Top Tips for Managing the Contact Center Strategy

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Introduction

The era of using algorithms to help decision makers is certainly upon us (see Welcome to the Decision Decade) and has been for some time. "Big Data" is in the news because of its promise, although just having more data does not drive improvement. The world is awash in data, and only by using algorithms can we make sense of all this information.

A contact center typically has terabytes of operational data available. When effectively analyzed, this information can help contact center management maintain consistent and appropriate service delivery across the seasonal peaks and valleys of contact volumes. Scheduling algorithms have been available for many years to manage the short term, "day of" service delivery. However, new algorithms are now available that enable the forecasting, evaluation, and optimization of contact center strategies across seasons and years.

The effective use of algorithms and data for long-term planning presents opportunities to prepare for seasonal fluctuations, changes in operational performance, and changes in contact volume. Contact center operations are typically not stable over medium- and long-term time horizons. It is not unusual for contact volume forecasts to have error rates of over 20 percent a few months out (see The Society for Planning Professionals Annual Survey, 2005). Yet the resourcing decisions that contact center executives make are not short-term decisions at all. Hiring, for instance, is most often a long-term decision, and these decisions are often made in the face of significant forecasting error.

The Importance of Strategic Planning Algorithms

The contact center strategic plan or capacity plan focuses on resourcing the contact center network over the next week to 18 months. A capacity plan is the best big picture decision-making device for a contact center executive. In many ways, this plan and the resourcing decisions it expresses is the overarching statement of how management wants to treat its customers and agents. This is where the customer service executive puts their "money where their mouth is." A well-managed and funded strategic plan leads to a well-managed operation, and is a great aid to achieving wanted customer and agent satisfaction levels.

Many service disasters failures result from an unmanaged or inefficient plan and could be avoided with proper foresight, analyses, and *algorithms*.

Advanced strategic planning systems have mathematical models that both simulate the operational performance under different planning scenarios and develop resourcing plans that are most efficient while still achieving service goals. When variance to the plan is noticed, these simulation and optimization algorithms are key to understanding the trade-offs between service, cost, customer experience, and revenues. These algorithms make plain the service, cost, and experience repercussions of alternative resource decisions and lead to better informed resourcing decisions.

Simulations are *descriptive models*; they describe how the operation will perform under different agent resource levels or customer contact volumes. Simulation models can be proved accurate through a validation exercise where the model's predictions

are compared to historical contact center performance through good service levels and bad. Once validated, descriptive models can be used as *predictive models* of future contact center performance (hint: always insist on model validation for any predictive system). Proving model accuracy gives decision-makers confidence in the analyses that flow from these models. The best simulation models are multichannel (that is, simulates email, back office, inbound, outbound, chat centers), multi-skill, and multisite models. These models are also used to determine staffing "requirements," how many agents are needed week-over-week to ensure service delivery.

The best contact center resourcing algorithms are staffing optimization *prescriptive models*. These models prescribe the best hiring, overtime, undertime, and controllable shrinkage plans that meet servicing objectives at least cost. These models ensure consistent service delivery as they achieve just-in-time staffing plans (as real world constraints allow), never hiring too many or too few contact center agents.

The combination of predictive and prescriptive algorithms let analysts determine the optimal resource plan that will meet service goals at least cost under any expected scenario. This approach produces the "best" management decisions.

Used by a clever analyst, these algorithms will also accurately predict the repercussions and risks of making the wrong resourcing decisions. Given that the future is unknown and variable, a creative analyst can quantify the operational risk of making the wrong staffing decision. These scenarios can be evaluated beforehand. For instance, performing the what-if analysis of what would happen to service if we staffed optimally for today's forecast, but it was wildly off! This analysis could be used to alter the staffing decision and protect from this real-world possibility. The contact center industry has many cautionary tales of strategic service failures, where wrong resourcing decisions led to service catastrophes and customer experience nightmares that took many months to fix.

> **Our tip:** To evaluate staffing requirements, use validated *predictive* models. To develop optimal hiring, overtime, and controllable shrinkage plans, use *prescriptive* models.

Strategic Planning Technologies

The components of strategic or capacity planning solutions are:

1. **Data capture and storage:** ACD, dialer, workforce management, payroll, and other system's data are appropriately mapped, summarized, and stored in the strategic planning database. This database is useful for several purposes. It serves to calibrate the forecasting and operational simulation models, to ensure the accuracy of the system. The database also works as a point of comparison for variance reporting ("actual" versus "planned") and assists with general-purpose contact center reporting. It is the first, most basic component of any capacity planning system.

2. **Forecasting:** Time series metrics that are important to forecast will be stored, including contact volumes, sick time, and other shrinkage metrics, probability of right party contact (outbound), handle times, agent attrition, and so on. This data should be forecasted at the appropriate level of detail (by contact center and staff group for center-specific metrics like sick time and attrition). The best systems offer multiple forecasting methods to choose from, like Holt-Winters or regression modeling, in order to ensure that the method fits the data being forecast. "One size fits all" models or "black boxes" may resort to compromises that can introduce significant error.

3. **Performance prediction and requirements generation:** This may, surprisingly, be the most important component of a strategic planning solution, as it ensures the integrity of the process. This component is an algorithm that predicts the relationship between the volume of contacts, the amount of staff, the handle time, and the operational performance expected (like service level, abandons, contacts handled, and agent occupancy). These models must handle multi-skill, multichannel, and multisite operations, and must be validated to be accurate under multiple planning scenarios.

   The legacy planning algorithm, the Erlang C equation, used for years in workforce management systems, is not accurate enough for use in strategic planning exercises. The most accurate algorithms are discrete-event simulation models, which consider customer patience and center efficiency when determining expected performance under varying scenarios.

4. **Staff planning optimization:** Simulation models develop week-over-week required staffing levels, but cannot develop an actual plan. In many organizations, this is left to a manual process where an analyst reviews the peaks and valleys of contact volume, agent attrition, shrinkage, and handle times, and attempts to develop a hiring, overtime, and controllable shrinkage (that is, training or vacation) plan manually. This is hard to do, and even harder to do efficiently. Optimization models, like integer programming, can both automate and optimize this process.

Integer programming has been used in many applications, but for contact center staff planning, it has one exciting feature: an integer programming-based staffing optimizer will find the mathematically provable, just-in-time hiring and overtime plan that achieves service goals at least cost. This feature provides an efficient plan that still considers the real-world constraints and is a huge source of ROI.

5. **Variance analysis and budgeting:** The component that brings the rest of the strategic planning pieces full circle is variance analysis. While the other components serve to develop plans, variance analysis serves to score and monitor the plan's execution.

   Variance analyses can serve as the proverbial canary in the coal mine. For example, the best companies note changes in customer demand, handle times, customer experience scores, and sales per contact by measuring and monitoring forecast accuracy. They view their forecasts as their operational baseline, and variance as operational change, and therefore executive decision-making points. If the forecasts of important metrics vary from the plan, then changes to the operation may be needed and leadership must make new resource decisions. By consistently measuring the operational variance to the strategic (or capacity) plan, executives can detect when unforeseen changes happen, and they can react before it is too late.

When all of these components are brought together and automated, scenario analysis becomes a quick process. Scenarios can be evaluated quickly with confidence, enabling a new class of contact center analytics.

Best Planning Practices

There are some strategic planning best practices:

1. **Avoid spreadsheets for building your capacity plans.** While it is tempting to do so, strategic or capacity planning is too difficult a process to accomplish with a spreadsheet. It is just the wrong technology. Capacity planning spreadsheets are rife with error, simplifications, and require manual steps that are best solved algorithmically. These errors and simplifications can cost a great deal.

   It is difficult to perform what-if analyses accurately in a spreadsheet. Analysts spend too much time and effort maintaining spreadsheets and all of their embedded formulas, and not enough time developing value-added analyses.

   New solutions are available that include the predictive, prescriptive, and descriptive models necessary to allow fast, accurate, and cost-saving analyses. Many companies still manage their $100 million strategies with a $100 software package.

2. **Demand model validation and the best modeling technologies.** The cost of using a poor model to develop capacity plans is huge. For example, the most commonly used model, the Erlang equation, is known to overstaff as much as 5-15 percent.

    This is easily avoided by asking for a simple analysis. Take each week of ACD output (for an inbound call center), compare the number of work hours, the number of calls, and the handle time for the week, and feed those values into the model of choice. If the service goals (service levels, abandon rates) predicted by the model is close to the service achieved, week over week, then the model is valid and accurate. If not, a new model is needed.

    An unvalidated model is a guess at best.

    The best technologies for modeling multi-skill or multichannel contact centers are discrete-event simulation models. They can include contact routing, customer patience, inventory backlog (for back-office or email channels), abort rates (for outbound channels), and contact center efficiency.

    The best staffing models are integer programming based and include the ability to produce just-in-time hiring, overtime/undertime, and controllable shrinkage plans.

3. **Actively manage shrinkage over the long term.** Vacation, team meetings, leave, overtime, undertime, and so on, are items that, if planned for in advance and managed, go a long way to ensuring the operation runs most efficiently. It is a common error, with customer service repercussions, to "flat-line" shrinkage, week over week, in the plan. The best organizations monitor and track the seasonality of shrinkage at the local contact center level.

4. **Understand the risk of stretch goals:** Many companies build into their capacity plans and budgets projects to be paid for with improvements in the main contact center cost drivers. For instance, new systems may promise to bring down average handle time, and the costs and hiring plans of this improvement will be reflected in the contact center plan.

    This practice is dangerous. The more that stretch goals exist in a plan, the more the success of the budget is at significant risk. As projects are delayed, the budget and strategic plan must be adjusted. Project success now becomes the main risk of plan failure. It is better that stretch goals be managed separately from the operational plan.

5. **Set up regular times to decide:** Variance to plan, again, is a decision-making point. Best managed operations have regular meetings, typically monthly, with the expressed purpose of making resourcing decisions upon a noticed variance to plan. These decisions can be as simple as "explore why handle times are up" or it can imply a restatement of the budget as more dollars are required for more agents.

All interested parties should be at these meetings — contact center managers, finance, and contact center forecasters and planners. Effective resource decision meetings have at their outset a statement of the variance and possible options. It is better to have the planner bring five possible scenarios than just the one expected scenario. The purpose of this analysis is to lay out to the executive decision-maker the options and the risks of each.

Benefits

There are many benefits to improving the contact center planning process, and they generally fall in the areas of improved efficiency, consistent customer and agent experience, and improved executive decision making. Let's discuss each in turn.

Plans that are developed using simulation and optimization algorithms produce fewer underages and overages over the course of the year. For organizations with seasonal volumes, shrinkage, or handle times, this will by definition lead to improvements in service consistency, but also agent paid hours and contact center costs. Riding the seasonal agent demand curve more closely *typically reduces labor costs by well over 5 percent*.

Similarly, just-in-time hiring and better shrinkage management lead to more consistent service. With fewer underages and overages, service delivery and customer experience is consistent and designed. Consistent service also produces a consistent agent experience; agent occupancy is consistent throughout the workday and even across seasons. This consistency is a great indicator of customer and agent satisfaction. Satisfied agents lead to lower attrition, higher customer satisfaction levels, and better operational performance of the contact center. It is a win-win-win.

The hardest item to quantify, but the area with the largest potential benefit, is in improved executive decision making. Analysts and decision-makers are often frustrated with spreadsheet driven processes; analysts worry the cumbersome and error prone spreadsheet process is too slow. They feel that their work product may be inaccurate or contain errors. Executives do not get their questions answered quickly enough, forcing many significant business decisions to be made with only rudimentary analyses.

When algorithms are automated, the room for error is drastically reduced and questions can be answered in minutes rather than hours or days. Not only is the quality of the plan improved, the speed of the plan is radically improved as well. The relationship between the analyst and the decision-maker changes. The analyst, using the strategic planning algorithms, becomes the wizard with the crystal ball. Analysis can be performed on the fly, even in front of decision-makers while they ask their important strategic questions. The time to decision is greatly reduced.

The quality of the decision is also greatly improved because many more scenarios can be considered. Analysts and executives can evaluate the cost, revenue, and service repercussions of each of their decisions and evaluate — beforehand —the repercussions if their resource decisions are wrong. Big picture decisions, like adding new channels or merging workgroups, can be evaluated. Opening or closing centers and evaluating acquisitions can be quickly analyzed and budgeted. One of the biggest what-if questions can be evaluated in seconds: what service level goal should we target?

Even seemingly small decisions can add up. When and how much recurring training should we provide? For which centers and when should we hire? When should we offer vacation?

The age of the algorithm is definitely upon us, and for the contact center industry, it is just in time. As our operations become more complex, with multitudes of intertwined channels and workgroups, we need the ability to predict, manage, and control this complexity. This requires a planning process that is both quick and accurate. A new generation of planning solutions makes this possible for contact centers.

The Author

Ric Kosiba is an expert in the field of call center management and modeling, call center strategy development, and the optimization of large-scale operational processes. He received a Ph. D in Operations Research and Engineering from Purdue University and an M.S.C.E. and B.S.C.E. from Purdue's School of Civil Engineering.

Ric has obtained a patent on the application of optimal collection strategies to delinquent portfolios in addition to a patent on the application of simulation and analytics to contact center planning.

At the start of his career, he served notable roles for two major airlines including Manager of Customer Service Analytics for USAir's Operations Research Division and as Operations Management Senior Analyst with Northwest Airlines. His specialties included airport and call center staffing as well as productivity improvement projects.

Following this role, Ric moved into Customer Support at First USA, where he served as Vice President of Operations Research. Expertise here included all facets of call center process improvement, ranging from overall collections strategy modeling to detailed staff plan development and call center budgeting.

Prior to Bay Bridge Decisions and now Interactive Intelligence, Ric held a position as the Director of Management Science at Partners First, where his primary duties included detailed modeling of portfolio risks, as well as predictive and prescriptive marketing and operations engineering.

Ric frequently writes for numerous contact center publications and speaks at highly acclaimed technical and contact center forums.