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6508 Grayson Court
Nashville, Tennessee 37205
877-289-0004

Managing by the Numbers

The Big Picture:
Performance Forecasting, What Is It, and Why Don't We Do It?

By Ric Kosiba, President, Bay Bridge Decision Technologies

Let me tell you, as a former forecasting guy, one of the worst things about the job is that there are only three ways your forecasts can go: 1) you can be too high, 2) you can be too low, and 3) you can get the forecast just right—and in truth, nobody gets their forecasts exactly right. In some organizations, meeting with senior executives to discuss your forecast variance can seem like a trip to visit Torquemada during the Spanish Inquisition (did someone mention the Spanish Inquisition?). It is never a walk in the park.

Forecasting is Not All That Important

I don't know if this will sound like good news or bad news, but forecasting call volumes is, in my opinion, not all that important. Forget I said that. What I mean is, volume forecasting is only a part of the overall forecasting and planning problem, and this bigger picture problem sometimes gets overlooked.

Let's be honest, our analysis does not end with a call volume and a handle time forecast. Our real goal is to use these forecasts to put together a staff plan and budget. It is to determine the volumes you can expect, the service you will provide, and therefore the resulting cost of the service (and associated revenue for sales centers). Forecasting calls is important only as it relates to forecasting operational performance and forecasting financial performance. The true forecasting question is this: What is my Performance Forecast?

Inasmuch as it is important to get your contact volumes and your handle time forecasts accurate, it is as important to understand the relationship between contact volume, handle time, staffing, and the associated center operational and financial performance. You must make sure this expected performance is also accurate. But I am getting ahead of myself.

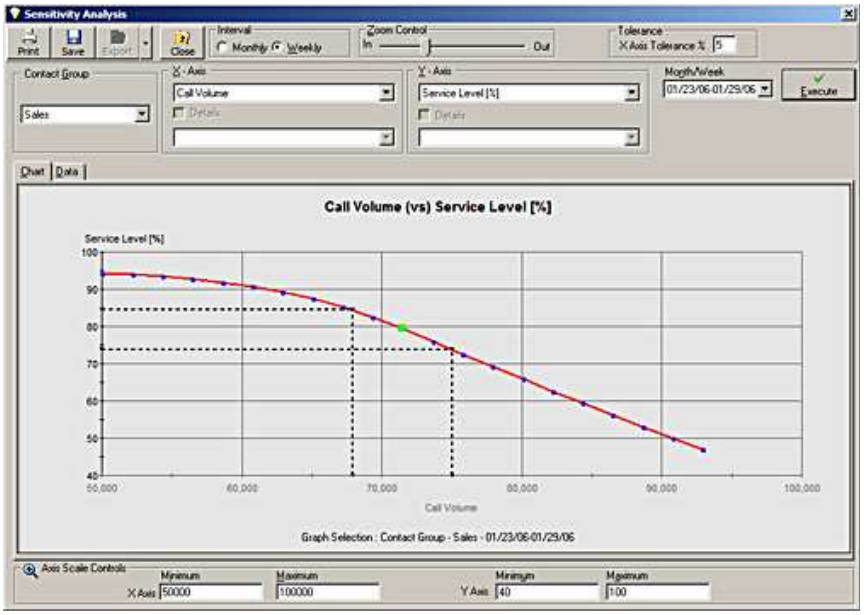
What to Forecast?

In addition to contact volumes and handle times, it is also important to forecast other seasonal contact center metrics. Remember, our end goal is not just a volume and AHT forecast, it is a plan and an accurate budget. So, it is also important to forecast the other items that contribute to your overall plan, such as your employee attrition, shrinkage (e.g. vacation, sick time, and training), as well as variable labor financials (e.g., wage rate, vacation pay).

The good news is that many of the same technologies that you use to forecast call volumes and handle times also are applicable to forecasting these other important metrics.

Forecast Accuracy and Sensitivity

One great way to see the importance of your forecast is to determine how sensitive your performance metrics are to fluctuations in your forecast. For example, if you want to see the effect of your forecast error rate on service level expected, you can draw the following graph:



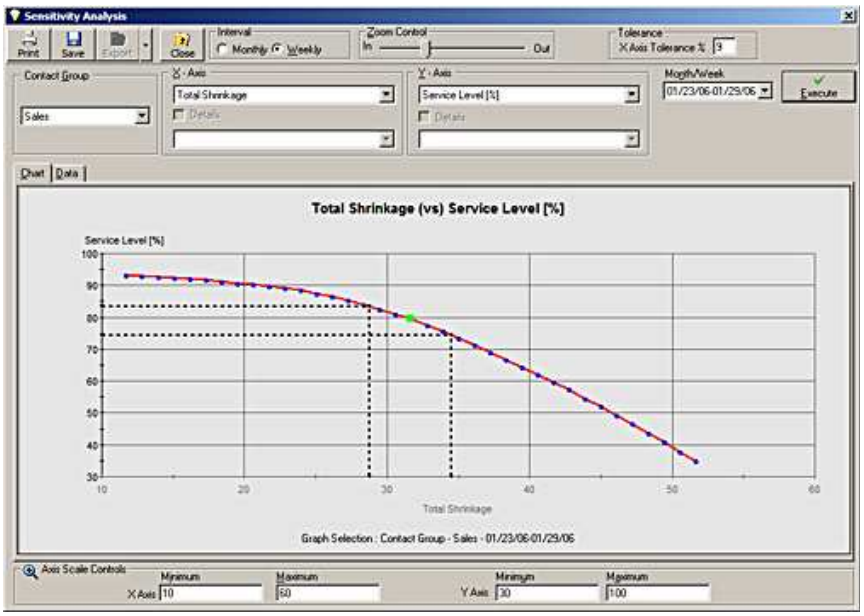
In this graph, we are using a discrete-event simulation model to isolate the effect of call volume on the resulting service level. Holding everything else constant in our model (e.g., holding staffing, shrinkage, handle times, etc…) and only varying our call volume, you can determine how much any error in your call volume forecast contributes to error in your service forecast.

In this example, a 5% change in call volume moves the expected service level from 80% (within 20 seconds) to an expected range between 74% and 84%.

If this graph were fairly flat, then you would know that your service level goal is not that sensitive to call volume forecast error. You could live with less exacting techniques in your forecast process, and not miss a beat.
What is fun about this process is that the discrete-event simulation model serves as a laboratory within our computer. More on that in a bit.

Now to another example: what effect does varying employee shrinkage have on service level? Again, we turn to our laboratory in a computer, our simulation model. This time, we work backwards. I asked the simulation model, "What shrinkage error rate gives me the same service level inaccuracy as we saw in the previous example (between 74% and 84%)?"

Drawing a different graph—this time shrinkage on the x-axis and service level on the y-axis—you can determine that an error rate of 9% in shrinkage forecast yields you the same error rate as does a call volume forecast error rate of 5%.



Here's the rub: a call volume error rate of 5% contributes as much to the service level error rate as does a shrinkage forecast error rate of 9%. In other words, if you were accurate with your volume forecast but not your shrinkage forecast, you would still deliver a plan that is similarly inaccurate. And these inaccuracies add up.
This type of analysis can be run with each of the metrics that go into your performance plan. And you can determine the metrics to focus your forecasting efforts on.

The Laboratory in the Box

Let's get back to the laboratory in our computer. Discrete-event simulation modeling is a fantastic tool to do what-if analysis. Unlike most forecasting technologies, like regression modeling, it is designed specifically to model a complex operation and understand how changes in the management of your operation turn into specific operational and financial performance changes.

To summarize, you should still use your regression techniques to perform call volume forecasts, but you should use simulation modeling to perform staff planning, what-if analysis, and budget planning. It is the best tool out there.

There is one caveat, however. Regardless of the tool you use (be it an Erlang equation or a simulation model), you should spend time validating your actual performance against your expected, simulated performance. By validating your models, you learn the accuracy of your operational model.

But once you have an accurate, validated simulation model, those cool sensitivity analysis graphs become easy to produce.

The Importance of Your Performance Forecast

Performance Forecasting is the art of 1) determining the expected contact volume, shrinkage, handle time, and attrition rates, 2) determining your company's response to these forecasts, and 3) determining the operational and financial performance expected.

It is in that second part, "determining your company's response to these forecasts" that we earn our pay. It is here where forecasters and planners get on board the decision-making train and answer great questions like:

- When and where should we hire?
- Should we use overtime or hire or both?
- Should we offer a cross-sale?
- Should we outsource?
- Should we open or close centers?
- What service goal should we offer? Should this change seasonally?

And others…

Being part of the decision-making team yields great benefits. We get leaned on to provide analysis, and in doing so, we become extra important to our organization.

Why Don't We Do It?

The short answer is that many of us do perform rigorous Performance Forecasts. But on the other hand, many of us are still tied to our clumsy and inaccurate spreadsheets. The reason, I believe, that the focus is on volume forecasting, is that the tools exist and have been adequately available for a long time. Performance Forecasting is harder and engineered tools have only been available for the last five years.

If we answer these questions wrong and if we get our Performance Forecast wrong, our short term performance will also suffer. It is our view that it is actually impossible to optimize your contact center network through workforce optimization software alone, without getting the strategic, long-term plan optimal first.

At the same time, by focusing on our Performance Forecast, we are focusing on the questions and analysis that matters most. We answer the big-picture questions, and have the most positive impact on our company.

Forecasting is important—but it is only one part of the more important question: What is my Performance Forecast?

Ric Kosiba is a co-founder and President of Bay Bridge Decision Technologies. He can be reached at EDK@BayBridgeTech.com or (410) 224-9883.