

# Basic Average Staffing Level Model

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This article outlines a simple methodology for determining the gross staffing requirements for a call-based customer support center or help desk. An example drawn from actual experience has been included to illustrate the method. It can be easily implemented in any common spreadsheet application.

## I. Establishing Gross Staffing Requirements

A gross staffing model determines overall average staffing requirements. It is useful for quickly analyzing the appropriate staffing level for a support center and for annual budgeting purposes. It is not, in itself, sufficient for determining detailed workforce schedules, although it can be generalized for this purpose.

There are two basic data elements required to determine appropriate gross staffing levels: hours of direct labor required to meet the anticipated call load, and hours of direct labor available from the existing or planned staff. To determine these inputs, proceed as follows:

1. Analyze your calls and group them into categories based upon the skills required to respond to the call, and/or the distinct operational characteristics of the call. For example, first level vs second level. Staffing requirements can then be determined separately for each category and aggregated.
2. Analyze your historical call data to determine, for each category, the number of calls per period and the average length of each call. The period may be chosen in any way that is useful. Day, Week, Month, Quarter and Year are all common periods for gross staffing analysis. Actual data will provide retrospective staffing levels; forecast data will provide future requirements.
3. Determine the direct labor hours required for each category, as the number of calls multiplied by the average call duration, including any off phone time required for follow-up administrative activity. Indirectly related activities, such as following up with an outbound call to the customer after the problem has been closed, should be accounted for as separate calls.
4. For each category, next determine the available direct labor hours per agent for the analysis period. To do this, begin with the Theoretical Hours per period. For example, 8 hours per day, 40 hours per week, or 2,080 hours per year. From this total, subtract hours for vacation, sick time, training, administrative and project time or any other required activity which prevents an analyst from being available to make or receive calls. It is usually easiest to complete this exercise on an annual basis, and then convert the result to the desired period, say, monthly. The result is the Potential Hours available, by category.

5. Compute the Actual Hours available by applying an appropriate Utilization Rate to the Potential Hours computed in Step 4 above. Utilization Rate reflects the fact that inbound calls arrive randomly, and that a new call rarely arrives at the exact moment an open call is concluded. This is a well known feature of *queuing systems* (such as support center call arrivals), and can be easily understood by considering that if inbound calls are known to require exactly 10 minutes each to complete an analyst will be unable to handle 6 calls per hour. It is a much less important factor in the case of outbound calls, but must be considered in environments where each analyst handles a mixture of inbound and outbound calls.

An "appropriate" Utilization Rate is determined by the level of service required of analysts. Utilization rates above 90% or so will result in long hold queues, high abandon rates and low user satisfaction with the service. Rates much below 60% indicate an overstaffed condition and an underutilized (and probably bored) workforce. High volumes of relatively short calls generally allow higher Utilization Rates than longer, more complex calls in lower volumes.

Determining the best Utilization Rate is a matter of either conducting the detailed queuing analysis (which assumes that SLAs have defined the target service levels) or some experimentation. We recommend beginning with a rate of 75% - 80% for inbound calls, and perhaps 95% for outbound calls. Multiply the Potential Direct Labor Hours by the Utilization Rate to obtain the Actual Direct Labor Hours available.

6. Finally, determine the appropriate Gross Staffing Level for each category for the period by dividing the Total Hours required (computed in Step 3 above) by the Actual Hours available (computed in Step 5 above). Round the result up to the next whole person. This gives a reliable estimate of the gross staffing required to meet the expected call load for the period, by category.

## II. Gross Staffing Requirements: Example

The following example illustrates the use of the model described in Part I to estimate appropriate support center average staffing levels.

### 1. Analyze call patterns.

We will establish a single categories for this analysis. We compute the results at a volume level of 5,000 calls per month and again for 9,000 calls per month.

### 2. Historical Call Data

Problem cycle times are estimated to be about 7 minutes per call for first level.

Analysis Category	Calls per Month	Avg. Duration (Min.)
Low Volume	5,000	7
High Volume	9,000	7

This will be the basis for our estimate of required average staffing levels.

### 3. Total Hours Required Calculation

The number of hours which must be available from the staff to handle the volume of problems received is easily calculated as the product of the Calls per Month multiplied by the Avg. Duration. Remember to check for consistency in the units of measurement.

$$\text{Total Hours Required} = \text{Calls} * \text{Avg. Duration}$$

Analysis Category	Number of Calls	Average Duration	Hours Required
Low Volume	5,000	7 min.	584
High Volume	9,000	7 min.	1,050

We have now calculated the number of hours required per month to meet the problem workload. Next we must determine how many analysts are required to provide that many hours in one month.

### 4. Potential Direct Labor Hours Available Calculation

Since many of the considerations which might prevent an analyst from being available to respond to problems are most easily stated on an annual basis, we can simplify the computation of the available hours by estimating on an annual basis and then converting the result to the required period (in this case, monthly).

Theoretical  
 Hours Available = 40 Hours/Week \* 52 Weeks = 2,080 Hours/Year

We must now adjust this figure to account for those times during which an analyst will be unavailable to accept problem reports. We make the following assumptions:

Theoretical Total	2,080
Less:	
Vacation	( 80)
Holidays	( 80)
Sick Time	( 40)
Training	( 120)
Project Work	( 80)
Meetings and Admin Time	<u>( 80)</u>
Potential Direct Labor Hours	<u>1,592</u>

At 100% utilization, we would have 1,592 hours available per analyst per year. This is the Potential Hours Available per person for phone support tasks. Restated on a monthly basis we would have 133 hours per month per analyst.

### 5. Actual Direct Labor Hours Available Calculation

To compute the Actual Hours Available, we must select a Utilization Rate to reflect the nature of the inbound problem report arrivals, and the service level goals established for response times. For first level telephone problem reports, which arrive randomly and must be responded to upon arrival or force the caller to wait, we suggest that a Utilization Rate of 80% be employed and then adjusted based subsequent upon observation and experience. Using these assumptions:

$$\text{Actual Hours Available} = \text{Potential Hours Available} * \text{Effective Utilization Rate}$$

Analysis Category	Potential Hours	Utilization Rate	Actual Hours
Low Volume	133	80%	110
High Volume	133	80%	110

Each analyst should be able to contribute, on average, the indicated number of hours of available time per month when responding to problem reports. This includes the necessary allowances for training and other off-phone activities. We can now estimate the staffing required to meet the demand.

## 6. Gross Staffing Level Calculation

The average number of agents required in each category is calculated as:

$$\begin{array}{rcccl} \text{Average} & & \text{Total} & & \text{Actual Hours} \\ \text{Agents} & = & \text{Hours} & / & \text{Available per} \\ \text{Required} & & \text{Required} & & \text{Agent} \end{array}$$

<b>Analysis Category</b>	<b>Total Hours Req'd</b>	<b>Hours per Analyst</b>	<b>Req'd Analysts</b>
Low Volume	584	110	5.3
High Volume	1,050	110	9.5

This suggests that the appropriate average staffing level for the support group would be 5 agents at the low end of the estimated call volume, and 9 agents at the high end. Obviously, this is based upon the particular data and assumptions employed and would differ to the extent that they are inaccurate. Note that if there had been multiple skill categories used, the model would provide staffing requirements by skills class as well. This is very useful in developing training plans to anticipate future staffing needs for new skills, or changes in the existing mix of skills.