note from the editor
Spring 2011

For forecasters, “being wrong” is the expectation; the hope is that we’re not too wrong. But admitting to our failures is never easy. The Spring 2011 issue leads off with Marcus O’Connor’s book review of Being Wrong: Adventures in the Margin of Error by Kathryn Schultz. Journalist and author Schultz examines our human reactions to being wrong – the shame, embarrassment, and depression. But her lesson is upbeat: we can change our reactions to being wrong by accepting it, embracing it, and learning from it. We can progress by being wrong and working out how to do something better.

Paul Goodwin’s latest Hot New Research Column addresses the conflict between “intuition” and “cold, hard facts.” The current research reveals that many of those considered to be visionary for having made prescient forecasts were more likely to have been lucky, rather than blessed with track records of admirable accuracy. An optimism bias afflicts many entrepreneurs and financial analysts, while a power bias leads those in control to focus too narrowly on the specifics of current tasks, ignoring the lessons of the past. We need to overcome our inclination to see each new situation as unique, while ignoring the historical evidence.

Roy Batchelor offers a fascinating peek into the puzzling disconnect between “Accuracy and Profitability” among financial forecasters. In a perfect world, forecast accuracy would be a reliable guide to the monetary value of the forecast, with greater accuracy bringing greater profits. But Roy shows that accuracy and monetary value do not necessarily correspond, and can even move in opposite directions. How can this be? We need to look beneath the surface to distinguish when our forecasts are off the mark from those occasions when we score a big hit.

The “when” dimension plays a big role in demand forecasting as well, and Wil Gorr offers a convincing argument for a different approach to “Forecasting Exceptional Demand” than ordinary demand. Many traditional forecasting models are suitable for ordinary-demand situations but go awry when the business faces sudden large changes, turning points, and outliers. For these exceptional demands, Wil describes the Receiver Operating Characteristics (ROC) framework that has been applied successfully in health care and crime fighting, and shows how it can be adapted to improve detection and forecasting of exceptional demands.

Wil has long been involved with assisting law enforcement in crime forecasting, and he is the subject of this issue’s Forecaster in the Field interview.

In the previous (Winter 2011) issue of Foresight, Alec Finney and Martin Joseph presented a template for an organizational audit with the goal of “Getting Your Forecasting and Planning Fundamentals Right.” Now, Hannah Kurth, a manager of world market research and forecasting, joins Alec and Martin in a case study of how the forecasting audit played out in her organization.

Foresight has printed many articles on the promise of prediction markets in which forecasters put their money
on the line. Two articles in this issue add new food for thought. **Robert Rieg and Ramona Schoder’s** paper “Corporate Prediction Markets (CPM): Pitfalls and Barriers” offers a reality check for companies seeking to establish a CPM. It can be worthwhile, but it isn’t turnkey.

Then, **Alfred Cuzán**’s review of the track record of forecasts for the midterm Congressional elections (November 2010) in the USA concludes that an electronic prediction market (Intrade) generally outperformed (although by a slight margin) the forecasts both from noted election experts and from statistical models created by political scientists. None of them, however, foresaw the full magnitude of the historic 64-seat shift in House seats from the Democrats to the Republicans.

We conclude this issue with two brief commentaries on “Forecast Error vs. Forecast Accuracy,” extending the debate on whether it is better to express our forecast results in terms of how large our misses were, rather than how close our hits were. We urge our readers to feel free to add to this ongoing discussion.

**Foresight Newcomers**

**Foresight** welcomes **Stacey Hilliard** as our new Director of Ad sales and Comarketing as well as liaison to our advisory boards. Stacey brings to the journal a background as a freelance writer and editor, marketing communications manager, and product information analyst. She graduated magna cum laude from Bowling Green State University, with a major in technical communication and a concentration in physics and mathematics.

**Steve Morlidge** joins our Editorial Board. Steve is coauthor of *Future Ready: How to Master Business Forecasting,* and graced *Foresight’s* pages with his article “Using Forecasting to Steer the Business: Six Principles” in our Winter 2010 issue.

**new website**

Take a peek at *Foresight’s* redesigned website, [www.forecasters.org/foresight](http://www.forecasters.org/foresight).

My thanks go to Sarah Wiesbrock (sarah.wiesbrock@gmail.com), with the wonderful support of the *Foresight* staff.
Commentary by Jim Hoover

I sympathize with the concerns expressed by David Hawitt in his letter to the editor in Foresight Issue 18 (Summer 2010). David was addressing the challenge of explaining forecast error and forecast accuracy to the leadership of a large organization. In brief, he argued that:

1. Executives can more readily understand forecast accuracy (e.g., the forecast is 75% accurate) than forecast error (the forecast errors average 25%);
2. A forecast accuracy metric must be constrained, or a negative figure for accuracy will occur when the forecast error is greater than 100%, which is not uncommon;
3. To constrain the accuracy metric, the forecast error percentage should be calculated by expressing the error as a percentage of the larger of the actual value and the forecast value.

The objective of David’s alternative calculation—which uses the larger of the actual and forecast values as the denominator—may be done more simply, by constraining forecast accuracy at a lower bound of 0%.

The calculation is as follows:
If Forecast Error $\leq 100\%$, then Forecast Accuracy = $(100\% - \text{Forecast Error})$.
If Forecast Error $> 100\%$, then Forecast Accuracy = 0.

Constraining forecast accuracy’s lower bound to be 0% has the advantage of being able to combine forecast accuracy across a range of items in a standard way. It doesn’t capture the full mathematical extent of the forecast error, but the modified forecast-accuracy calculation does identify which forecasts had forecast errors of less than 100%, and which had forecast errors of 100% or more. This simplified calculation for accuracy is one I think that an organization’s leadership can understand.

This methodology has at least two advantages over using the larger of the actual or forecast in the denominator. First, using the larger of the actual or forecast in the denominator produces an asymmetry: for the same size difference between the actual and the forecast, the forecast accuracy metric will look better when we over-forecast rather than under-forecast by the same amount.

The second advantage of the constraint approach is that it applies one consistent calculation to all items. Senior leadership can understand what it means, and not perceive the calculation to be “gaming the metric,” as one might with the calculation choosing the larger denominator.

Jim Hoover is Foresight Software Editor. He spent 25 years in the Navy, with 14 of those as an operations researcher in the Navy’s and DoD’s supply chains, and is now working for Accenture in the health and public services areas.
Commentary by Mark Little

Jim Hoover (in this issue) and David Hawitt (in his letter, Foresight Summer 2010) argue for different formulae to compute forecast accuracy, constrained to 0% to 100%. The interest in an accuracy metric as an alternative to an error metric is in order to better with senior management, and many practitioners concur in the use of accuracy metrics scaled as a percent from zero to 100 for management reporting.

I take a different view, questioning the meaning given to words and what executive consumers of accuracy measures think they want. Rather than attempt to express accuracy in a form executives think they understand, it may be better to focus on the improvements in business outcomes that result through better forecasts. For example, in a retail context, measuring on-shelf availability is crucial, so the impact that forecasts have on Key Performance Indicators is important. Executives understand percentages, but they understand dollars better.

Both authors regard accuracy as complementary to error (Accuracy = 1 – Error), and justify their measures on that basis. But is this right? In normal English usage, what do we mean by “accuracy”? We describe accuracy in terms of precision, as target plus or minus some measure of error. Thus, while “accurate” sounds more upbeat and positive than “error,” the words are more synonymous than they are opposite.

It’s not wrong to report accuracy in the ways proposed, but we mustn’t imagine that we’re adding information. A more important question to ask is whether what we’re telling executives is consistent with what they think they’re hearing.

My guess is that what the executive really has in mind is some notion of task achievement. Managers think in terms of tasks and how much of a particular job has been done. Because most tasks have a natural minimum (we’ve done nothing yet) and maximum (the job is completed), “percent achieved” is a natural metric. Since the job of a forecaster is to produce accurate forecasts, it is natural for executives to expect “percent accurate” as a measure of success.

A difficulty here is that there is no natural minimum and maximum for the forecasting task. There is no reasonable definition of the “least accurate” forecast to zero the scale, and determining what would be the “most accurate” forecast is difficult, since we can never expect perfect accuracy in predicting the future.

The confusion executives experience when faced with negative “percent accurate” measures reflects the conflict between what they think they want and the realities of forecasting. Patching up the measure to avoid this embarrassment may make for better meetings (and may be a good career move for the forecaster!), but is it really accurate communication?

An improved approach may be to think hard about how to best measure the real value that forecasting adds to the business, and then educate executives about forecast value added. My SAS colleague Mike Gilliland discusses this subject at length in his book The Business Forecasting Deal (reviewed in the Fall 2010 issue of Foresight).

Executives understand percentages, but they understand dollars better.