
Workforce Management in the Contact Center

Optimizing Operations through More Effective
Workforce - Forecasting and Scheduling for
Small and Midsized Centers

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In this white paper, we examine the challenges of managing the workforce in the contact center environment, particularly for the small to mid-sized center. We will review manual, spreadsheet-based processes often employed during forecasting and scheduling. We will then look at the shortcomings of such practices and establish the hidden costs of inadequate workforce management techniques. Finally, we demonstrate how a robust workforce management solution delivers strong value to small and mid-sized centers.



The objective is to handle the workload at your service-level target while using the fewest number of paid agent labor hours. Overstaff the center, and you spend money needlessly... Understaff the center and you miss revenue opportunities or create customer dissatisfaction.

MANAGING A CONTACT CENTER IS NO EASY TASK

The process of forecasting contact center workloads and then scheduling agents to handle the workload is known as workforce management. Although it may seem simple at first glance, properly scheduling agents to handle the workload efficiently and effectively is no easy task. The process becomes increasingly difficult as you add internal and external variables, many of which are beyond your control. Mix in the random nature of call arrivals and the ordinary variability of human performance and the magnitude of the task can be huge. And although it may sound strange, small and mid-sized (SME) centers are generally even harder to manage than larger centers. In this paper we will discuss some of the reasons why.

PROPER WORKLOAD FORECASTING

Workforce management is principally concerned with forecasting the workload and creating a set of schedules for your agents. The objective is to handle the workload at your service-level target while using the fewest number of paid agent labor hours. Overstaff the center, and you spend money needlessly, a perilous practice in today's economic climate. Understaff the center and you miss revenue opportunities or create customer dissatisfaction leading to reduced revenues. Creating a set of schedules that matches the expected workload throughout the day, every day, is difficult. It's like flipping a coin and having it land on its edge.

As difficult as that may sound, over the years, contact center managers have developed a well-defined conceptual approach to creating reliable forecasts and generating efficient schedules. The steps are reviewed here in brief:

Accessing Workload History

Forecasting the future workload in a contact center is dependent upon the past operational experience. The more relevant historical information you have, the better. Clearly, if your center has gone through some major changes in mission, added responsibilities or even merged or consolidated previously separate operations, then historical data may not be relevant or as useful. That aside, it's useful to collect as much historical data as possible. Two or three years of data are ideal. The reason so much historical data is required has to do with uncovering trends and patterns.

Using mathematical tools that include averaging, time series analysis, data de-trending, and weighted averaging, the historical data can be manipulated so as to discover time of day, day of week, day of month, monthly, and seasonal patterns that can affect call demand in your center.

Complex Forecasting Needs

Most manual approaches to forecasting start with creating useful monthly forecasts. From this base forecast, we can use the insights provided by day-of-month, day-of-week, and time-of-day analysis to eventually develop either hourly or half-hourly call demand. It is important to forecast the number of calls expected as well as the average handle time. Just as call demand fluctuates over the course of a day or week, so does the average handle time. Often, the handle time lengthens, reflecting to some degree the fatigue of the agents as the day progresses. Having the number of calls and the average handle time enables us to calculate the workload. Number of calls multiplied by the average handle time equals the workload that needs to be met.

Forecasting with Insight

Forecasting is part science and part insight. Ideally, the forecaster has insight into plans and activities that will influence the future workload. Maybe marketing has a special promotion in mind for next month. Perhaps a new self-service initiative is about to come on line that will reduce call volume. Historical data alone can't provide these kinds of insights. So, after the math is finished, the insight begins. It's important to always save a copy of the original forecast alongside the altered forecast for feedback reasons. Forecasters can sharpen their artistry over time by reflecting on where their forecast alterations were correct and where they went awry. With a forecast firmly in place, the process moves to a critical step.

THE BASICS OF CREATING SCHEDULES

Creating a good set of schedules that satisfies both the callers and the staff is hard. There are so many variables. Although the processes are well-defined, the execution can be problematic. Creating a schedule is difficult enough, but trying to identify more efficient solutions takes the problem to a new level. The basic steps and the many considerations a good scheduler needs to be mindful of are outlined below:



Forecasting is part science and part insight. Ideally, the forecaster has insight into plans and activities that will influence the future workload.



Transactions do not arrive in an orderly fashion, with one right after the other. Like customers at a bank, telephone calls arrive at random times, independent of each other.

Allocating Resources

We learned earlier that the workload is the product of call volume times average handle time. It's important to remember that average handle time is comprised of 1) average talk time and 2) after-call work time. Average talk time is straightforward – it's the time the agent spends talking with the customer (including time when the customer is placed on hold). After-call work time represents the time the agent spends doing work directly associated with the conversation just completed. This may entail the completion of data entry fields, coding the transaction, or performing follow-up activities.

With the workload figure in hand, we can begin the task of discovering how many resources we will need to handle the work at our service-level goal. At face value, it would seem logical to determine the number of agents needed in a contact center by dividing the number of calls expected to arrive by the average handle time of the calls. For example, if 100 calls arrive in 30 minutes, and each call takes on average three minutes to service, then each agent can take ten calls per hour. Therefore, it appears that ten agents and ten telephone lines should be able to service the anticipated call load.

Calls Arrive Randomly

The flaw in this logic is that transactions do not arrive in an orderly fashion, with one right after the other. Like customers at a bank, telephone calls arrive at random times, independent of each other. The average arrival rate in the example above is one call every 18 seconds, but the actual arrival time is distributed randomly. Some calls will arrive at the same time, others will arrive while the first calls are still being served, and during some intervals, no calls will arrive at all. The fact is there are an almost infinite number of ways for 100 calls to arrive randomly in 30 minutes. The figure below depicts just one random call arrival chart:

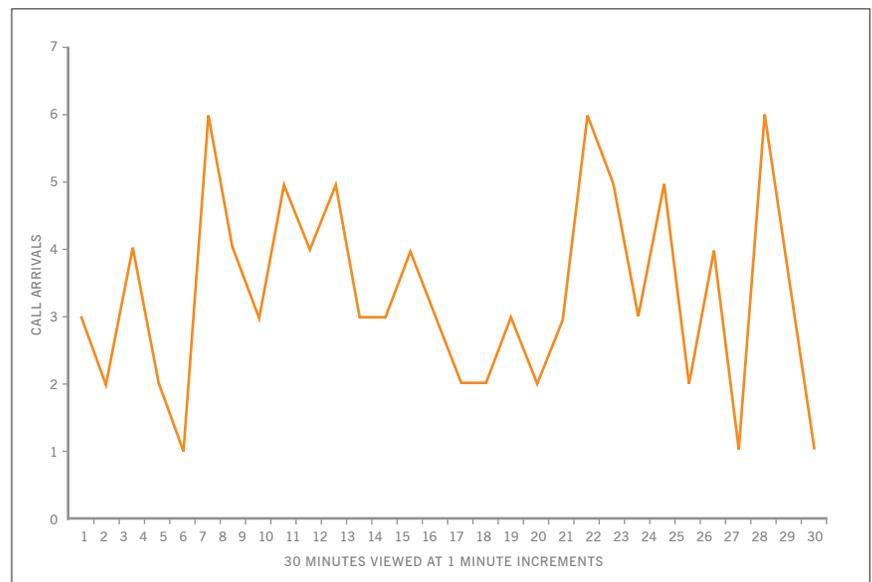


Figure 1: 100 Call Arrivals in 30 Minutes Viewed at 1-Minute Granularity

The large variances in call arrivals depicted in this time line are not exaggerated and are actually quite representative of real-world experience. If we staff our center with ten agents, there will be times during the half hour when many agents are idle, and other times when many callers linger in queue. Of course, this creates short-term havoc with contact center performance measurements. Clearly, we should schedule some number of agents beyond ten. How many more involves the interaction between service level and occupancy at given staffing levels.

For a given workload, the faster you want to answer the calls, the more agents you need. But it's not a linear relationship. Although the mathematic relationship between workload, service level, and required staff is quite complex, it has been studied for decades and is well understood.

Erlang C Tables

Nearly a century ago, Agner Erlang, a Danish mathematician, created a set of statistical tables that help solve this problem. Specifically, the Erlang C tables consider transaction volume, average handle time, and desired service level to determine the number of staffed agent positions required. The solution works for one queue being served by one agent team. Simple computer programs are available for little to no cost that automate the calculation, and there is even an Erlang function that can be added into spreadsheet programs.

Using an Erlang calculator for 100 three-minute calls in 30 minutes with a service level of 80 percent in 20 seconds produces the following data array:

STAFF	AVERAGE SPEED OF ANSWER	SERVICE LEVEL	OCCUPANCY	AVERAGE DELAY FOR DELAYED CALLERS
11	122.8 sec.	38.9%	90.9%	180 sec.
12	40.5 sec.	64.0%	83.3%	90 sec.
13	17.1 sec.	79.6%	76.9%	60 sec.
14	7.8 sec.	88.8%	71.4%	45 sec.
15	3.7 sec.	94.1%	66.6%	36 sec.
16	1.7 sec.	97.0%	62.5%	30 sec.
17	.8 sec.	98.5%	58.8%	25 sec.
18	.4 sec.	99.4%	55.5%	22 sec.

How many staffed positions we require actually depends on other considerations, such as whether these calls have revenue attached, how much value each transaction carries, and what the total cost is for a staffed position. Putting those considerations aside, we



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might choose to staff either 13 or 14 positions, depending upon the patience of our callers. Notice the relationship between staff, service level, and occupancy. The faster we want to answer calls, the more staff we require. Ironically, as we add staff, they become individually less busy. There is no way to answer calls faster without agents becoming less busy.

Measuring Occupancy Levels

Agent occupancy is an important issue and tends to be poorly understood. Occupancy is a measure of how hard the agents are working. The standard calculation is:

$$\text{OCCUPANCY PERCENTAGE} = \frac{\text{TOTAL TALK TIME} + \text{TOTAL AFTER-CALL WORK TIME}}{\text{TOTAL SIGN-ON TIME}}$$

The misunderstood element of agent occupancy is that it is an outcome based on the choice of a service level and the workload. While it is always a concern, it is not a metric that can be actively managed. An illustration can clarify this point:

- The first center expects to have 500 calls arrive in one hour, with a total average handle time of 210 seconds. Using Erlang C statistical tables, if you staff 34 agents, the expected service level will be 84 percent in 20 seconds, and the agent occupancy will be about 86 percent.
- The second center is much smaller and expects only 100 calls in one hour with the identical average handle time. Erlang C now predicts that if you staff at nine agents, the expected service level will be 88 percent and the agent occupancy will be about 65 percent.
- The third center is the largest and expects 2,000 calls in one hour with the same average handle time. Erlang C predicts that if you staff at 123 agents, the expected service level will be 82 percent and the agent occupancy will be about 95 percent.

Three differently sized agent teams dealing with demand at essentially the same service level have very different occupancy. As you can see from the numbers, larger agent teams are more efficient than smaller teams. Small agent teams typically have trouble meeting service-level goals and maintaining high occupancy because of the probability of an agent becoming available at the same time a new caller enters the queue.

To answer a random incoming call, an agent has to be waiting, ready and available. With lower call volumes and therefore longer periods between call arrivals, there will be more waiting, which lowers occupancy. With higher call volumes, there will be less waiting and higher occupancy. You can affect occupancy only by consciously over-staffing or under-staffing. As a general rule, service level and occupancy are inversely proportional. For a given workload, as service level goes up, occupancy goes down.



Larger agent teams are more efficient than smaller teams. Small agent teams typically have trouble meeting service-level goals and maintaining high occupancy.

Non-Productive Time

During the scheduling process you must consider non-productive time as well. The industry term 'shrinkage' is defined as employee time that you pay for, but for which you get no work. Shrinkage in a contact center can include vacation, holidays, sick time, breaks, lunches, training, one-on-one coaching sessions, project work, and unscheduled breaks. The effect of shrinkage means that to make sure we have 13 staffed positions, we will need to schedule a greater number of agents because of breaks, training, absences, and so on. The formula that captures the impact of shrinkage is as follows:

$$\text{SCHEDULED STAFF} = \frac{\text{BASE STAFF}}{(1 - \text{SHRINKAGE PERCENT})}$$

Applying the formula to our example and assuming our shrinkage has been measured to be 34 percent, we would find the following:

$$\text{SCHEDULED STAFF} = \frac{14}{(1 - .34)} = 21$$

To ensure that we have 14 staffed positions throughout the day, we will need to schedule 21 people.

The concept and effect of shrinkage is sometimes confusing. A useful way to think about it is to imagine that instead of a 30-minute period, we are attempting to have 14 staffed positions all day long. With this thought in mind, it's easier to see that breaks, lunches, tardies, and meetings reduce the number of people available to handle transactions. Whenever an agent leaves his or her position, another agent has to step in.

The example also vividly demonstrates why centers can spend much time and energy trying to manage shrinkage. In our example, if the center management team can reduce shrinkage from 34 to 30 percent, they can save the cost of one agent.

Skilled Agents Are More Beneficial

Modern automatic call distributor (ACD) technologies offer powerful call routing tools that can help centers recapture lost economies of scale when the transactional complexity exceeds the abilities of the average agent. Centers establish queues that separate and distribute the incoming calls according to transaction type and complexity. Agent skill groups are created that identify the available resources to the ACD routing engine. The more skills agents have the more groups



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they can be assigned to, allowing them to take calls from a variety of different queues.

We've already seen that larger agent teams are more efficient than are smaller teams. Using sophisticated routing rules, ACD systems can create pseudo-large agent teams from smaller skill groups. They accomplish this by relying on the random nature of call arrivals. For example, The ACD can aggregate the workload from three separate queues. It directs a particular call type to the agents that have the best skills for that call type. If they are busy, the ACD looks to other agents who also have the skill to handle this call type, but with perhaps less efficiency. In effect, the ACD "borrows" an agent from a different group that primarily handles a different call type. It can do this successfully over and over because of the random nature of call arrivals. In this way, it creates a large team effect from the aggregation of smaller queues.

Unfortunately, Agner Erlang never anticipated such a development. When multi-skill agents and skill routing appear, manual and spreadsheet processes that rely upon Erlang C agent requirement calculations are no longer useful. His approach to calculating agent requirements just doesn't work in a multi-skills environment. There have been some attempts to remedy the Erlang skills deficiency, but all of them require arbitrary assumptions about how a multi-skilled agent will apportion his or her time among the various queues. The only practical method for creating schedules in a skill routing environment is through simulation. This is clearly beyond the capabilities of manual or spreadsheet-based systems.

Scheduling Agents

Once we understand how many agents we need to schedule, we can start to deploy our resources. When should agents report for work? When should their respective breaks and lunches occur? How many full-time staff versus part-time staff should we have? What's the role of overtime? Developing forecasts may involve working with lots of data, and calculating agent requirements may involve a lot of tedious arithmetic, but trying to put together cost-effective schedules that meet service level goals is even more difficult.

One approach is to build a matrix based on time of day that reflects your weekly operating hours. Suppose, for an example, that the center is open five days a week from 6:00 a.m. to 10:00 p.m. The center has five 16-hour days broken into half-hour segments. From the forecast and the Erlang tables, we know how many staffed positions we require in each half-hour segment to achieve our service level goal, if the day unfolds as expected.

It's useful to remind ourselves that the resources we are trying to place into the matrix are people. Our society has rules, some established as law and others simply common sense and best practice, with respect to work. Full-time work is generally considered to be 40 hours a week. Usually, the work week is Monday to Friday. The workday actually occurs mostly during daylight hours.

Agents must take rest breaks and lunch for a standard shift (by law). Moreover, agents have lives and responsibilities that the employer needs to recognize and accommodate when practical. The complexities of matching all these requirements along with trying to provide a consistent service level will quickly overtake the capabilities of manual or spreadsheet-based forecasting and scheduling.

An example of a scheduling matrix is provided below:

	TIME	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	9:30
	Required	8	10	12	15	15	18	20	20	20	20	18
	Scheduled	13	13	13	13	13	13	13	11	11	11	11
	Actual	0	0	0	0	0	0	0	0	0	0	0
	+/-	5	3	1	-2	-2	-5	-7	-9	-9	-9	-7
NAMES												
Agent 1		1	1	1	1	1	1	1	B	1	1	1
Agent 2		1	1	1	1	1	1	1	B	1	1	1
Agent 3		1	1	1	1	1	1	1	1	B	1	1
Agent 4		1	1	1	1	1	1	1	1	B	1	1
Agent 5		1	1	1	1	1	1	1	1	1	B	1
Agent 6		1	1	1	1	1	1	1	1	1	B	1
Agent 7		1	1	1	1	1	1	1	1	1	1	B
Agent 8		1	1	1	1	1	1	1	1	1	1	B
Agent 9		1	1	1	1	1	1	1	1	1	1	1
Agent 10		1	1	1	1	1	1	1	1	1	1	1
Agent 11		1	1	1	1	1	1	1	1	1	1	1
Agent 12		1	1	1	1	1	1	1	1	1	1	1
Agent 13		1	1	1	1	1	1	1	1	1	1	1

Figure 2: Scheduling Matrix

Figure 2 depicts a portion of a scheduling matrix. The time-of-day intervals are arrayed along the top. The required number of staffed positions has been calculated based on the forecast of call demand and average handle time. Agent schedules are portrayed horizontally using the integer “1” to represent the agent available in that time interval, and using other letter conventions to represent breaks and lunches.

Agents 1 through 13 all begin their workday at 7:00 a.m. Agents 1 and 2 have their first break at 8:45 a.m. and so on. The Actual line will be used to indicate whether and if the agent actually adhered to the planned schedule. The “+/-” line informs us whether we have scheduled too many or too few agents with respect to the “required” line.

In a manual or spreadsheet-based system, the scheduler will usually work with fixed shift patterns in which the start time, breaks and



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lunches are frozen. Depending upon the +/- line, the scheduler will slide schedules horizontally or manually move breaks and lunches in an attempt to minimize the +/- counts throughout the day. Trying to adjust the position of breaks and lunches with start and stop times is far too much variability for a manual process to succeed.

TOOLS OF THE CALL CENTER MANAGER

Software systems are available that totally automate the process described above. Almost all larger contact centers have invested in these solutions, but many SME centers have been troubled by the cost and often rely instead on simple spreadsheets for their complex scheduling needs.

Overwhelmingly, the use of spreadsheets appears in the forecasting function. Given good spreadsheet skills, a person with a basic understanding of the process briefly described here can fashion a utilitarian forecasting tool. Typically, forecasting spreadsheet tools employ multiple worksheets that are linked so as to eliminate some of the tedium and time it takes to acquire, transcribe, and enter actual call arrival and average handle time by half-hour. Daily data is entered on one worksheet, while weekly and monthly totals are rolled up on other worksheets.

Better spreadsheets employ fairly complex arithmetic calculations that go well beyond a basic averages-based forecast. It is more frequently the case that spreadsheet forecasts will be simply derived by using averages modified by various factors calculated in the spreadsheet itself. For example, the spreadsheet calculates the average number of calls per day by examining some actual performance data from the ACD reports. The spreadsheet also calculates what percentage of calls arrives during each half-hour, as well as what percentage of the weekly call total arrives each particular day of the week. These factors can be applied to the calculated average number of calls per day to arrive at reasonable call arrival forecasts.

The use of spreadsheets in the scheduling function is less prevalent because scheduling is a much tougher problem. Forecasts are derived from hard facts recorded by the ACD. Schedules, on the other hand, are fluid constructs bound by a variety of rules, best practices, and common sense. Most spreadsheet-based scheduling systems rely upon fixed schedules, as do totally manual systems. Fundamentally, the scheduling process is not a simple arithmetic process that can be automated inside a spreadsheet. Instead, the scheduling process is more like a spatial jigsaw puzzle.

Imagine that the various work shifts are blocks. Most of the blocks are of a certain length equivalent to an 8-hour shift, as depicted in Figure 3 on the next page.

The call arrivals for the day describe a curve with a mid-morning and mid-afternoon peak. The scheduling task is to arrange the blocks so as to fill in the space below the curve. The objective is to avoid gaps



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below and above the call arrival curve – something that spreadsheets handle poorly.

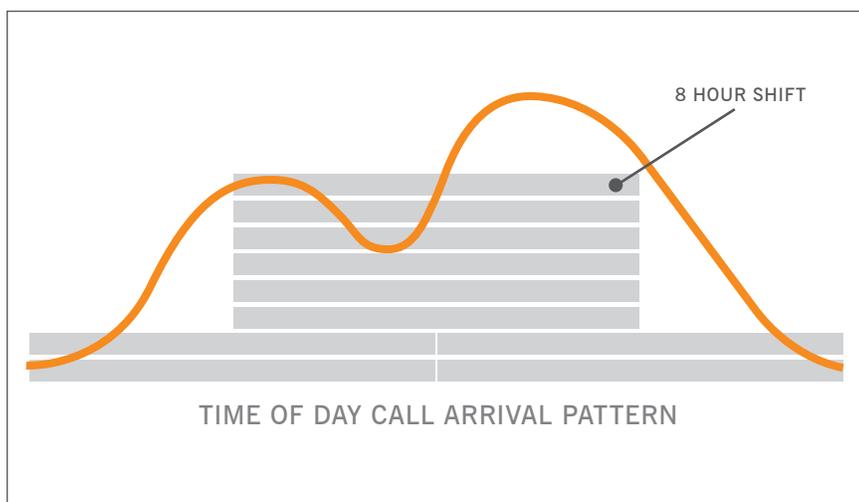


Figure 3: Block scheduling

Spreadsheets and optimized scheduling – where start times, breaks and lunches are dynamically determined based on computer matching of demand with agent availability – are by nature incompatible. The result is a schedule that does not meet the objectives of meeting service levels while minimizing center expenses.

THE IMPACT OF INADEQUATE TOOLS

We've already touched on a few of the problems and issues associated with manual and spreadsheet-based forecasting and scheduling. Specifically, these approaches fall short in the following areas:

- **Data Acquisition** – ACD systems generate lots of data that must be painstakingly transcribed from the reports onto paper-based manual systems or rekeyed into spreadsheets. This takes time and effort and competes with other obligatory tasks for attention.
- **Trend Spotting** – There are long-term trends, particularly in the forecasting process, that can have profound influence upon the accuracy of the forecast. In manual and spreadsheet systems, it is very hard to identify the trends, since the process entails the analysis of data that typically spans many months.
- **Time-Consuming Methods** – Rekeying and manipulating the data and performing arithmetic operations over and over without error is tedious and takes time.
- **Staffing Tradeoff Analysis** – Since the scheduling of agents is the key process (although entirely dependent upon a good forecast), victory is often declared when a schedule that meets minimum requirements is generated at all. It seems almost cruel to suggest that the scheduler continue to slave away to create alternative schedules that also meet requirements, in order to have some

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choices or to develop a set of schedules that has the fewest number of paid agent labor hours.

- **Skill Routing Environments** – The Erlang C function that is central to all manual and spreadsheet-based approaches does not produce accurate agent requirements in the multi-skilled agent environment resulting to a large degree in overstaffing.
- **Schedule Adherence Tracking** – A schedule can't be effective unless people follow it. This is called schedule adherence. To meet service-level objectives, agents must follow their schedules. We've seen that one agent can make a big difference in SME centers. Not following the schedule has ripple effects throughout the day and can create conditions where it is impossible to achieve the service goal.
- **Complex Work Rules** – For centers that have extended hours of operation or that are open more than five days a week, rules regarding overtime, consecutive days worked, and fairness regarding working weekends and off-shifts add a level of complexity that compounds the degree of difficulty in an already problematic task.
- **Alternatives and Options** – Because creating a schedule is challenging, manual and spreadsheet approaches to scheduling almost never afford the opportunity to easily look at options and alternatives.
- **Staff Preferences** – Typically, the only way to meet staff scheduling preferences is to capitulate. This is why most manual and spreadsheet approaches to scheduling rely entirely upon fixed schedules that agents are comfortable with. This leads to the next and final problem.
- **Over- and Under Staffing** – The result of these problems and issues is a highly compromised set of schedules that is almost certainly not properly aligned with the call demand. This means that the center will experience periods of over-staffing and under-staffing in the same day, which can lead to needless expense and lost customer revenue and goodwill.
- **Schedule Dissemination** – Posting schedules on the bulletin board and performing "chair drops" are classic ways of informing the staff about new schedules. Unfortunately, these methods almost always result in a few people remaining uninformed. Posting schedules and changes on an Intranet where agents can access the information from anywhere using a standard Web browser is a more effective process.

UNIQUE PROBLEMS FACED BY SMALL AND MIDSIZED CENTERS

SME centers are the most likely to use manual or spreadsheet-based approaches to forecasting and scheduling because they are concerned that the cost of workforce management software can't be justified. It's ironic, since SME centers typically have more difficulty managing service levels than larger centers for the following reasons:

1. SME centers don't have the efficiencies associated with large agent teams.
2. Individual agent behaviors have far greater impact on the overall operations in SME centers than in larger centers.
3. Operations personnel in smaller contact centers usually wear multiple hats. Contact centers are complex, and smaller centers simply don't have the budgets for specialized support resources to deal with increasing complexity. There is more work put on existing operational staff, with less focus on each task. High-payoff tasks such as coaching get squeezed out of the day because of reaction management and administrative responsibilities.

The contention that SME centers are harder to successfully manage can be demonstrated using the Erlang C chart. Let's consider a simple center with one call type with a duration of 180 seconds and 100 call arrivals expected in 30 minutes.

STAFF	AVERAGE SPEED OF ANSWER	SERVICE LEVEL	OCCUPANCY	AVERAGE DELAY FOR DELAYED CALLERS
11	122.8 sec.	38.9%	90.9%	180 sec.
12	40.5 sec.	64.0%	83.3%	90 sec.
13	17.1 sec.	79.6%	76.9%	60 sec.
14	7.8 sec.	88.8%	71.4%	45 sec.
15	3.7 sec.	94.1%	66.6%	36 sec.
16	1.7 sec.	97.0%	62.5%	30 sec.
17	.8 sec.	98.5%	58.8%	25 sec.
18	.4 sec.	99.4%	55.5%	22 sec.

In this example, if we assume that the service level goal should be 80 percent of calls answered in 20 seconds or less, then we should ideally staff 13 agent positions. If just one of the 13 agents leaves his or her position unexpectedly the service level will fall from 79.6 to 64 percent, and the average speed of answer falls from a reasonable 17.1 seconds to a problematic 40.5 seconds. Notice also that if we overstaff by just one agent the service level soars from 79.6 to 88.8 percent and the average speed of answer decreases from 17.1 seconds to a mere 7.8 seconds.

We've already seen that manual and spreadsheet-based approaches are prone to significant over- and under staffing. Indeed, we would be fortunate if our +/- line only varied by one staffed position through all the intervals of the day. It is more likely that our +/- line will vary by two or three or more staffed positions from interval to interval. In our example above, the center would experience swings



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The stress levels in SME centers often are much higher than in larger centers, owing to the wild swings in service level, queue times, and resulting caller attitudes.

in service level ranging from 20 to 97 percent, and an average speed of answer ranging from more than 130 seconds to slightly less than 2 seconds. From the customer's perspective, there would be no consistency in service at all! From the agents' perspective, there would be periods of boredom and periods of intense activity.

These wild swings in service level and agent occupancy can give rise to a whole host of related problems for SME centers, including:

- **Excessive administrative time expended** – Without appropriate tools, center management tends to spend far too much time on manual processes, to the detriment of agent development via coaching.
- **Frequent schedule changes** – Because schedules tend to be fixed and poorly linked to call demand, center management often is in a perpetual crisis management mode of operation, characterized by changing individual agent schedules on the fly based on ACD real-time queue results.
- **Tracking adherence and attendance** – Accounting for agent time is typically a major task, taking away the opportunity of the management team to engage in development activities and creating an adversarial environment between management and the agent staff.
- **Excessive agent idle time** – Inaccurate forecasts, fixed agent shifts, and the inability to easily develop alternative scheduling approaches can result in excessive agent idle time that produces nothing for the company.
- **High agent turnover** – The stress levels in SME centers often are much higher than in larger centers, owing to the wild swings in service level, queue times, and resulting caller attitudes. The volatility of the center can wear down even the most highly motivated agents over time.
- **Improving agent productivity** – The only way to improve agent productivity is to first identify which agents are in greatest need of coaching and then to work with those agents closely to discover their skill gaps and devise programs to close the gaps. This requires time that often is unavailable, owing to the problems created by manual and spreadsheet-based forecasting and scheduling.
- **Minimizing costs** – Every center is challenged to hold or reduce costs while holding or improving service. Since agent labor costs are the largest component of overall center expense, sub-optimal approaches to forecasting and scheduling can hamstring management's attempts to deliver what senior executives demand.

Many of these issues and problems are the direct or secondary effects of inefficient scheduling. Consideration of the costs associated

with the above litany of SME problems casts the justification for more effective forecasting and scheduling tools into a new light.

A common mistake SME centers make with regard to workforce management is to consider only the costs associated with the administrative time expended to develop forecasts and schedules. The assumption is that the in-place schedules are good enough, and that the agents have become accustomed to fixed schedules that seldom change over time.

Our experience with SME centers proves that most operations realize significant returns on their investment in workforce management software from the following areas:

- **Reduction in administrative hours to develop forecast and schedules** – Using a forecasting and scheduling solution can reduce administrative time spent developing forecasts and schedules by up to 90 percent.
- **Reduction in excessive agent idle time** – A huge payback can be quickly realized when agent schedules are more closely aligned with call demand. Software is much better suited to the schedule generation task, because computers can assess hundreds of different sets of agent schedules in minutes.
- **Reduction in agent turnover** – With a better match between workload and workforce, the center experiences less service level volatility, leading to a more predictable work experience for the agents. By involving agents in the scheduling process, agents are empowered to play a greater role in their work/life balance, further aided by shift swapping and work preferences.
- **Reduction in shrinkage** – We've seen that shrinkage must be managed carefully to keep costs down. Forecasting and scheduling software enables sound management by first helping to accurately measure the sources of shrinkage and then providing tools that minimize its occurrence.
- **Improved agent productivity** – With more time available to front-line management, productivity improvements from focused coaching are realized.
- **Improved service levels** – A better match between workload and workforce means that service levels often improve without the addition of paid agent labor hours.
- **Less service level volatility** – Less volatility in service levels means that the customer experience is more consistent, which can lead to improved customer satisfaction and loyalty. Study after study has proved that happier customers spend more money with your company over their lifetime.
- **Reduced telecom costs** – Improved service levels and less service-level volatility mean that fewer callers are in queue for excessive times. This means that the charges associated with 800 services are typically reduced.



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INCREASING CONTACT CENTER EFFICIENCY

Understanding the importance and critical nature proper workforce scheduling plays in the contact center space – particularly for the small- to mid-sized contact center – inContact has added a tool to its portfolio called inContact Workforce Management. The solution is delivered as a SaaS (Software as a Service) offering and is powered by Verint, a known leader in the enterprise workforce optimization space. inContact Workforce Management allows contact center managers to properly forecast workloads based on historical information, create optimized workforce schedules and monitor adherence to the schedules. Using inContact Workforce Management, organizations of all sizes are able to enjoy some of the efficiencies of large centers.

SCHEDULING FOR SMALL AND MIDSIZED CALL CENTERS

We recognize that small and mid-sized centers have many of the same needs as larger contact centers, along with unique challenges. inContact Workforce Management provides powerful forecasting, scheduling, and agent adherence capabilities for these centers. Some of the critical differences between Workforce Management and other solutions include:

- **Ease of Use** - When every vendor makes this claim, customers are rightfully skeptical. The proof is the way the product is organized conceptually, the look and feel of the user interface, the on-line help features and the flow of the software's modules. We encourage potential users to investigate closely the steps involved in defining an agent's skills, selecting weeks of history to use in forecast creation, defining acceptable work shifts, codifying agent work preferences, using a forecast to generate an optimized set of schedules and using the real-time adherence feature to manage agent shrinkage.

Ease of use matters a great deal. If a workforce management solution is difficult to use, organizations will never realize its full potential. Learning curves are longer, further delaying the realization of the benefits. And, when administrative turnover occurs, new users of the software may well be unable to achieve the modest benefits of the original users if ease of use is not built into the product.

- **Template-Based Forecasting for Accuracy** - Forecasting accuracy is the surest way to achieve desired contact center results with least cost. The better the forecast, the better the schedules, and the better a center can deliver against service-level goals. Unlike other scheduling solutions, inContact Workforce Management offers a high degree of flexibility to the forecaster. It enables forecasters to build forecast models that effectively deal with seasonality or other periods of changeable call volume. With Workforce Management, forecasters can build a "template" of weeks, using any week in the entire history database.

Here's a simple use case as a proof point for our argument: Suppose the forecaster believes that the third week of this month is best forecasted by using the third week from the previous six months of history. This is simple to do in Workforce Management and does not require building a forecast elsewhere and importing it into the forecasting engine. This can help forecasters find the models that are most accurate for each contact center environment.

- **Multi-Skill Scheduling** - Erlang's formula doesn't work in skill-routing environments. Computer simulation is required to model an operation and then use it to test agent schedules. In a sense, the computer is putting together schedules and testing how well they work against the workload expected. The computer keeps experimenting with schedules, keeping an efficiency score for each, until the improvements created by adjusting the schedules fall below a certain threshold or the user indicates enough time has been spent.

Workforce Management makes it simple to define individual agent skills. The scheduling engine employs simulation technology to create agent schedules that help maximize performance across multiple queues with minimized labor hours.

- **Agent Skill Proficiencies Drives Precision Schedules** - A common shortcoming of scheduling algorithms is that they treat agents as interchangeable cogs that perform identically at an agent group average. Clearly, this is not reality. Agent performance is very different, even among a group of agents with similar tenure and experience. Failure to account for individual agent performance differences is among the key reasons why many solutions aimed at the SME contact center can create service-level volatility. Workforce Management is able to account for real-world performance differences among agents.

This is more than an esoteric point. Having insight into the actual performance capabilities of each agent enables the Workforce Management scheduling engine to achieve greater precision in matching the workload with the workforce. Excess idle time can be sharply reduced.

- **Agents Actively Involved in the Scheduling Process** – inContact Workforce Management provides a browser-based capability that enables agents to participate in the scheduling process and help manage their schedules. This functionality is extremely useful, since dealing with requests for schedule changes can take up an inordinate amount of administrative time. This problem has a double impact on center performance: First, the supervisor has to spend time performing low-value administrative tasks. Second, the agent vacates his or her position to speak with the supervisor to make the desired schedule changes. Workforce Management provides functionality via industry-standard browsers that permit agents to view their schedules, request one-way or two-way shift swaps with other agents when the published schedule



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However success is defined for your contact center - profit, cost, or somewhere in between - accurate forecasting and scheduling of your agent resources is critically important.

doesn't quite meet their needs, and allows agents to manage their own work preferences definitions. In addition to saving time for managers and agents, this functionality helps create a more agent-friendly work environment that can foster agent satisfaction and retention.

- **Powerful “What If” Capability** - “What if” capability permits the forecaster to alter the forecasting and scheduling environment in various ways to identify alternative scheduling outcomes. For example, what happens if call volume goes up in a particular queue, or what happens if we add a particular shift? Workforce Management is unique in that the scheduler can create “agent profiles” that describe fictitious agents with respect to skill mix and schedule preferences. These “agent profiles” can be used in “what if” scheduling. The Workforce Management scheduling engine will use the agent profiles in addition to real agents to achieve optimum aggregate schedules. The output of this exercise is an absolute answer in terms of which agent profiles and how many instances of that profile are needed to achieve lower labor costs and/or better workload matching. Center management can then seek to hire new, real agents who agree to work the profiled shifts.

This is important, particularly in smaller centers where agents have been accustomed to fixed schedules. Hiring new agents with specific shifts in mind focuses the recruitment process and helps avoid premature agent turnover owing to unmet, unspoken expectations on both sides.

- **Real-Time Adherence** - This capability provides a mechanism to compare what the agents have been scheduled to do with what the agents are actually doing with their time. Information from the ACD system about what each agent is actually doing is compared with the schedules generated by Workforce Management. Adherence violations are brought to management's attention.

This powerful feature directly addresses the impact of shrinkage on center operating costs. Many centers can find a complete justification for the solution cost in this feature alone.

CONCLUSION

However success is defined for your contact center – profit, cost, or somewhere in between – accurate forecasting and scheduling of your agent resources is critically important. While forecasting and scheduling processes are well-understood conceptually, execution can be problematic. Manual approaches have many problems that can contribute to excessive costs and unrealized opportunity. Attempts to streamline calculations have led to spreadsheet-based approaches that focus on forecasts and agent requirements. While they speed and simplify calculations, spreadsheets are fundamentally not well-suited for solving the scheduling part of the application.

It is ironic that small and midsized centers typically are harder to manage successfully than larger centers, yet are most likely to use

manual and spreadsheet-based forecasting and scheduling systems. Given the budget associated with agent labor, centers should consider the benefits provided by an automated solution, such as Workforce Management. It offers distinct advantages over manual and spreadsheet-based forecasting and scheduling, including the ability to easily create accurate forecasts, which drive the generation of optimized schedules and help ensure that service levels are met with minimum agent labor. InContact Workforce Management provides agent self-service features that promote agent efficiency and retention, while powerful “what if” capabilities feed recruiting and hiring processes. The combination of these functional attributes can result in significant cost reductions and service improvements for SME contact centers.

ABOUT INCONTACT

inContact (NASDAQ: SAAS) helps call centers around the globe create profitable customer experiences through its powerful portfolio of cloud-based contact center software solutions. The company’s services and solutions enable contact centers to operate more efficiently, optimize the cost and quality of every customer interaction, create new pathways to profit and ensure ongoing customer-centric business improvement and growth. To learn more, visit www.inContact.com.

To learn more about how to take advantage of a hosted contact center solution that is robust, flexible and secure, contact us.



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