

FORECAST FOCUS



Year-End Forecasting Methodology Review

By: Tiffany LaReau, Human Numbers

Our forecasting expert offers her views on some of the most accurate forecasting methods that she has tested over the past year.

The best thing about being a vendor-neutral, independent workforce manager is that I have a full-range of forecasting methods available to me. I can interchange them, and add them in or pull them out at my own discretion.

Time-series is my favorite method. When there's enough history I always start with it, but I find that it is usually too weak to be used alone, and needs to be complemented with a second or third forecasting method.

I have tested a few new methods in the past year. Some have really shone through as being very reliable when it comes to forecast accuracy. Let's take a look at their benefits and limitations, and when to consider using each method.

Consolidated Vs. Aggregate

Multiskilled schedules can be complicated to generate and can create problems when assigning shifts based on preference, but since they ultimately allow a call center to do more with less, they're viewed as a good thing. A multiskilled forecasting approach, on the other hand, is rarely a good thing.

Here's what I mean by multiskilled forecasting: Let's say you have a group called Customer Service. The skill sets that belong to Customer Service include 70% of volume for home products, and 30% of vol-

ume for car products. All agents are fully trained to handle both home and car volumes. Since the forecasting and scheduling is a 1:1 ratio, it seems, on the surface, that you can combine the home and auto volumes into a single forecasting group. This would be considered aggregate forecasting. This may even work out well for the first few months as you're building the forecast. But if, at any point, one group begins experiencing different call drivers (e.g., the home group has a special promotion), the aggregate forecasting model will begin to skew. When there is a different distribution of volumes between multiple call types in an aggregate forecast group, the rate of how bad it skews is magnified, affecting the entire group. And this inaccurate impact has tentacles that reach out to the month-of-year distributions, the annual growth rates and even the time-of-day patterns. Its lingering effects can stay with the forecast for a long time.

A better approach is keeping single forecast groups for home volumes and auto volumes, and rolling up the results into a consolidated forecast. When each group is treated separately, data cleaning, growth rate calculations, special factor updates and time-of-day distributions happen twice, independently of each other. It serves as an extra shield

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to insulate one group from the other group's activities. In fact, the only time that aggregate forecasting methods actually work well is when all of the call groups experience identical call drivers and handling behaviors.

Cyclical Forecasts

Time-series forecasting naturally assumes an annual cycle in the forecast process. This method is weakened when something happens less frequently, at a different time each year or on a repeating basis throughout the year. I've dealt with these forecasting challenges by overlaying the time-series results with cyclical forecasts. This has manifested itself in three ways:

- **Quarterly mailings.** A regularly scheduled mailing goes out during fiscal quarters, and depending on the content of the mailings, the quarterly volumes may go up/down.
- **Seasonal promotions.** Promotions geared toward school calendars, which change each year, dictate how and when the volumes will arrive.
- **Biennial and triennial events.** Not all events happen every 12 months, some happen every other year and some happen every third year. I had one forecast that has an event that only happens once every five years. The only way to deal with it is with a forecasting overlay adjustment.

Weekly Patterns

The easiest and fastest way to gain immediate improvement with short-term forecast accuracy is to dump the monthly distributions percentage and move to a weekly distribution percentage instead. There are a few reasons why this works so well:

1. It will be easier to map out a recurring event to the exact week that it will happen year-over-year, instead of just slapping it into the same month. This creates a more precise forecast in a big way.
2. Every month potentially will have a different number of weekdays each year. January '09 has 22 weekdays, but January '10 will only have 21. Weekdays tend to bring different volumes

than weekends, so there is a slight difference to the percentage of year assignment that January '10 should receive.

3. The short-term forecast needs to be re-forecasted on a very frequent timetable, so it requires the highest sensitivity to current trends and changes. Doing it weekly allows the forecaster to really drill down and apply incremental changes individually to each week with a fine-point pen, rather than using a thick piece of chalk.

No. 1 Favorite: Alternative Growth Rates

Every forecaster's goal is to make his or her forecasts sensitive enough to organically absorb the most recent changes, allowing the forecasting methodology to do its job, instead of always relying on manual overrides and external adjustments. It's rare that a forecast will naturally produce accurate performance after just a few weeks. If there is not enough history available, or if external drivers are impacting the forecast, the forecaster becomes obligated to step in and hold its hand until it finds its own

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stable footing. A clean way to accomplish this without any long-term impact to the future forecast is by adjusting the growth rate.

The time-series method instructs workforce managers to use an annual growth rate, calculated by dividing last year's calls into the year prior. But there are some significant improvements that can be made on the growth-rate calculation, and when a special event happens, I switch between them whenever it's necessary to pull me through that difficult forecasting time.

- **Circannual Growth Rate.** I always use this in place of the traditional annual growth rate. It requires a monthly recalculation, and is the result of adding up the volumes for the past 12 months, and then adding up the volumes from 13 to 24 months ago, and dividing those numbers

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together. The result is a rolling 12-month gauge of most recent growth, which is always more accurate than the annual growth rate.

- YTD Growth Rate.** If there has been some unexpected activity in recent months, especially activity that is only becoming apparent by looking historically at forecast accuracy, I use a year-to-date growth rate. This is calculated by adding up the months collected so far in the year, and adding up the exact same months from the previous year, and dividing them together. It's more aggressive than a circannual growth

rate, and if I need my forecast to err on the conservative end I may end up taking a combination of the two.

- Seasonal Growth Rate.** If there is a current event going on right now, especially one that I knew about in advance, I use a seasonal growth rate. Seasonal growth rates are calculated by adding up the volume for the current weeks that are being affected, adding up those same weeks from the previous year, and dividing them together. This is a super-aggressive method, for short-term forecasts only, and the minute it stops working I revert back to the circannual method.

Using alternative growth rates has been my favorite forecasting method this year. But I am forever a forecasting student, and I'm excited about the new methods that I'll learn about in 2010. I've started a discussion about personal forecasting successes and unique methodologies in our *Contact Center Pipeline* LinkedIn group (<http://tinyurl.com/ccpLinkedIn>). I would be very interested in seeing your comments. If you have an exciting story to share, please post it. 

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Remembering the Y2K Scare: December 1999

How strange it is to think that I was planning my Y2K Millennium party 10 years ago. I remember it well; I was working in a technology call center, surrounded by IT people and computer engineers who were expecting the worst.

As plans were laid out for the end of the world, I began preparing disaster recovery workforce management solutions. Outwardly, I stayed calm and cool, but secretly I was enjoying it because it was a chance to really flex my forecasting muscles outside of the box. And by "box," I literally mean the boxed WFM Software that we used.

Disaster recovery forecasting was intimidating to me at first, but that quickly disappeared once I realized that all the rules go away in that situation. For example: In my traditional forecast, I used a certain shrinkage amount to properly build my staff plan; but in this plan, the first thing I did was to wipe out all discretionary shrinkage, including training mentoring. Those are activities that can be postponed during disasters.

Next, I attacked the operating hours, trimming off the late-night/early morning low periods when some intervals didn't even have regular volumes. The same approach was applied for the disaster recovery scheduling plan, as well. By eliminating certain rules like consecutive days off, same start times each day, and even flexing schedule spans, it allowed me to get greater coverage with fewer bodies. And the agents were ready to be understanding because I made it clear that these solutions were only temporary.

The Y2K disaster never happened, but developing the plan as though it would was still a terrific exercise to go through. And the party was great!

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