

# DIARY

of a  
WORKFORCE  
MANAGER

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# Origin of a WFMer

I am a Certified Workforce Manager and owner of Human Numbers, established in 2008, which began as a consulting company providing outsourced forecasts and schedules for contact centers that didn't have a Workforce Manager or couldn't afford to buy WFM software. Now we offer a full range of services, including long-term staffing models, time-off management and on occasion, even real-time adherence.

My entire adult life has been in contact centers. My first full-time job as a phone bank temp started the week after I graduated high school. When they bought WFM software in 1994, I volunteered to learn it and that was the day I became a Workforce Manager. I've never regretted it because I deeply love the world of forecasting. I participate in forecasting competitions, I blog about WFM, and I follow

every user group I find on the topic.

I learned the ropes with TCS, which turned into Aspect eWFM. Then I learned Blue Pumpkin, which turned into Verint, Interactive Intelligence, which turned into Genesys, IEX, Calabrio, injixo, etc. I was lucky to experience so many unique opportunities in my career and some of my favorite memories were participating in vendor's user forums that helped shape the way today's modern WFM systems work. I have experience with multi-channel, multi-skill, and multi-lingual configurations. I even had a chance to work on a project that enabled voice-activated WFM interfaces for blind call center agents and another project for chat and text channels with deaf agents.

I was a charter member of The Society of Workforce Planning Professionals (SWPP) and a Workforce Planner of the Year nominee. I belong to the International Institute of Forecasters and I'm on the advisory board for Contact Center Pipeline where I also occasionally write a monthly article on workforce management. I have my contact center certification through ICMI and I have my workforce management certification from The Call Center School. Much of my WFM education came from my own experiences, trials and errors, and I hope you may find one or two of those helpful on your own WFM path. I wish you all the best of luck with your own forecasts and schedules!

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# Chapter 1 - Forecasts

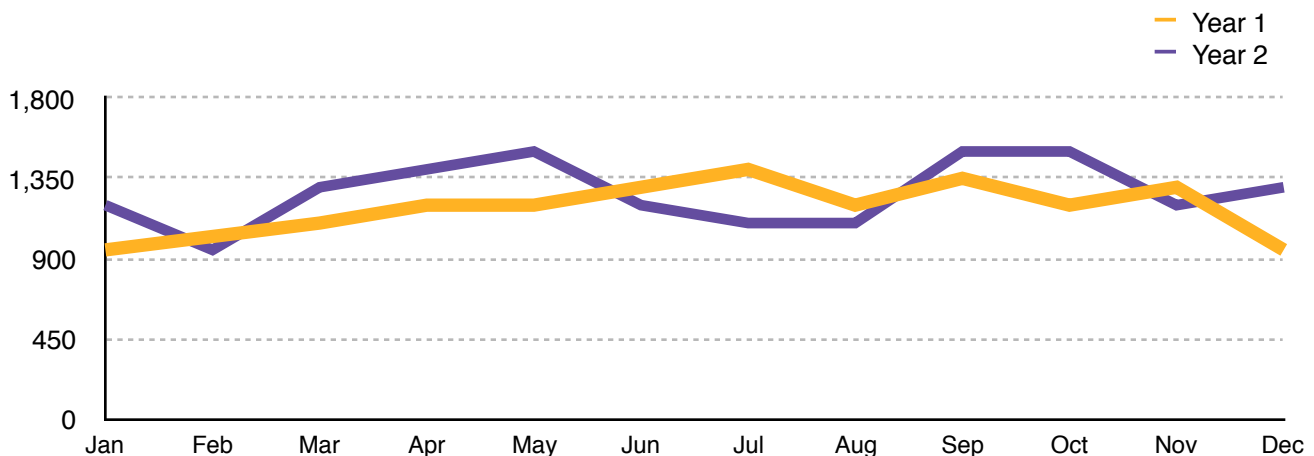
## Basic Forecast Methodology: Point Estimation vs. Time Series

**Point estimation** is the most commonly used forecast approach. This is the “no change” method and simply means do whatever happened last time. It doesn’t require special software or fancy calculations. This is a good place to start for a baseline forecast and it demonstrates where you are today. As your contact center grows and experiences change, and most of them do, point estimation will become outdated and require an improvement.

Some exceptions to that might be during rare emergencies or on very special days like New Year’s Eve and Christmas Eve. These are legitimate times to fall back on point estimation, but they are the exception, not the rule. If it’s used in normal day-to-day forecasting it will fail as soon as the call drivers change, so there needs to be a strong method ready to take its place when that happens, even if it’s something as simple as averaging the point estimates.

**Time-series** is a more accurate approach and it is the basic platform used by most WFM systems. It’s similar to point estimation because it does use the history from whatever happened last time, but the difference is that it uses a more precise approach within the time constraints of a year, a month, a week, a day, and an interval. It’s necessary because we treat these increments of time with exceptions. January’s volume is different from February. February this year might have a different number of weekdays than it did last year. Tuesday’s volume is different from Saturday. Volume at 10 a.m. is different from 5 p.m.

The time-series method wrangles all of these exceptions to make it more manageable for the Forecaster. The formula is straightforward data extrapolation:



*Charting this out year-over-year helps visualize the impact and rate of change*

**Step 1:** Divide last year’s volume by the year before. Results over 100% mean volume is growing, less than 100% mean it has shrunk.

**Step 2:** Calculate each month's percentage of the yearly totals to determine the monthly impact

**Step 3:** Repeat this weekly to determine the percentage of week index factors

**Step 4:** Repeat daily to determine the day-of week factors

**Step 5:** Repeat by interval to determine the hour-by-hour factors.

I like Time-Series Analysis because it incorporates history into the forecast and allows me to measure my forecast performance over time.



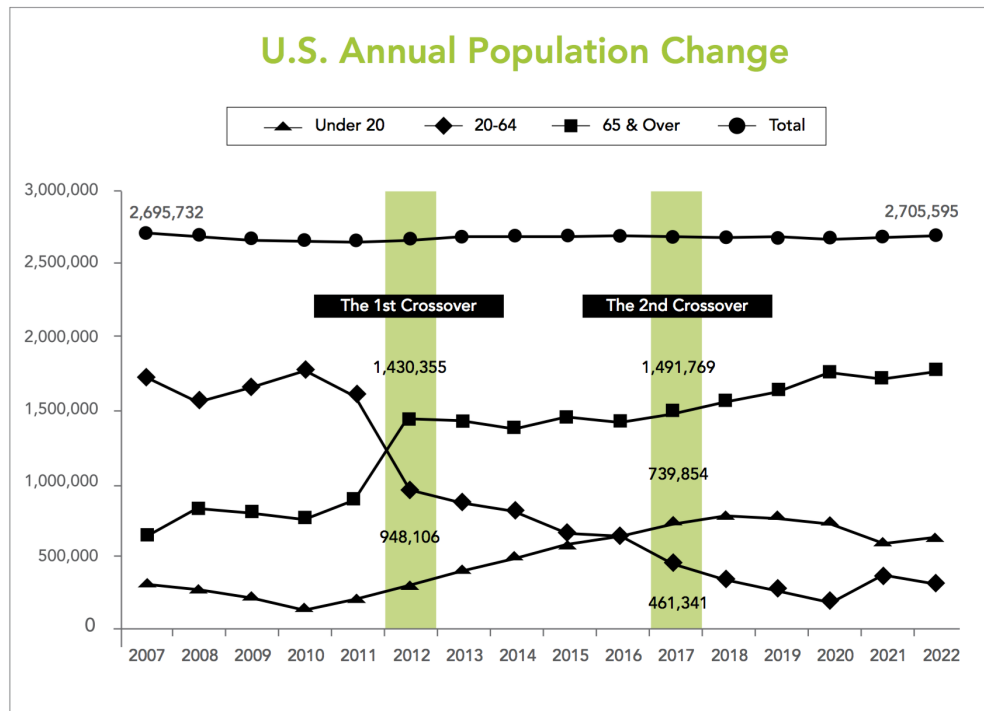
# The Keys to a Power Forecast

Quickly outgrowing point estimation and time-series as the sole forecasting method is normal. Once the initial forecast is in place, I can use actual history to measure how well it's doing. I may learn about changes to the original assumptions that I want to incorporate, or I might see a new trend emerging. Sometimes I need to layer adjustments based on recent information and human intelligence. The more things change in the center, the more complex the forecast becomes

1. **Clean the data.** Also called “normalizing”, this process looks for abnormalities like outages, holidays, and spikes, and marks them with a special tag. This distinguishes them from regular data groups. I have heard one of the biggest complaints users have about WFM software is that their forecasts are bad, and one of the biggest complaints WFM software vendors have is that the users do a poor job of cleaning the data. On the other hand, I've also witnessed the trend in software evolving to *automate* the data capture process to the point of eliminating the need for a human eye ever seeing this data. This automation “feature” contributes to poor data-mining habits, with overly smoothed outputs. Before a Forecaster can visualize trends, they have to be able to comprehend what is actually arriving in the raw data sets. This includes looking for blocked calls, too, which may be hiding in other reports.
2. **Forecast Handle Time.** This process is different from forecasting volume. When a new training class starts, their handle times may be longer, plus, they may be asking their neighbors questions, which affect their availability, or after-call work time, potentially driving more calls to the new hires with the longer times. To compensate for this, apply a little curve to the normal handle time projections while new hires are in effect, then scale it down as they become proficient. Incidentally, the lower the tenure, the higher the AUX/unavailable time will be, too.

Another difference is seasonality. If different types of calls arrive based on what time of year it is, then use handle times that apply to that season. Your WFM software may not automatically do this for you. Handle times can vary by time of day, day of week, season of year, weekdays vs. weekends, ratio of staff in training, etc. etc. etc. Using identical handle times for each of these could dramatically reduce the performance of your forecasted staffing requirements. Adding multi-skill or multiple channels to the forecast group makes it even more important to track handle times accurately.

3. **Don't let your WFM software bully you into producing poor forecasts (or schedules).** WFM software does not have AI so it's really only as smart as the person running it. The software has limitations, and users need to become actively involved with their vendor's forums, surveys, and wishlists for feature enhancements.



U.S. Annual Population Change

4. **Stay open to multiple forecasting methods.** I have a giant collection of different forecasting techniques that I rely on. We are still pioneers in workforce management, and there is more to discover. Trends, weighted means, carryover, event-driven, contact rates, growth rates, regression analysis, and the list goes on. Sometimes I need to use a combination, and I might alter that combination even further with temporary overlays. The most interesting one I've come across lately is fertility and mortality rates, which use the Census Reports to estimate annual population changes. This type of external information is very important when forecasting anything related to retirement. [Notice the actual flip that occurred in 2012 between the 65+ and 20-64 age groups? That's because of our boomers.]
5. **Get to know Erlang.** The Erlang formula calculates how many employees we need to meet a specific service level based on volume and handle times. Agnes Krarup Erlang (Jan. 2, 1878 – Feb. 3, 1929) is the father of the modern-day queueing theory, and he is from Denmark - not that language matters to us. One of the beautiful things about being a mathematician is that we speak a common language. The Erlang formula is the same in Danish as it is in English. He was a hands-on mathematician, graduating at age 14 and going underground into manholes to research telephone traffic in the early 1900s.