."

That's what the Japanese have done for years, according to Datta. "They'd look at what the market would spend, a lot of time at the front end, looking at the competitive aspects of pricing and how much they can achieve when they first introduce a product or move up the food chain," he said. "Then they'd work that backward, i.e., what operating margins they need to cover their cost and how much profit they need to cover

the cost of production," he said. "Many companies tend to do that calculation from the ground up."

According to Datta, that's the worst way to look at it. "If you do it that way, you lose the connection to your pricing strategy and unintentionally make your costs more fixed," he said. "Drivers allow you to say: 'if I can create more at a market bearing price and cost structure, customers will presumably buy more, which gives me greater resilience when the market is soft.'"

But driver-based models may not work everywhere. Schiff said that he thinks driver-based modeling is very applicable in the forecasting and long-range planning processes in FP&A, but less so in the detailed budgeting process. "When you look at budgeting, it's not ideal," he said. "The budget includes very detailed expenses and revenue lines for the year," he said, "whereas driver-based models are better suited to higher-level, quicker and more frequent forecast and planning processes." Budgeting often involves mapping expenses by area, by month. A true driver-based model won't produce these results.

"Driver-based planning is not applicable in every circumstance," Axson said. FP&A needs to understand those elements of the financial statements that are influenced by changes in drivers." For example, because rent is a fixed number, it may not be a driver-based outcome. "Driver-based planning is best suited for outcomes that are volume and price variable. For example, they may be less applicable for companies that are very capital intensive and therefore have high fixed costs," said Axson.

## Case Study 2:

### Marco's Franchising, LLC

At restaurant chain Marco's Franchising, driver-based models have been used for years. What's changed is how sophisticated the models are, given new access to data and technology. The search for key drivers goes beneath the surface, to the business unit and product level. However, Marco's avoids getting bogged down in details, focusing instead on the key income statement items.

Driver-based modeling involves breaking down and identifying what the key contributing factors are to particular line items, whether they're an expense, revenue, or cash flow, and

whether they're on the balance sheet or income statement, according to Jim Boswell, director of Financial Planning and Analysis at Marco's Franchising. "Once you understand what the underlying factors — or drivers — of a line item are, it is a matter of collecting the data, which ultimately leads to producing the numbers that appear in the financial statement forecast," he said.

To forecast sales accurately goes beyond the number of units. The company also needs to know what business each unit is coming from, sales prices and possible external factors. "The abundance of data available to an FP&A professional typically allows her to gather these components easily to build a revenue forecast," explained Boswell. "The same goes for expenses." According to Boswell, data is increasingly being used from both internal and external sources such as macroeconomic factors, e.g., the price of fuel.

Marco's has been using driver-based models for years, since the proliferation of spreadsheets. What has changed is the level of sophistication driven by the available data. "I learned the more you employ driver-based modeling, the more you want to break it down into smaller and smaller chunks in the hopes of increasing accuracy," said Boswell. Yet he cautioned companies not to dig too deep or lose their way. "It's an art to find a balance between how detailed you get and when that detail stops adding value to the model," he explained. "I find a good rule of thumb is to ask myself: Can I easily explain my model to someone who hasn't been in the details like I have?"

He suggested that companies start by concentrating on the income statement and avoid attempting to identify drivers for every line item. "Take the ones that have the most impact on your business," he said. Not only because trying to do everything will bog FP&A down, but because it introduces more opportunity for error.

To identify the right drivers, FP&A needs to work with all relevant stakeholders. In the case of revenue, identifying the drivers may be easy. "But FP&A doesn't always know all the right

drivers. They have to admit that," he said.

"It should be a collaborative effort," Boswell said. "Include marketing and operations as well. It's important to have everybody's view point and keep the models dynamic as the business changes over time." When you are building a model you should always try to anticipate what changes might be needed to the model in the future.

At Marco's, FP&A on the revenue side begins with average unit sales for the prior year for each location. To account for the many different store locations, they incorporate external economic data about consumer and industry trends, and apply the seasonality of the business. "Once all of those drivers are brought together, you can start to get really educated guesses about where sales and revenue will end up." The driver-based models are thus used continuously in the forecasting process. "We are constantly using and improving the models," Boswell said.

The benefit, as long as you find the right balance between a model that is too detailed and one that is too broad, is that it improves forecast accuracy, which translates to a bottom line impact, according to Boswell. "When you have a good idea of what your sales and revenues are going to be by using the drivers, you can staff accordingly, apply the right capital to the right resources, etc. That in turn helps management make better decisions, which improves financial performance and profitability," he said. Driver-based models allow companies to better manage risk, and naturally lend themselves to scenario analysis. To continue with the revenue example, a manager would be able to ask, "What happens when fuel prices increase by 5 percent?" If this is a driver in your model, you would be able to quickly add the increase and see the potential impact.

A potential pitfall is not having the right people or tools. "You are limited by the tools that you have, whether those are human or technical resources," Boswell noted. "You have to have people who can do the analytics and communicate with other departments to find out what the drivers are and then incorporate those into the forecast; and you have to have the right technology to capture the data you need."

## How to identify the right drivers

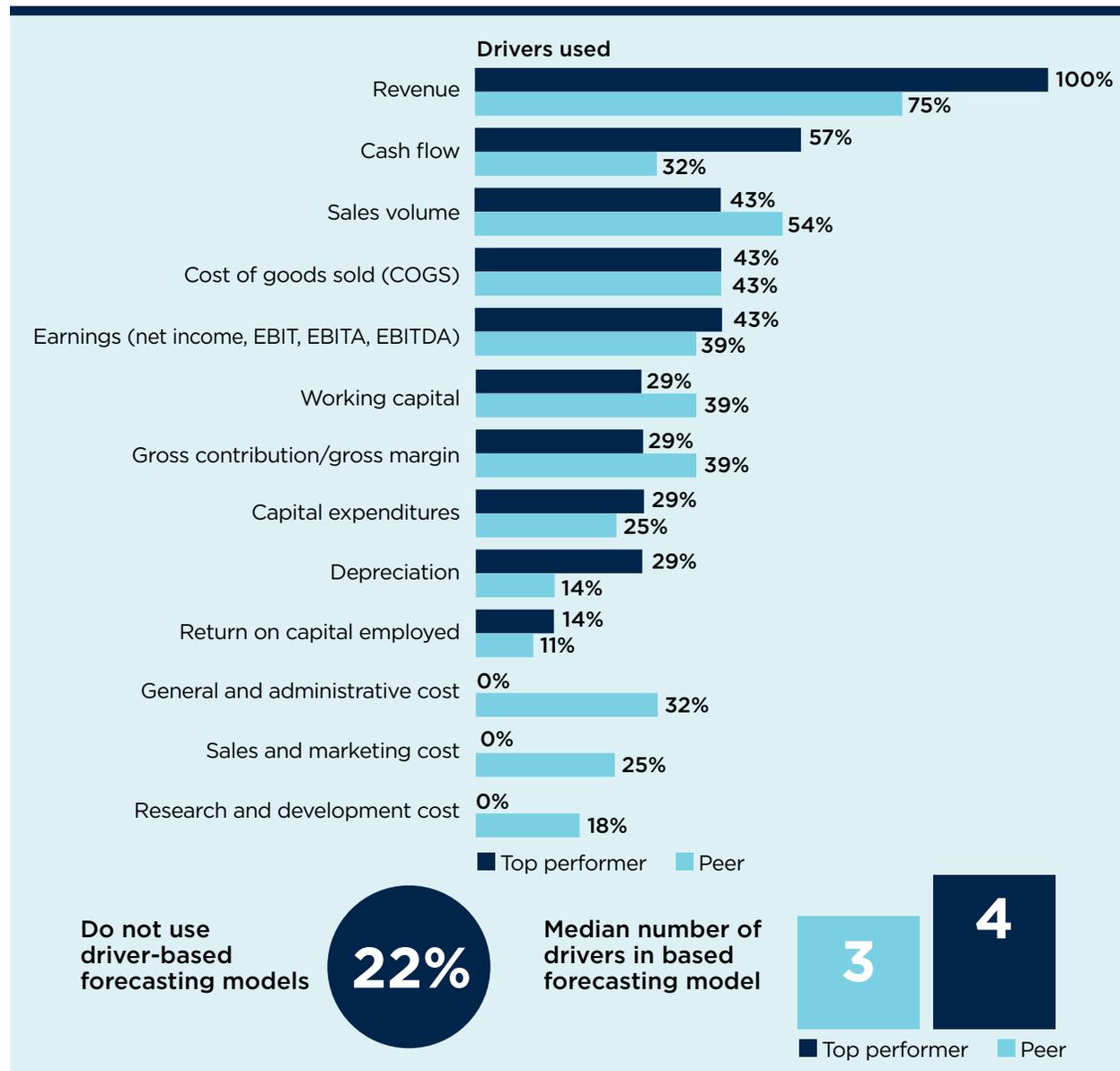
Before companies even start talking about which are the right drivers, they should recognize the complexity that's involved. "The things that drive a business are likely to change from quarter to quarter. And even for those that don't change, the quantity of their effect will almost certainly change," Laird said. "It's important to understand those interactions and fluctuations in the drivers and the relationship with results. It's a common mistake to not make the

necessary revisions in the model to reflect the subtle but relevant quantitative changes of the effect of each driver," he said.

According to the Kolawole, the first thing to consider when talking about selecting the right drivers is the line item's materiality and volatility. "That's where you start," he said. "You have to look at your balance sheet and P&L to identify items that are most material and volatile and focus on creating drivers for those."

### Level of Detail and Drivers - Modelling Drivers

Most companies use driver-based modeling to improve the quality of the forecast while at the same time speeding up the process



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Next, Kolawole said, “Companies need to decompose those line items and understand what causes that number to move up or down.” According to Kolawole, the key is identifying the baseline for that line item — for example, whether its volume driven — and then figure out at what rate FP&A can flex that number. Sometimes the rate is fixed and only the volume is variable, and sometimes both change.

For example, gross sales move with volume and price. That’s typically a material item for most companies, according to Kolawole. In another example, a driver may be the freight as a percentage of sales volume, because many companies correlate high shipment rate with higher sales. That’s a good driver of revenue, where you’re using the revenue as a baseline proxy.

While it’s important to consider materiality and volatility, Axson also advised companies to identify the business’ key performance indicators (KPIs). “You may want to grow revenue and profit by increasing market share,” he said. The drivers for this business strategy are different from a strategy that relies on innovating new products. To gain market share, companies may run more promotions and consider price competitiveness. Innovations may be related to product performance versus competitors and online reviews. “Drivers should link directly to the metrics of the business, so start with a strategy. Define the metrics to track progress against it. Then break those business metrics into the drivers to cause those metrics to move negatively or positively,” said Axson.

It comes back to KPIs, according to Schiff. It may start with the ability to generate X revenue by selling Y units at Z price. “But if you really look back, it’s about how many leads must be fed to each salesman to create those sales,” he said. In other businesses it may come down to customer retention. “The drivers are unique to each business; they are fundamental and basic,” Schiff said. “Models that don’t look back to the detail and cause and effect are missing the boat.”

External factors also need to be taken into consideration. Simply assuming sales at a higher price may not be realistic if the market can’t handle the higher price. “The risk is missing on some real-world constraints. Those are hard to incorporate into the model,” Schiff admitted. That’s why driver-based modeling works better for higher-level forecasting than it does for detailed budgeting.

“Generally it’s about busting up your planning line by line and identifying key things that drive financial performance,” said Max. The gold standard for expense items is using an activity-based/cost-based model to identify the true cost drivers. Companies that have that are ahead of the curve. If not, they must determine the causal relationship between drivers and outcomes using an empirical study of their historical data. Companies that are doing anything significant have to have the empirical basis to support the choice.

It’s easy to get down into the weeds and have 500 drivers. The trick is to identify the key drivers and to determine which ones are actually drivers rather than merely aligning with other drivers. It’s also critical to identify the line items that are driving the bulk of the results and focus on their drivers first by testing and looking for correlations and proven relationships, according to Max. And, he added, “It’s important to keep testing and improving the models. At the end of the day, companies should end up with no more than 20 key drivers for strategic planning purposes.”

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You can’t do it on autopilot. You need to get a team of people cross-functionally to see how the math works, and what the formula is for revenue generation for each business line, and what the formula is for cost generation,”

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Historically, “Activity-based costing (ABC) was the best way to identify drivers,” said Datta. Today, “a lot of companies have to go back and see leading practices and what other firms are using, or rely on consultants who work with multiple industries and can give you the headlights into what drivers are working,” he said. “You can’t do it on autopilot. You need to get a team of people cross-functionally to see how the math works, and what the formula is for revenue generation for each business line, and what the formula is for cost generation,” he said. “That’s

an aspect of the value chain that few people know.” He added, “You really need to articulate and identify the driver-based root cause analysis. That means digging below the surface to find the knock-on effects of one change on other parts of the business.” Ultimately, “it’s a very iterative process. It has to be done with FP&A and the business collaboratively.”

Companies have to ensure financial analysts work closely with the business and have an ongoing dialogue to identify the right drivers. “It encourages finance to get closer to the business,” Levy said. In addition, there are some statistical modeling techniques that can help uncover causal relationships with data. “You can upload

op. data and see the connection,” he said. “Use both to refine and adapt your models.”

One more thing that’s important to understand is that not all accounts should be driver-based. Take for example a charitable donation P&L line item. It can be very episodic and not a recurring amount. If it’s so episodic that it’s not recurring, it’s better to use a simple manual input. Another example is advertising expense. While it can be a driver, some companies find that it’s challenging to get their hands on the underlying advertising data since it’s often managed by a third party. That’s another reason to use manual input, according Kolawole.

## Defining the Mathematical Relationship

According to Peloton’s Peck, there are various techniques that can be used to develop the driver-based model relationships. That applies to:

1. The determination of the candidate operational drivers.
2. Testing the mathematical algorithms and drivers for the effectiveness and accuracy of their predictive value.
3. Refining those drivers and related model relationships over time.

One way to start is by decomposing the i.e., end-to-end value chain of the underlying business. Essentially, this means looking at the business and understanding all of the various activities and functions that contribute to making, packaging, selling, delivering, and supporting the goods and services generated by the organization. “The analysis helps one develop a horizontally integrated view of the organization and highlights the key integration points between various aspects of the business,” said Peck.

“To define and develop the actual driver models, the most common approach is to leverage ‘driver trees’ or ‘predictive logic diagrams’ to determine the driver model relationships and candidate drivers,” said Peck. This involves looking at the outcome measure in question (dependent variable) and determining all of the contributing drivers (independent variables) that impact the outcome measure. Depending on the domain area in question, the number of levels or layers can be as simple as one or could continue into multiple levels. “Driver models can be quite simple, e.g.,  $A \times B = C$ . Alternatively, the driver models could be complex and incorporate a multitude of independent variables, and potentially several levels of driver interdependencies,” Peck explained.

“Once the initial driver-model relationships and candidate drivers have been established, statistical analysis with representative data can then be used to determine the best drivers and to refine the model relationships,” said Peck. “The goal is to find the drivers that are highly correlated with the outcome measure, demonstrate clear causality via statistical analysis measures, and optimize the model’s predictive capabilities.”

**Case Study 3:****A \$10 Billion Technology Company**

**At this giant tech firm, FP&A knows some items are more critical than others in moving the financial needle. While it has been using driver-based models for some time, it recently began applying the methodology across broader circumstances — beyond traditional forecasting — and in more user groups, for example, in M&A planning.**

“When we perform forecasting or scenario analysis or build complex models, there will always be more sensitivity to certain inputs more than others,” said the vice president of FP&A at this \$10 billion technology company. The idea behind driver-based modeling is to isolate those primary factors that will have the most influence on financial outcomes, according to this FP&A chief, and to use those to drive the company’s forecasting and modeling.

The company has been using driver-based models for some time but recently began applying it across a broader set of circumstances, according to the FP&A vice president. “We’re now applying the technique in a broader context and across a broader user group,” he said. “So while the concept has been here for a long time, there’s more acceptance and adoption in recent times.” He added, “I’ve always felt that driver-based models are fundamental to analysis.”

As the company broadened its application, it started, for example, to apply driver-based models in M&A planning. “You can use static, normal business variables forecasting,” he said. But in one large recent acquisition, the company used driver-based models on top of the usual banker and valuation models. “We’ve done various offshoots with driver-based modeling. For example, drivers of our ability to reach our synergy targets, and tax savings,” he said. “We identified the big 3-4 factors that will affect the success of the deal and performed more extensive sensitivity analysis around those key drivers,” he said.

On a day-to-day basis, models are used in key places like sales forecasting, manufacturing planning and expense budgeting. In each,

driver-based modeling is at different levels of maturity. It’s most mature in the first two. “It’s a lot more important on the revenue and manufacturing side,” he said. That’s been in part a reaction to the changes in the market post-recession. Particularly, he’s referring to the fact that technology refresh cycles for cell phones are lot shorter than the PC refresh cycles from a few years ago. “We need to pay attention to our customers’ customers and their behavior to drive our sales forecast, so it has to be a lot more driver-based to enable us to make quicker decisions, manufacture the right product, and have the right inventory levels.”

The company identifies key drivers primarily through experience. In its biggest market segment, the macro drivers have been the same for the last 20 years, according to this pro. “We know the correlations and the short-term trends, and we know how to incorporate more recent consumer trends into our models.”

The driver-based model allows the company to predict the total size of the market in the near term, in a cyclical industry. “Some of the drivers include the customer technology roadmaps, customer production capacity, and end-user demand. We build a model that tells us all that,” he said. “We simplify it for planning purposes and communicate it broadly as it becomes the standard for the next year or two.

“We boil it down to the main drivers that impact the planning process, and then do extensive modeling and align the company assumptions around that. That ensures everyone is basing their analysis on the same assumptions.”

That’s one of the key benefits of this approach, according to this FP&A professional. “It’s really important that the model is available to the different parts of the company, instead of using different models in different areas of the organization. Everybody has the same priorities and is using the same assumptions,” he said. “It also makes it easier to measure against the same performance metrics.”

According to this FP&A vice president, talent and training are the key obstacles to the adoption of driver-based modeling. “You need

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“If you have technical help for deeper analysis of big data that can be very helpful,” he said. “But having the right talent is a much more important.”

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to have analytical capabilities, as well as the business knowledge,” he said. “You also need to encourage a healthy debate,” which helps surface the right drivers.

While having the right technology is helpful, it’s a secondary enabler, not the primary driver of success. “If you have technical help for deeper analysis of big data that can be very helpful,” he said. “But having the right talent is a much more important. Technology is an enabler and not necessarily a prerequisite as a lot can be done with basic Excel-based or simple online tools.”

To drive adoption, “You need a champion,” he said. “You need someone who is analytically prepared, has the broad business knowledge and appreciates the important benefits,” he explained. Another potential helpful factor is a problem that needs solving, such as a forecast inaccuracy or too much inventory. “If there’s an issue, you have the motivation to apply new thinking and seek the right talent, which results in a successful adoption.” He also noted that it doesn’t need to be a big-bang event. One way to start off is with particular business units or processes to get the ball rolling. “Use a measured approach, and prioritize the areas.”

There’s not a cookie cutter approach, he cautioned. “Each company and situation will be different. There’s not one standard solution.” To be successful, companies should invest the time and expertise to develop the right models for their situation. “I strongly believe it’s a must-do for any FP&A group, with responsibility for forecasting and scenario-based analysis.”

## What are the benefits of driver-based modeling?

According to experts and practitioners, there are multiple benefits to the driver-based approach.

### **Better accuracy.**

“The fundamental premise is that driver-based modeling improves the accuracy of companies’ forecasts,” said Kolawole. It allows the organization to ignore unnecessary items and focus on material drivers. It also enables scenario analysis: Companies can take the next step and run predicative analytics by looking at different inputs to the model.

“Companies can figure out what factors are going to move the business in either direction. That’s a lot better than relying on comparing forecasts to actual and doing variance analysis only,” he said.

### **Data integrity.**

“The number one benefit is trust in the numbers,” SAP’s Pras Chatterjee said. By utilizing driver-based models, FP&A can explain them and gain acceptance as well. “Amongst the worst thing for finance is explaining numbers in absolute terms without further details. With driver-based models, finance can say not just what’s happening but also why it is happening.”

### **Higher frequency.**

“Driver-based modeling makes it easier to forecast and plan, and to do it more frequently,” explained Schiff. “It’s tied back to KPIs and strategy, thus it’s a unified way that gets people to be more focused on key drivers of business success,” he said. “By using these models you can more frequently re-forecast and ensure people are focused on the right things. All the rest is noise.”

### **Speed of decision-making.**

According to Axson, one of the key benefits of driver-based modeling is the speed of decision-making and visibility into what’s moving financial results. “Companies can begin to understand what levers to pull and their likely effect,” he said. According to Axson, that means that if companies see a change in a driver, they can buy the most valuable thing: time to respond. “For example, if less people walk into the shop that may mean that the company should do more advertising. If fewer

customers visit the website, it may require more online ads,” he said. “By identifying the trend, you can act more quickly. You can better understand the cause/effect between driver and results, and therefore understand the impact of every decision you make.” The relationship may not be simple, he cautioned. “For example, more customers may be walking through the door but buying cheaper products, so sales are actually down.”

### **Better business support.**

Driver-based modeling “is the best way for finance to support the business,” Levy said. “We hear more about it because finance is becoming a better partner to the business executive. The focus on business drivers allows finance to ‘invert the pyramid.’ Instead of two-thirds of the time on transactions and one-third on value-added analysis to support the business, it can spend two-thirds on value-added analysis,” Levy explained.

### **Ability to plan around key drivers.**

According to Peck, focusing on the operational drivers enables an organization to understand, plan around, and influence the critical elements that have the greatest impact on financial performance. “It can be simple math or complex, statistically driven relationship models, but having those models allows FP&A to step back and work with business leaders to demystify planning activities and ‘mental models,’ and codify the logic used to develop business plans and drive financial results,” he said. “The planning and analysis dialogue now focuses on key initiatives, operational activities, the impact on driver models, and the explicit driver value assumptions, instead of just focusing on financial outcomes.”

### **Higher efficiency.**

In addition, according to Peck, adopting and implementing driver models significantly increases both the efficiency and effectiveness of planning, reporting, analysis, and driving improved business performance. “From an efficiency perspective, the focus on the critical few drivers enables organizations to move away from the very detailed accounting-centric G/L account mindset that often consumes significant time, effort, and cycle time with limited business value,” he said.

## **Driver Examples**

It’s important to remember that revenue is not a driver: it’s an outcome, according to BetterVu’s Max. What drives revenue in many cases is units delivered and whether that’s the same number as units sold. In some cases, sales depend on the number of inbound calls, so measuring that can be a driver. Another example is looking at the conversion rate of outside sales calls, and multiplying the number of calls by the rate to forecast revenue.

Peck recalled an integrated driver-based operational and financial planning process for a large fertilizer manufacturing company. The modeling supported a closed loop S&OP (sales and operational planning) process where the FP&A and finance organization performed an almost real-time “what-if” analysis, simulation, and scenario evaluation around key drivers such as raw material prices, external market indices, labor utilization and cost, plan productivity, product recipes, and other key variables.

In another case, Peck worked with a consumer products company using complex driver-based algorithms and models to forecast the estimated demand for new products and related services and the impact on demand for existing products and services (cannibalization effect). The model incorporated numerous variables, including promotions, in-store product location, brand awareness, price elasticity, and overall marketing efforts.

### Getting everyone on the same page.

“Driver-based planning also gets all the different functional leaders on the same page; finance, marketing, sales, manufacturing, distribution, etc., can see the impact of their activities on financial results,” Axson said. Sales orders may go up dramatically, but if manufacturing cannot keep up by producing and shipping the product, it won’t produce the expected revenue. So while sales may go up 100 percent, revenue may only go up 50 percent.

### Developing a rolling forecast.

“Driver models are also an essential foundational component to establishing a rolling forecast framework and significantly reducing the time and effort associated with the traditional annual planning process,” noted Peck. As more companies peek around the corner at 12 months, that’s becoming an essential factor.

### Changing the conversation.

“The benefits include a change in the nature of the discussion; it forces the discussion to turn to activities and operational driver-based conversation, i.e., focusing on the value chain of the business since drivers are tied to that value,” Peck said. “The conversation completely changes, from the typical financial results discussion to what is impacting those drivers and how we can improve those opportunities. It leads to a conversation about sales opportunities, average deal size and conversion rate — why are they down and how they can be improved? We’re now talking about the things that impact the financial results.”

## Case Study 4:

### Omnitracs

**At this high-tech QUALCOMM spin-off, driver-based models have been used to analyze and predict revenue for quite some time, often using models multiplying rates by volume. The key is to validate the relationship between the drivers and the outcomes by digging deep into the business.**

“Driver-based modeling is linking business activity to financial performance,” said Jim Robertson, senior director of Financial Planning and Analysis at Omnitracs LLC, a

software company providing end-to-end fleet management solutions to the transportation industry. Some companies add an extra step and create driver-based models that link business activity to KPIs that in turn drive financial performance. The key is to identify the metrics that drive value as defined by a company’s owners. Public, private, and private equity-owned companies (like Omnitracs) may each define value differently. Common measures include EPS, EBITDA, EVA, or ROIC.

Robertson joined Omnitracs in 2014, but the company has been using driver-based modeling for quite some time, particularly around revenue. “That’s where many companies find it easier to begin implementing driver-based models using rate/volume models,” Robertson said.

“Identifying the drivers is a basic question, i.e., where does this number come from?” Robertson said. “Then you have to start diving down to figure out the answer. You don’t stop until you see the core business activity.” He advised companies to look through the accounting complexity. “Dig down into the business beyond the journal entries and reclasses until you discover the underlying business activity,” he said.

### Identifying and implementing the models

That may sound simpler in theory than in practice. Omnitracs has multiple businesses and different drivers for each. Customers can buy, lease or license combinations of software, hardware, consulting services and technology. Many times the same drivers of revenue also drive cost of goods sold (COGS).

“Recently, we’ve expanded into driver-based modeling of operating expenses. For most software companies, the biggest cost driver is headcount,” said Robertson. “But it’s important to us to understand the cost of consultants and temporary help, for example.” He noted that many companies can’t say how many temps they have at any given time, or how long they’re destined to stay. Through driver-based modeling, Omnitracs is also able to track several categories of operating expenses at the vendor level. “We

invested a lot of time this year to identifying and capturing the underlying drivers of operating expenses,” he said. “We’re pulling apart the numbers and meeting with the business.”

Omnitracs follows a four-step process in building driver-based models:

1. **Visibility.**

What is going on? “That can take a long time to figure out because accounting data such as journal entries don’t necessarily explain an underlying business activity,” Robertson said. “You have to pull a PO or statement or work.”

2. **Understand.**

You have to understand, for example, who the vendors are and what they are doing. A robust and maintained master data management structure can eliminate a significant amount of manual work. This step can also require significant interaction with department owners in the business.

3. **Explain.**

Make sure you can explain the relationship between these drivers and financial outcomes. This understanding serves as the basis for driver-based models.

4. **Forecast.**

Finally, use these drivers to forecast future financial results. This is usually done manually at first. As the models become more refined and validated, data sources can be aggregated in an automated way.

Robertson admitted there’s a big start-up investment cost. “But once you’ve made this investment the benefits are quite tangible,” he said. “Now when you’re doing forecasting and reporting you can speak the language of the business. Truly understanding what drives these costs and how they’re linked to revenue and profitability revenues enable FP&A to help the leadership manage the business better and make better decisions.”

Omnitracs uses a driver-based modeling approach across the planning, reporting,

That’s the key benefit of driver-based models, according to Robertson. “They help the business make better choices and provide clarity and visibility into how the business creates value.”

analysis, and forecasting processes. According to Robertson, this is especially important for companies where the owners are deeply involved in the operations of the business. “It’s applicable throughout,” he said. “There are a lot of metrics and drivers in which our owners are interested. It’s part of our DNA to measure and understand the relationship between business driver and financial success.”

FP&A at Omnitracs spends a lot of its day following its four-step process, and driver-based modeling is part and parcel of the process. “Part of it is understanding the business side, and part of it is understanding the financial side,” Robertson said. “Our job is to help the business leaders make better decisions. We’re enablers.” That’s the key benefit of driver-based models, according to Robertson. “They help the business make better choices and provide clarity and visibility into how the business creates value.”

### **Getting over the hurdles**

According to Robertson, a big obstacle to adopting a driver-based modeling approach can be getting the information. “A lot of time you may have revenue posting in the G/L, unit information is in a production server, and customer information in a CRM system,” he said. “The challenge is how to figure out what data you need, where it is, and design systems to extract and package data to make sense of it.”

Technology, he said, “is a make or break thing. You can start with the best intentions, but many times it stays an intention.”

This can be true especially for large companies with multiple businesses and a global footprint. For such companies, it can be even more difficult to get your hands on all the necessary data to build the models. “A lot of time people get buried in the complexity. The ability to work with and extract information from data is an increasingly important skill set for FP&A professionals to master.”

Cultural issues can also be obstacles to implementation. On the one hand, accounting wants — and needs — to report business activity down to the penny to explain what’s happened. On the other hand, FP&A’s focus on looking forward involves uncertainty and requires trade-offs. “You need the ability to step back and see what’s doable and what’s meaningful,” Robertson said. “Our CFO has a great saying: ‘Great is the enemy of good.’ Understand where great accuracy is required and where it is not. Being comfortable with and having techniques to manage uncertainty is why FP&A should lead driver-based modeling initiatives in close collaboration with the business. FP&A should be assisting the business in identifying the drivers and developing the models, i.e., translating the activities into numbers. It is also incumbent on FP&A to work with their accounting teams to make sure the numbers reflect how activity is recorded.”

Omnitracs was recently spun off from Qualcomm. The culture is open and everyone is looking to do things in the best possible way. Robertson pointed out that in older, more established companies, FP&A may face tougher cultural obstacles, e.g., the “not invented here” moto or “we’ve done it like this for 20 years and we don’t need help.” Another obstacle may be the attitude of the finance folks leading the effort. FP&A needs to have a healthy dose of humility. Part of this is being willing to admit to making mistakes.

“The objective is not to make the same mistake twice,” said Robertson. “Having a culture that accepts that is important.”

### **Taking the next steps**

It’s best to start with something visible and critical, like revenue, Robertson advised. “When you’re looking to introduce change, look for quick wins with high visibility,” he said. A good place to start is revenue. “Take a line of business and unpack it,” he said. “Tear it apart and figure out the revenue models: what is the rate/volume model? Is it one time or recurring?” Most business models at their core are rate/volume models. “You don’t need calculus to be a finance guy,” Robertson said. “Start out with actuals for last month,” he said. “Then go on and figure out where the numbers come from — what customers, products and prices? That’s the best place to start,” he said.

“Once you get the revenue right, you can get COGS right. If you can explain gross margin that’s a big step forward,” said Robertson. “Start with the building blocks. Then build a model that links COGS to revenue drivers. Once you understand this, you can dig deeper to understand the value chains and how marketing expenditures are linked to lead generation, to inquiry, to order,” he said. With this information, companies can determine how to staff the lead-generation and order-entry and billing teams. “Understand the inflection points,” Robertson advised, “i.e., what are the levers that you can pull or not pull to improve value.”

## **What are the obstacles for adoption?**

While the benefits may be clear, some companies are still struggling to adopt, or have yet even to begin adoption, a driver-based modeling approach. Here are some of the roadblocks FP&A may face:

### **Getting the right model.**

The first hurdle is getting the model right. “Some external components can constrain the internal numbers, according to Schiff. That’s the key challenge once the company agrees internally about the key drivers.

### **Cross-organizational integration.**

Another obstacle according to BPM's Schiff is that the models need to be integrated across the organization. Many companies operate in silos. Sales may have its own models that do not take into account marketing or manufacturing elements. The lack of integration of driver-based models is a problem. "Little models created in the corner are not going to work," he said. "Not only are you missing external pieces, but also internal pieces. The model has to be broader and integrated."

### **Data availability.**

By far one of the biggest hurdles is the availability of data, according to Axson. "It's typically somewhere, but it may be in the wrong format, or not accessible, or in multiple places and multiple values rather than a single source of truth."

Another potential pitfall is the time professionals need to spend on collecting the necessary data, according to Kolawole. If folks don't have access to the right data because either technology is not connected to the analytical data, or because it's very dispersed, that would form an obstacle to efficient execution and success.

### **Trying to do too much.**

A common obstacle is over-complication, i.e., companies that are trying to create an overly sophisticated model using variables that are not sustainable over time, according to Kolawole.

### **Getting the buy-in.**

Much of the effort is getting the other functions to support the change, according to Wuest. With driver-based modeling, they will be out of the cycle to some extent and will rely on a "black box." The other obstacle can be distrusting the numbers. If the company spends too much time debating the outputs of the model, the overall process will not work.

### **Mistaking correlation for causation.**

In some situations, FP&A professionals can mistake correlations for causal relationships. "You see a lot of correlations masquerading as inputs in driver-based models," Axson noted. The solution is to test the drivers in the design stage. "Companies

should back test the drivers against the outcomes to see what happened with the two over time and that the algorithm makes sense."

### **Inertia and discomfort.**

There are people who believe that their intuition works better than anything else. They may not be incorrect. However, this institutional knowledge of the business is primarily in their heads and not codified in a way others can use, explained Peck. Unfortunately, they are often reluctant to make their "mental model of the business transparent, visible, and subject to debate and potential scrutiny from others," he said.

This greater transparency of the business logic can also make people uncomfortable as it allows others to ask questions and provide alternative views, according to Peck. "Some people don't want people scrutinizing how they've always done things," he said. "They want to hide behind the cloud so if the forecast is off, they can fall back on traditional explanations that are hard to verify. Putting that knowledge in a systematized, universally understood and accepted model is not consistent with their view of the world."

Levy agrees that culture can be a big hurdle. "A lot of financial managers are used to being a scorekeeper focused on financial variances rather than a performance accelerator who focuses on business drivers that link operational tactics to financial plans," he said. "You can overcome that through education." Finally, there's the lack of the right technology to support the effort, according to Levy. "Once you change culture and understand the benefits, you've got to have a dedicated system that blends human judgment, driver-based and statistical models."

### **Missing the right tools.**

Another possible obstacle is the lack of a robust enabling technology platform. A robust driver modeling environment requires advanced modeling, analytics, reporting, and overall systems usability capabilities. Related to the enabling technology platform is the need to have robust data-integration and data-management capabilities that provide the ability to access high-quality, timely, and relevant data.

### Lack of resources.

Another important hurdle is cost, according to Datta. “To develop these models is an investment of time and money,” he acknowledged. “But instead of focusing purely on the models, they can be developed in parallel to doing everyday work,” he advised. “It doesn’t have to be either or. Run a few exercises against the most problematic areas,” he suggested. “Look at how the more traditional ways stack up vs. the new way and see whether one is better than the other. You have transactions from the past,” he said. Use them to find the variance in actual vs. performance, using both methodologies.

“What stands in the way of resources is outcome value,” he explained. “Look at the variance and whether changing approaches is worth it.” If the model-based approach improves accuracy of forecast by 1 percent, that may translate into substantial dollar and cents, and that may mean a lot of money in stock market performance. Only recently a large retailer reported a 1.5 percent difference in forecast expectations, which led to an 11 percent drop in stock price.

### Case Study 5:

#### Delaware North

**At this food services company, drivers were identified based on each product segment. Many of them were external and could be affected by weather events, seasonal travel and the strength of the home team. Driver-based models didn’t work for everyone, however. For example, the company found that it didn’t help predict its labor costs.**

Driver-based modeling is about quantifying business activities, when building the annual plan, based on their impact on the financial statement, according to Nate Brunner, the former vice president of FP&A at Delaware North, a food services company that caters to stadiums, airports and national parks.

Some business lines lend themselves better to this kind of approach than others. According to Brunner, in the hotel business at national parks, it was very easy to use drivers to forecast revenue. “The main driver was occupancy rate, since the price was regulated by the

government.” Occupancy rate in turn was driven by the season. In the summer, occupancy was close to 100 percent.

Similarly, it was also easy to apply models to food demand at airports. Revenue from airport food sales was driven by the number of passengers leaving on planes multiplied by their per capita spending on food. The benefit of identifying the drivers is that later on, when analyzing variance, it’s easy to figure out what changed, e.g., bad weather, a wildfire, a warmer spring. “You can correlate that back to financial performance,” Brunner said. “You can isolate what’s changed.”

However, he found that there are areas where driver-based models do not work. For example, when the company tried to project labor costs (number of housekeepers) directly based on occupancy rates, it struggled. That’s because FP&A didn’t have access to historical data to clearly establish the relationship of how many housekeepers it needed in the past to support various occupancy rates. “You’ve got to have access to the data, and the relationship has to work.”

The model-based approach has become part of every-day life for the Delaware North FP&A group — not just part of the annual plan. “In sport services, attendance and average per capita spending drives revenue,” said Brunner. To forecast performance, FP&A had to watch things such as the performance of the actual team. Toward the end of a season, if the team wasn’t doing well, attendance could drop significantly. However, if attendance held steady, but sales fell, the company would have to embark on a deeper analysis of the product offerings.

“The other benefit of driver-based models is that they become the language in which you can talk about the business,” said Brunner. “During the annual planning process, or the quarterly review, we can talk about the drivers that are related to the business; they become the common language to talking about financial results.”

Adoption may face obstacles, according to Brunner. One big one is that driver-based models are at odds with top-down target setting. If management wants to set a goal to grow 15

percent every year and push that down to all the subsidiaries, and the drivers don't allow for that sort of flexibility, it becomes more of a challenge. "To the extent you're setting an aggressive target, you can't just push it down into the drivers," he said. The drivers have to have the dynamics and flexibility to support those goals.

To get things going, the key thing is to do rapid prototyping, Brunner advised. "Build some models, try them out and tweak and adjust them," he said. At his former employer, he went through the process of putting the models in Hyperion. Some proved extremely complex and needed to be simplified as part of the transition. "Try them out in Excel, play with them, make sure the relationships are solid, the drivers are accurate, and that you can measure the results," said Brunner. "Prototype quickly before a full-fledged implementation, and before stabilizing the model in a database environment."

## What is the role of technology?

Having the right tools can make a big difference in the sophistication of the models and how frequently they can be run for optimal results. According to Kolawole, "It's critical to make the right investment in technology to operationalize and automate the process. To do quick plug-and-play models, companies may create a blueprint in Excel but

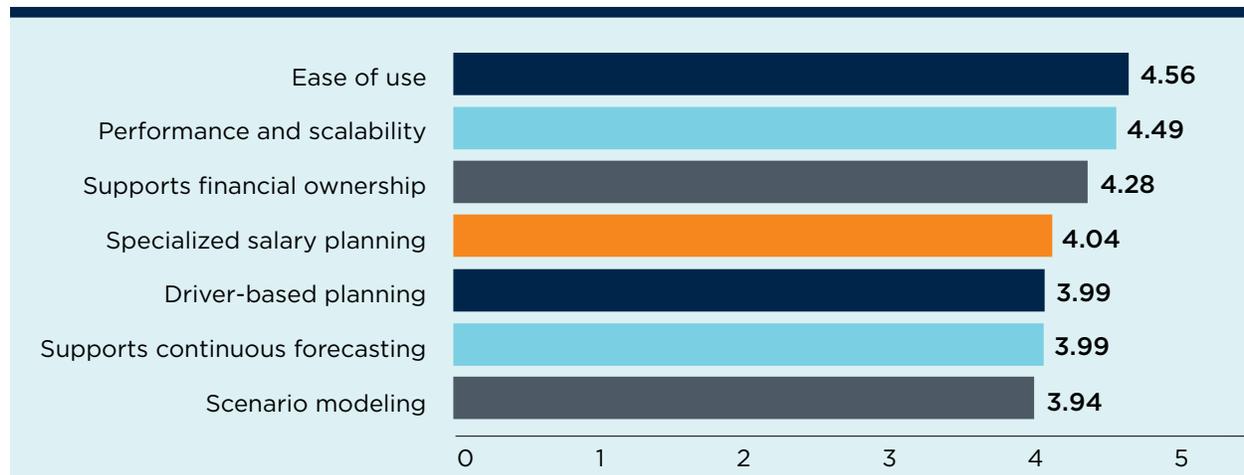
require more sophisticated planning tools to execute."

"Technology is one of the key factors that's making the modeling more effective," explained Laird. "I don't think it's making it more accessible." While his firm offers advanced modeling capabilities, it's also true that many companies can build models and run scenario analysis in Excel. What's true with newer technologies is that the accuracy and thus the confidence in the forecast, are improving.

"Technology makes driver-based modeling more credible," Chatterjee said. Certainly, plenty of organizations run their models on spreadsheets. "But that leaves room for human error and inconsistent information, i.e., divergent versions of the truth." In addition, "Technology enables deeper modeling," he said. Companies can store their drivers and data elements that are part of each scenario analysis. "This allows FP&A to calculate the results on the fly," Chatterjee said. Best practice companies have real-time access to their drivers and performance results. "It's not just doing the calculation, but also having the time to understand the numbers," he said. "Too often professionals spend too much of their time just gathering and validating the data."

"The minute you get beyond judgment, to simple and more complex driver-based models, and then combine them with statistical models, you need dedicated software," Levy observed. There's a lot of variability. The business is changing. The drivers and rates are changing. Business structures, relationships

### Budget/Planning/Forecasting Budgeting/forecasting/planning solution



Source: BPM Partners' 2015 BPM Pulse Research Study

and policies are changing. The planning model must be able to keep up, it must be dynamic.

“That’s nearly impossible with a spreadsheet-based system for even a small business,” said Levy. “You can continue to use a spreadsheet as an interface into a robust, multidimensional planning and analytics backbone,” he said. “That allows you to create the model, refine the model and does not require a lot of IT support. The right technology allows the average financial analyst to build and maintain the model, and calculate and aggregate results fast to create the forecast.”

According to Axson, technology is also a major enabler of getting all the data into one place. That doesn’t mean just pulling all internal data. “New technologies allow you to capture driver-based information both inside and outside the organization, e.g., production scheduling from suppliers, customer clicks,” he said. There’s a lot of richer data available. In addition, he said, “The analytics engines developed today can support more sophisticated statistical models using regression, Monte Carlo, and other forms of analysis. There’s a broad range of statistical techniques to understand the relationship between the changes in drivers and outcomes,” he said.

According to Wuest, “With the visibility afforded by ERPs, companies can have easier access to multivariable drivers, whether they’re financial or non-financial, and the data can be consolidated more quickly,” Wuest said. “The way people have transformed their work processes and organizational structure means the data is available when you need it and at the level you need it to be able to make the right business choices,” he said. “It enables rapid decision-making; there’s not too little or too much data that it’s overwhelming.”

Technology plays a huge role, concurred Schiff. At the most fundamental level, “There’s an underlying trend that technology makes driver-based modeling a lot easier,” said Schiff. “Most major performance management vendors have pre-built, driver-based modeling capabilities.” Those capabilities allow FP&A to keep the models consistent; they self-document and preserve the integrity of the models. “The technology also ties driver-based modeling into scenario modeling,” Schiff explained “As you’re putting the data in, the system saves the scenario,

names it, and gives it a version number. The versions co-exist and you can pull them up and compare them,” he said. “It’s much more viable, easier and useful to set up in practice.”

While sophisticated modeling capabilities may not be a prerequisite, “Companies that don’t have a data warehouse will find that it takes a lot more time and they’ll fall behind the competition because they won’t be able to keep up and make decisions and change course quickly enough,” said Datta. The third-quartile companies close the books in 6-8 days and report to management in 12-15 days, which means that business owners get a dated report. “Decisions are pushed to the subsequent month,” he said. “Technology can help you close faster and obtain the results faster so you can make decisions faster, have time to think and seek outside input. The extra 2-3 days can be extremely important.” If the data is not staged correctly, according to Datta, FP&A spends its time cobbling together different views.

Finally, technology gives FP&A the ability to more easily communicate to business leaders through graphic representation, or to drill down capabilities that break line items into their driver components. “Basically, technology allows better collection of data first. Improved analysis of that data, and better communication of that information. It’s a lot more collaborative process,” said Axson.

## What are the key steps to adoption?

### 1. Design.

According to Kolawole, the design stage includes identifying the accounts that really move the needle. Once that’s determined, companies need to separate which accounts are driver-based and which do not lend themselves to the technique. For driver-based accounts, the next step is identifying the relevant data sources. That sometimes means figuring out what a third party may be able to provide.

### 2. Refine.

“Finance takes the lead in identifying the metrics and right data sources, but it’s got to go back to the business operations to ensure there’s alignment with the day-to-day operations of the company,” Kolawole said.

**3. Deploy.**

Companies need to make sure they deploy the same drivers across regions and business units. It means creating drivers in the system and seeding them with relevant values ahead of each planning event, according to Kolawole.

**4. Get agreement on drivers.**

According to Schiff, “That’s a big strategic discussion within the company, i.e., what’s important to us? Is it market share? Operational margins? If the latter, is it the price we set? How we manage the cost? Those become the drivers of the business and thus the drivers of the model.”

**5. Define success.**

According to Axson, companies must decide how to measure success against the business strategy by defining the KPIs and breaking them into drivers. Sales are often a function of volume multiplied by price. So FP&A should seek to find the drivers of price. Those could be cost of product or margin threshold. Volume may be a function of the availability of materials, manufacturing capacity, or inventory. Break that number down into elements of price and volume and define the drivers of those two, advised Axson.

**6. Get the buy-in.**

FP&A must establish the business value of moving down this path. “You have to use some internal selling as to why it’s important and ‘what’s in it for me,’ so multiple stakeholders will buy into it and embrace the framework given their various roles in the organization,” said Peck.

**7. Get the right tools.**

Sooner rather than later, companies should look to adopt a robust, enabling technology platform to systemize the new driver-based modeling environment. This includes the calculation logic, integrated “what-if” simulation and analysis capabilities, automated data sourcing and management, and centralized administration of the overall solution.

**8. Manage expectations.**

It’s important to manage expectations. Driver-based modeling is not a silver bullet. Even with

the best modeling environment, the predictive capability and forecasted outcomes are only as good as the quality of its input values. Look for the best available driver assumptions and inputs (may not be 100 percent accurate), calculate the forecasted outputs based on the model, and then step back and change if necessary.

**9. Monitor.**

Finally, it’s important to put a process in place to update the drivers appropriately. You also need to test the drivers by tracking actual results to assess the accuracy of the model.

**Case Study 6:****Law Services Firm**

**At this law services firm, the hunt for the right driver led FP&A to an external factor. The firm found a close correlation between the number of filings with the U.S. Patent and Trademark Office and its expected business flow.**

Manish Mehta, vice president of Cost Management, Trading Operations – North America at HSBC has a corporate finance background. Before joining the bank, he worked at a large, multinational information services company out of Europe. Later, he worked for the New York-based subsidiary of that company as CFO and senior manager of finance.

The business he currently supports at HSBC is a cost center, so it has minimal use of driver-based modeling. Most of his experience with driver-based models was with his previous employer, where he used internal and external operational drivers to forecast both revenue and to expense financial results.

The first step in using a driver-based model, according to Mehta, is defining what driver-based modeling means. “It’s a model that outputs performance (revenue or expenses) based on internal or external driving forces that are causing it to predict financial behaviors,” he said. “The model has to possess the ability to forecast a future period.”

Mehta’s past employer was a law services firm that specialized in trademark protection. The firm also acted as a watchdog for trademark

infringement and operated a search business that helped pharmaceutical companies come up with new drug names. The firm's key driver was found to be outside the organization rather than inside.

The external driver that proved predictive of the firm's flow of business was: how many trademarks were filed with the U.S. Patent and Trademark Office. The firm typically got a steady share of those trademarks, so it defined this external factor as a key driver of financial performance. "We could use that in our modeling to predict future revenues," said Mehta.

### **The genesis of the program**

At the 100-year-old law services firm, the arrival of new management in 2011 meant a complete revamp of financial processes. One of the key changes was the implementation of a driver-based forecast. "There was a shift in management, which brought a very progressive view," Mehta said. As part of the overhaul, the FP&A team also worked on pricing strategy and managed to increase revenue by \$12 million in six months. That was up from a steady but slow annual growth of \$100,000 in previous years. "There were a lot of low hanging fruit we managed to pick by implementing more complex financial modeling tools and strategies around pricing," Mehta said.

The company had one budget cycle, at which point it budgeted out three years using the latest estimates (LEs), which were updated 3-4 times per year. The models were used to revise the forecast and incorporate it into the planning process, according to Mehta.

Finding the right drivers was the key challenge. Mehta and his team used regression analysis to test possible candidates and found that the number of filed patents highly correlated with the company's projected performance. "It was very hard to find drivers within the business," he said. "This external driver was the closest we've come." The other driver came from Salesforce.com, where the company staged future sales with their revenue potential, which also served to help forecast expected results.

### **Incorporating modeling into day-to-day work**

The main application of the modeling was in the company's monthly forecasting process, according to Mehta. In addition, the driver models were also applied during the budgeting and LE processes to validate expectations. "Those were done alongside our day-to-day work," he said, "such as financial reporting, closing the books and putting out fires." At every month-end, Mehta met with the company's CEO and general manager to compare the results with expectations and key driver performance. Each meeting included a 15-25 page slide deck. "The decks were mainly focused on performance, but had a forward-looking perspective," said Mehta.

Even though the implementation of the new process was somewhat tricky, the benefits were clear. "This is something you can hang your hat on outside internal beliefs," Mehta explained. "It's an objective and tangible forecast of the future." As such, according to Mehta, it could be a great talking point in explaining the rationale of business decisions. In addition, "If you're forecasting a certain number without any hard facts, it's harder to explain later why it did or didn't work out." He acknowledges that FP&A is part art, part science. "To be honest, as much as you can make things tangible, the better."

It was particularly hard to roll out a new approach in a company used to doing its own thing for 100 years. After a while, it became clear that some employees were not comfortable with the new way of doing things. There was a process of natural attrition. "It was mostly a cultural thing," Mehta said.

Based on his experience, he advised FP&A professionals to follow these key steps to implementation:

- 1. Figure out what you're ultimately trying to achieve. Is it forecasting revenue? Expense? Both? And to what degree of accuracy?**
- 2. Identify your key drivers.** Without them the information you have cannot feed a model.
- 3. Ensure you have available data.** You have to have data available to constantly feed the model so it's up to date and can look forward dynamically.

## Conclusion and best practices

In dozens of conversations with experts and leading organizations, several key best practices emerged.

### Understand the behind-the-scenes factors.

IBM's Levy urged FP&A professionals to get educated and understand the factors behind forecasting. That means more than just driver-based modeling, according to Levy. "It's understanding the principles of quality forecasting, i.e., how to create a more reliable forecast. Modeling is just one aspect," he said.

### Collaborate with operations.

Companies that successfully deploy driver-based modeling in their planning process work with the business to define key drivers. Successful companies enhance the FP&A group's effectiveness by continuously improving its understanding of the core operations of the business in order to better define candidate driver relationships and the selection of actual business drivers, as well as to gain the buy-in of other groups. FP&A can be the lead in identifying drivers, but it must validate the relationship in the context of the operations and multiple functional areas.

### Robust technology.

To support more sophisticated modeling, continuous improvement and model refreshment, companies must upgrade their technology even if they still work through a web or Excel interface. It's equally critical to ensure that all of the data is in one place and can be accessed readily on an ongoing basis. The ability to master a clear set of data is critical. Ultimately, companies need to actively go through and have a good clear definition and house the data with absolute integrity around it.

### Focus on what's important.

Successful driver-based models are based on specific domain areas and/or financial statement line items that could benefit from leveraging the framework. These could be line items that are significant, difficult to predict and forecast, and that have a higher degree of volatility and variability. It's easy to get into unnecessary complexity. "That makes it harder to get to the production phase," said Datta.

"The key is to simplify more and focus on what's truly impactful, which means including the impact on the market, on customers in your analysis," he said. "Then test against performance and accuracy – make that a mainstay."

### Enhancing existing capabilities.

Another best practice, experts say, is to identify areas where some form of driver modeling may be already occurring within the organization and then look to enhance, extend, and systematize this modeling as part of an integrated planning, reporting, and analysis environment.

### Starting small.

Good programs often start with a pilot program where they prototype a particular driver-based model and use an iterative process with the operational subject-matter experts to refine the models over time. Establishing early wins will build momentum, gain advocates in the organization, provide a foundation for expanding the deployment and usage of driver models, and accelerate adoption.

### Finding the right advocates.

To be successful over time, FP&A needs to look for advocates elsewhere in the organization with whom the team can partner to "spread the good word." Having advocates in other departments will help FP&A socialize the framework within the organization, gain the necessary organizational buy-in, and attract more resources to expand, enhance, and optimize the driver modeling environment.

### Understand the things you can test and apply them forward.

For example, a company may think that its sales will go up 5 percent. The benefit of driver-based modeling is that it can test whether it can support faster growth or tolerate slower growth.

### Go deep.

SAP's Chatterjee advised companies to go as granular as they can afford to. "We can break drivers into the most granular level, especially with

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advanced technology,” he said. In the past that has been a challenge for driver-based planning. That is no longer the case. “Companies can go as deep as they want to identify their drivers.” He suggested companies find a happy medium between the granularity of the data and the time they need to understand and investigate the information.

### **Incorporate scenario analysis.**

To get the most out of the new framework, companies should use their models to run what-if analyses, and use FP&A as the adjudicator and true voice of reason. It also helps to reduce the frequency of budgeting to leave time for frequent dynamic updates.

### **Stage the data correctly.**

It’s critical to have all the data in one place so data modeling is not a big issue on a monthly basis and the reporting cycle is short. “If the information is not there up front, you can’t make the right decisions,” Datta cautioned. “There comes a point where you can get lost in data, but analysis will tell you what you need,” he said. “Define the information based on the mathematical calculation of how drivers affect performance. Then go back to the system that allows you to do the cube analysis.” The cost benefit of such exercises must also be kept in mind.

### **Get the right resources.**

“Make sure you hire the right people and develop talent as a solid component of business,” advised Datta. To truly work with driver-based models, you need analysts who have spent time working in the business and understand how a product is made. It’s not a bad idea to hire someone from general management who also has a strong financial background.

### **Always back test.**

Driver-based models are only as good as their inputs. To make sure the models work, leading companies continue to back test their results to both validate and refine the models and adjust for changes in business and drivers.

### **Incorporate the driver-based modeling into the full FP&A process.**

Successful companies make sure they have a financial strategy that’s linked to the planning process, which leads to analysis that drives the right decision and can be reconciled to key drivers. “It should be a closed-loop cycle and not driver-based modeling sitting to the side. Integrate it with other processes,” Wuest said.

### **Build drivers into external scenario analysis.**

According to Wuest, the base forecast could have oil prices or currency exchange rates at a certain level, “But if you look at historical volatility in these items, what is the impact and what are the choices that you could take to still deliver the revenue or profit goal if historical levels or more than historical levels of volatility occur?” This analysis may then change what expenses companies are willing to commit to for a full year basis as opposed to which ones they are only willing to commit to one quarter at a time.

Ultimately, from a best practices perspective, driver-based modeling and planning should be the foundation for any well-designed, integrated business planning process, according to Peck. This would include annual planning activities, periodic forecasts (preferably rolling in nature), and related operational and financial planning activities.

“Organizations are adapting planning to be more event driven and dynamic in nature, and to have richer analytics and enhanced decision-making processes,” Peck explained. “For this to happen, it’s essential to have robust driver-based models. These models can enable real-time what-if analysis, scenario evaluation, business simulation, contingency planning, and the notion of an action-oriented business playbook,” he said.

According to Peck, the idea is to simulate what may happen to the business under real-life events and varying driver assumptions, determine various contingency and action plans based on the outcome of the simulation, and then be ready to take immediate action — just like a coach prepares plays to counter possible approaches of the other team.



### **About the Author**

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