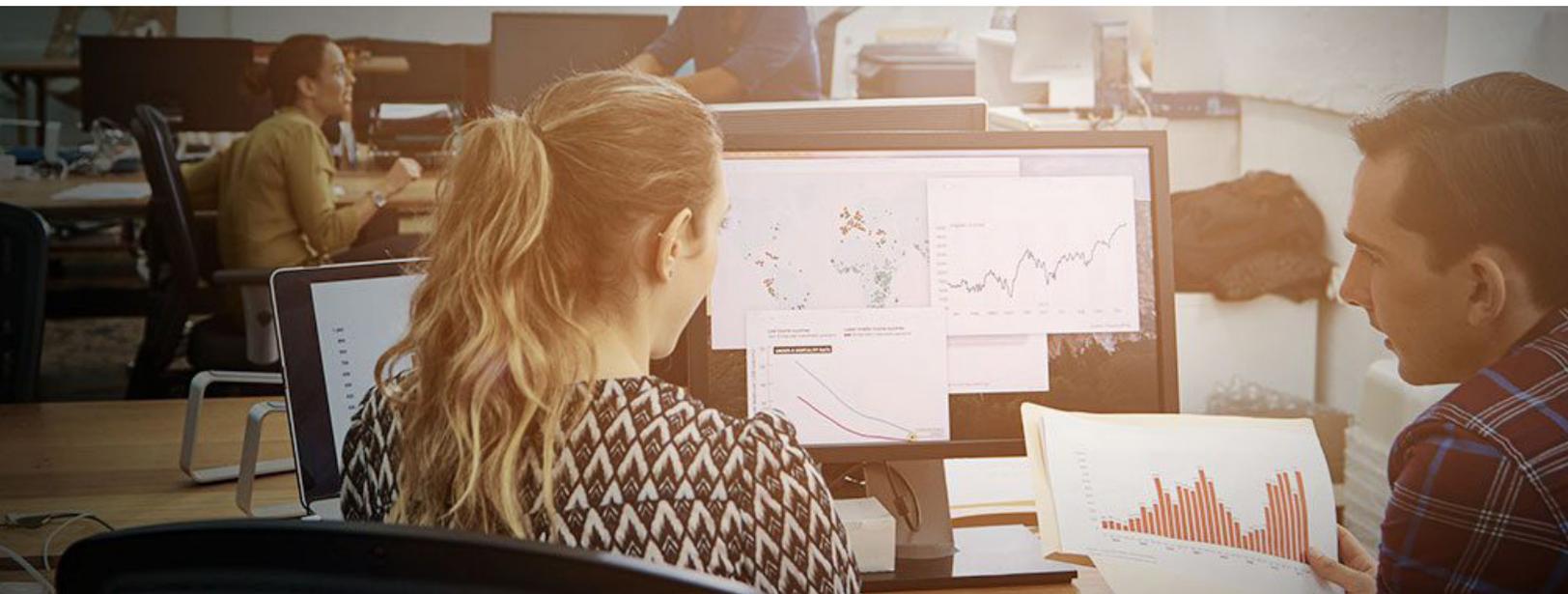# Vanguard Software CORPORATION

Advanced Analytics Forecasting
Why it always comes back to forecast accuracy

Modern enterprises are awash in data. And it's a fact that these data produce more accurate expected outcomes (and fatter returns) when wrung through statistical models, rather than guessed about. So why is there a hole in this marketplace?

Nearly all popular ERP, BI, and Performance Management systems advertise forecasting, but nearly all fall woefully short of delivering on forecasting's full business potential. Why do we care? Because forecasting, when based on advanced analytical methods, is arguably the single greatest contributor to operating efficiency, savings, and customer satisfaction—across all industries. So, it's critical to define what forecasting is, and then begin to parse it from the fray of business intelligence capabilities that are so commonly marketed as forecasting.

In business analytics, forecasting is the science of planning based on what is most likely to happen. Business intelligence, rather, enables planning based on what has already happened. To make this distinction clear, let's look at two different approaches to the P&L forecast.

The analytics-driven approach starts with a time-series forecast engine. This piece of software combs historical data, captures patterns

Executive summary:

- Business intelligence is key to understanding the present, but a far cry from the predictive power of advanced-analytic forecasting.

Vanguard's solution:

- A cloud forecasting and planning platform that combines advanced analytics with automation and workforce collaboration.

Impact on client's business:

- Forecast accuracy lowers inventory carrying costs, strengthens gross margins, improves service levels, and more optimally timed project starts and investments.

and relationships, and then models and extrapolates an objective representation of what is to come. Multiple layers of advanced analytics (plus management foreknowledge) may refine predictions, but it all starts with statistically-derived inputs for revenue, fixed and variable cost, etc. This is very different from the forecasting modules of popular ERP, CPM, and BI suites.

Depending on the particular management culture, forecasts are sometimes referred to by other names, such as budget, target, or goal. It's important to remember that an object, analytics-driven forecast should inform budgets and targets, not attempt to portray them.

To be fair, these systems provide excellent web-based computing environments and historical reporting value by doing the following:
- Eliminating the complications of desktop spreadsheet management
- Providing fast and easy roll-up capabilities
- Streamlining multi-division financial consolidation and reporting

In addition, these systems look great and are getting easier to use. What they don't do is generate objective forecasts from statistically derived inputs. Nor do they deliver the accuracy and ROI possible from analytics-driven forecasting.

In actuality, most BI forecasting modules are essentially spreadsheets. They're contextually formatted, and provide excellent tools with which users can plot their own forecasts, for things like P&L. The user provides starting values for revenue, expense, and whatever else is going into the forecast. The system runs a calculation on the numbers and presents a forecast bottom line. The question is, where did the starting values come from? The prior period plus X percent? An extrapolated five-year average? Perhaps the starting values were stretched to align with targets or sandbagged to ensure the team hits the target or stays within budget. Whatever the case, this is not analytics-driven forecasting.

In fact, it is little more than judgmental forecasting, which is by nature far more subjective, and far less capable of delivering the accuracy and ultimate returns possible with the science-proven, market-proven methods you're attempting to distinguish (assuming sufficient data are available).

The ability to apply judgment and insight is an important science all its own and an integral of (but not the basis of) any top-rate forecasting solution. It can prove especially valuable, for instance, when historical data are insufficient to generate accurate statistical forecasts.

The economics of forecasting are well-understood in operations-sided environments, where statistically-generated, SKU-level forecasts inform critical decisions about production, storage, and distribution. Operations managers who make carrying cost decisions on huge inventories live by analytics-driven forecasting. However, while the same principles hold true for sales and financial management, they seem to lose luster in executive management circles. One reason may be that the makers of enterprise business systems have invested heavily in attractive UI, dashboard, and reporting features—specifically to appeal to sales, finance, c-suite, and IT decision makers. System developers

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have made terrific strides in not only designing and building user-facing functionality, but in communicating and marketing these features. And while these are exciting advances for business computing, the hard truth is that they will not transform your forecast accuracy. Nor will they, by themselves, support the kinds of what-if analyses that turn enterprise planning on its ear. This is because the forecasts that underlie these tools and features are generally not objective representations of the future. And when the fundamental model is flawed, testing alternate scenarios becomes a moot exercise.

The foundation of forecast accuracy, sales and financial included, is that your baseline assumptions come from statistical analysis of the past (plus anything you know to be different about the future). Anything short of this first layer of statistical analysis will produce less accurate results. In fact, non-statistically proven forecast can actually compound inaccuracy when applied across an enterprise, for instance as the basis for multi-division roll-ups or consolidations. This is especially true if each division head supplies his or her own judgmental forecast. You wind up with a misleading aggregate based on highly interpretative, disparate analyses. Again, starting values drive results. Get them wrong and everything else is off.

Several advanced forecasting companies provide solid, time-series engines with web access interfaces and very useful automation tools. Almost none, however, match advanced forecasting with the UI and roll-up capabilities of larger performance management systems. But that's another story. The point here is that advanced analytical forecasting holds the greatest potential for enterprise systems. That's because of all potential IT investments, forecast accuracy is by far the single greatest driver of financial returns – lower inventory carrying costs, stronger gross margins, improved service levels, and more optimally timed project starts and investments.

Vanguard has over 20-years' experience building the most precise forecasting and supply chain optimization solutions available. Learn more at vanguardsw.com.