

Secrets of WFM

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- 1. What to do when there is variance? Should we reforecast?
- 2. Some quick and cool what-ifs using sensitivity analyses
- **3**. Forecasting in the cloud and Decisions



Variance Analysis is Important!





Variance analyses are our canary in the coalmine

Why is there variance?

- 1. The forecast may be off– a math or process error
- 2. Something external may have changed the mix of contacts or agent performance
- **3.** Something internal may have changed the mix of contacts or agent performance
- 4. It could be a random occurrence (a blip)



A very appropriate role of your forecasting process is to be an early warning signal. And variance is often the impetus for many what-ifs!

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Is the variance significant? Vol Vs. SL/Staff Required



Is it error or is it change?

Error

- Can I tweak my model to make it better?
- Hindsight: Was it my modeling choices that made the difference in accuracy?
- Nobody understands what's different this month

Change

- Or do I have to throw away my model for something radically different?
- Hindsight: Did I have any way of forecasting this right?
- We are hearing about the change (from the agents, from the news, etc...)

What many management teams view as error is really change! The best management teams view error *as* change!

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What-Ifs!





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Simulation vs. Erlang C: validating accuracy

М Pr Re Cr A

Preferred Service: Service Level Comparison Simulation vs. Erlang-C vs. Actuals (Weekly Summary)



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

DAY # - SL Actual - SL Sim - SL Erlang

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	Simulation	n Service Level Prediction			rlang-C Service Level Prediction		
Call Type	Avg. Err	Avg. Abs. Err	Std. Dev. Abs. Err	Avg. Err	Avg. Abs. Err	Std. Dev. Abs. Err	
Loans	0.59%	0.78%	0.65%	22.42%	22.42%	4.61%	
Member Services	0.24%	1.19%	1.20%	25.97%	25.97%	5.56%	
Preferred Services	-1.27%	2.21%	1.75%	24.11%	24.11%	4.67%	
Retail	0.86%	2.66%	1.39%	3.36%	4.03%	4.85%	
Credit Card	0.31%	1.01%	1.08%	9.99%	9.99%	3.41%	
Auto Insurance	1.20%	2.45%	2.27%	-3.46%	3.46%	1.59%	
Average	0.32%	1.72%	1.39%	13.73%	15.00%	4.12%	

1. Forecasting shrinkage is extremely important



2. Setting Service Goals

Question: Should we keep running a 70/20 second service level goal, or switch to a 90/20 service level goal?

Some Implications:

- Telecommunications cost
- Staffing cost
- Facilities
- Customer satisfaction
- Occupancy and idle time

So how do you take these factors into account?

How Many More Agents Will We Need?

	🕈 Sensitivity Analysis							
	Print Save Close	⊂ Interval ⊂ Monthly	Zoom Control	Out				
	Call <u>T</u> ype	<u>X</u> -Axis	<u>Y</u> -Axis	Month/Week				
	Card Inbound Sales	Staffed FTE	Service Level [%]	▼ 05/08/05-05/14/05 ▼	<u>E</u> xecute			
		5	Staffed FTE (vs) Service L	evel [%]				
	Service Level [%]							
	100			The sensitivity analysi	s shows			
	90			we will need 22 more	agents to			
				achieve our new goall				
	80			denieve eur new geai.				
	70							
	60							
	+							
	50-							
	40		> 22 Agonto					
	30							
	20	330 340		380 390 400 410	420 430			
	510 520	000 040	Staffed FTE	000 100 100	100			
	Graph Selection : Card Inbound Sales - 05/08/05-05/14/05							
	Axis Scale Controls	Minimum <u>M</u> aximum		Minimum Maximum				
GENESYS	× Axis	310 430	Y Axis	20 100				

How Will This Change Affect Occupancy?



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How Many Fewer Customers Will Abandon?

💡 Sensitivity Analysis						
Print Save Close	Interval ◯ Monthly ⓒ <u>W</u> eekly	In	- Out			
Call <u>T</u> ype	<u>X</u> -Axis	<u>Y</u> -Axis	Mo <u>n</u> th/Week	X-Axis <u>D</u> ependency		
Card Inbound Sales	Service Level [%]	Abandon [%]	05/08/05-05	i/14/05 💌 Staffed FTE	<u> </u>	
	Service Level [%] (vs) Abandon [%]					
Abandon [%]						
5						
4	l		The sensitiv abandon wi	vity analysis sho Il drop by 2%	ows	
2	2% decrease!					
					••••	
50	60	/U Service Level [9/	80	90	100	
Graph Selection : Card Inbound Sales - 05/08/05-05/14/05 (Based on Staffed FTE)						
Axis Scale Controls	Mjnimum Maximui 50 100	m Y Axis	Minim <u>u</u> m M. 5 0 6	<u>a</u> ximum		

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What about our costs?

🛉 Sensitivity Analysis							
Print Save Close	C Monthly @ Weekly	 In	Out				
Call <u>T</u> ype	<u>∠</u> -Axis	<u>Y</u> -Axis	 Mo <u>n</u> th	Week X-Axis <u>D</u> epend	ency / (
Card Inbound Sales	Service Level [%]	Cost Per Call	▼ 05/08	/05-05/14/05 💌 Staffed FTE	<u> </u>		
	Service Level [%] (vs) Cost Per Call						
Cost Per Call							
7.0							
6.8		Ihe	e sensitivity a	nalysis shows			
+		eac	h call will cos	st on average 26	š		
6.6		cen	ts more				
		Is it	worth the co	st per call?			
0.4				-			
6.2							
-	<u> </u>						
6.0	26 cent per cal	increase					
5.8-							
5.6		70	80	-,	100		
	00	Service Lev	el [%]	00	100		
Graph Selection : Card Inbound Sales - 05/08/05-05/14/05 (Based on Staffed FTE)							
Axis Scale Controls	Minimum <u>M</u> aximu	n	Minimum	Maximum			
×Ax	is 50 100	١	Axis 5.6	7.0			

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Our profits?



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Forecasting and Decisions



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A cloud based, machine learning, automated, long term forecaster

Time series dataSearch for outliers and missing data and find the mathematicallyMathematically describe the dataBest Model• VolumesSearch for outliers and missing data and find the mathematically correctMathematically describe the data • Does it have a positive trend?Choose the forecasting method that fits the		Find Outliers	Pattern Detection	
 Wages anything anything Does it have a negative trend? Does it have seasonality Is the series stationary? 	 Time series data Volumes Handle times Sick time Outbound contact rates Wages anything 	Search for outliers and missing data and find the mathematically correct replacement	 Mathematically describe the data Does it have a positive trend? Does it have a negative trend? Does it have seasonality Is the series stationary? 	Best Model Choose the forecasting method that fits the description of the data. Evaluate hundreds of thousands of models

Choose the model that returns the lowest error over the range of data presented

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What is Decisions?

 Decisions is a long-term contact center strategic planning and what-if analysis system.



- Perform risk and sensitivity analysis of your contact center
- Evaluate center what-ifs: investments, consolidation, and growth opportunities
- Decisions complements traditional workforce management software by focusing on strategic decision making and long-term planning



Thank you!

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