



ORACLE®

Working With Dashboards for Risk Measurement

An OBIEE, Essbase and Crystal Ball Integrated Demo

Risk Reporting

- Let's look at how we can use historical data and subject matter expertise with predictive analytics to for better forecasting
- We're going to focus on Cola sales forecast for California to illustrate this workflow:
 - Access historical data and analyze it for trend and seasonality to more accurately forecast the next 12 periods
 - Improve our forecasting model by capturing the best range estimates of subject matter experts
 - Use the model to understand likelihood of success – see the probabilities instead of just the possibilities
 - Make an informed decision as to what sales targets we feel confident in committing to, communicate those results, and provide reports and statistics to back up our analysis.

In the Crystal Ball dashboard, we see it's time to commit to a sales forecast for 2001. From a Planner, we get the sales targets we're supposed to attain in 2001:

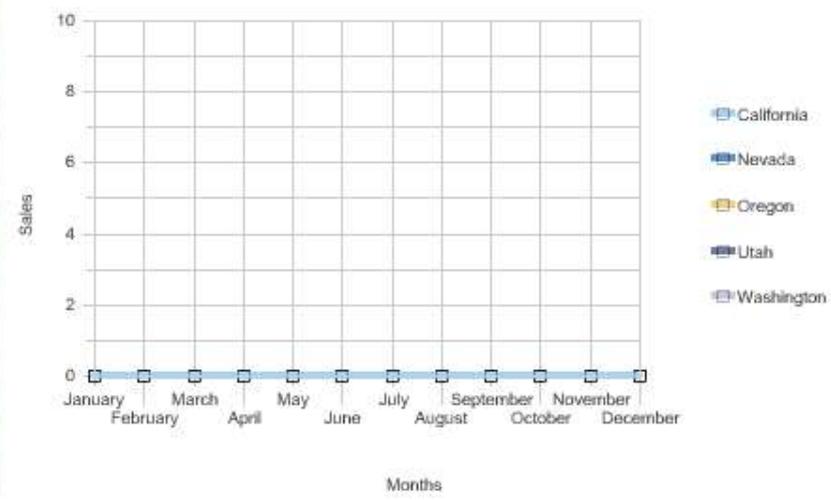
- California: 60,000
- Nevada: 9,000
- Oregon: 12,000
- Utah: 10,000
- Washington: 14,000

Cola Forecast Western Region

Years **2001**

Forecast Cola

Months	Sales				
	California	Nevada	Oregon	Utah	Washington
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	0	0	0	0	0
May	0	0	0	0	0
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	0	0	0
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Grand Total	0	0	0	0	0



[Modify](#) - [Refresh](#) - [Download](#)

Because it's important that we not miss out numbers in the coming year, before committing to those numbers and updating our dashboard with the forecast, we'd like to take a step back and think about two questions:

- 1) How likely are we to achieve these numbers
- 2) If not likely (or not likely enough) what can we do to increase our likelihood of meeting or exceeding our targets.

Beverage Analysis Welcome, Administrator! [Dashboards](#) - [Answers](#) - [More Products](#) - [Settings](#) - [Log Out](#)

[Executive Summary](#) [Product Analysis](#) [Drill To Detail](#) [Essbase Analysis](#) [Alocations](#) [Crystal Ball](#) [Page Options](#)

Cola Forecast Western Region

Years

Forecast Cola

Months	Sales				
	California	Nevada	Oregon	Utah	Washington
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	0	0	0	0	0
May	0	0	0	0	0
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	0	0	0
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Grand Total	0	0	0	0	0

Sales

Months

[Modify](#) - [Refresh](#) - [Download](#)

Simulated Range for 2001 Forecast Adjusted **Simulated Range for 2001 Forecast Base Case**

Home Insert Page Layout Formulas Data Review View Add-Ins Hyperion Oracle BI Crystal Ball

Activate | Reset | Data Source Manager | Connections

Zoom In | Zoom Out | Pivot | Ad Hoc Analysis

Keep Only | Remove Only

Select Form | Refresh Offline | Expand | Instructions | Sync Back To Server | Collapse | Take Offline | Lock | Forms

Refresh | Refresh All | Submit Data | Review

Undo | Paste Data | POV Manager | Redo | R&A Import | Member Sel | Copy Data | R&A Edit | Function B | Task

D7 fx 3881.09216320784

	A	B	C	D	E	F	G	H
1	State	SKU	Month	Sales				
2	California	Cola	1998-01	822.0907695				
3	California	Cola	1998-02	1461.685137				
4	California	Cola	1998-03	2077.161483				
5	California	Cola	1998-04	362.9447678				
6	California	Cola	1998-05	1811.746082				
7	California	Cola	1998-06	3881.092163				
8	California	Cola	1998-07	3232.295594				
9	California	Cola	1998-08	6714.200998				
10	California	Cola	1998-09	2329.496591				
11	California	Cola	1998-10	3598.623891				
12	California	Cola	1998-11	1314.682319				
13	California	Cola	1998-12	3673.790518				
14	California	Cola	1999-01	1802.786283				
15	California	Cola	1999-02	2325.303866				
16	California	Cola	1999-03	2428.693942				
17	California	Cola	1999-04	664.7861803				
18	California	Cola	1999-05	3011.544799				
19	California	Cola	1999-06	5921.010532				
20	California	Cola	1999-07	6057.117013				
21	California	Cola	1999-08	9037.96293				
22	California	Cola	1999-09	4728.18936				
23	California	Cola	1999-10	6657.221038				
24	California	Cola	1999-11	5544.492738				
25	California	Cola	1999-12	1701.406611				

POV [BevPlus-Western regio]

[Market],[Director]

[Market],[Region],[West]

[Product],[Caffienated]

[Product],[Date Introduced]

[Product],[Family Description]

[Product],[Ounces]

[Product],[Package Types]

[Time],[Calendar Month Name]

[Time],[Calendar Quarter Number]

[Time],[Calendar Quarter]

[Time],[Calendar Week Number]

[Time],[Calendar Year]

[Time],[Day Name]

[Time],[Day]

[Time],[Fiscal Quater Name]

[Time],[Fiscal Week Number]

[Time],[Fiscal Year]

Refresh

Smart View Data Source Manager

Provider URL: http://demodrive:13080/aps/SmartView

- Oracle BI Server
 - demodrive
 - Beverage Plus
 - Beverage Plus Accounting
 - Beverage Plus History
 - Beverage Plus History - demodrive
 - BevPlus
 - Crystal Ball
 - Drill to Detail
- Oracle Essbase
 - DEMODRIVE
 - ASO_10M
 - ASO_B2m
 - ASOsamp
 - AT
 - BookA2
 - Channels
 - Classic
 - Demo
 - dm Clust

With SmartView we connect to our historical data in our database

Home Insert Page Layout Formulas Data Review View Add-Ins Hyperion Oracle BI Crystal Ball Options Design

Paste Font Alignment Number Conditional Formatting Styles Insert Delete Format Cells Sort & Filter Find & Select Editing

F14 200.234050033314

1	Sum of Sales	SKU	State			
2		Cola				
3	Month	California	Nevada	Oregon	Utah	Washington
4	1998-01	822.0907695	62.44238436	832.9460656	531.8802765	162.118691
5	1998-02	1461.685137	80.78361196	349.3253811	458.7236327	204.867665
6	1998-03	2077.161483	305.9595542	678.057348	524.1235788	15.88450535
7	1998-04	362.9447678	175.9196057	204.8874557	193.7672135	178.1882431
8	1998-05	1811.746082	194.4330938	463.5484934	639.0132566	80.74862046
9	1998-06	3881.092163	166.2720831	215.2984149	384.2509643	60.31396928
10	1998-07	3232.295594	189.0294054	88.41805322	141.4835139	109.9055537
11	1998-08	6714.200998	297.1524558	165.4778653	23.15096733	337.7100924
12	1998-09	2329.496591	285.2303758	475.147092	123.1167688	87.85190627
13	1998-10	3598.623891	235.3423365	811.5522629	279.9017784	188.9658057
14	1998-11	1314.682319	84.27867152	505.8278258	608.7833821	200.23405
15	1998-12	3673.790518	134.7532091	253.1894381	192.084162	218.2577819
16	1999-01	1802.786283	383.4759321	1478.598069	851.8716677	194.8463931
17	1999-02	2325.303866	296.676978	949.2953691	799.39183	
18	1999-03	2428.693942	431.385328	1272.881417	656.49969	
19	1999-04	664.7861803	316.00105	737.4578667	361.9223528	332.2564415
20	1999-05	3011.544799	353.1642347	823.5728585	1021.751138	177.7546341
21	1999-06	5921.010532	608.8817316	417.4276509	656.8649046	298.5876834
22	1999-07	6057.117013	336.9135166	480.8148707	459.7866847	229.4906493
23	1999-08	9037.96293	454.971418	643.6260445	156.6511945	423.420729
24	1999-09	4728.18936	561.8951768	714.5216514	407.2107649	257.9882359
25	1999-10	6657.221038	513.7591632	1046.681566	640.8601891	232.5961069
26	1999-11	5544.492738	292.9853758	723.8588647	1178.68508	340.9452101

PivotTable Field List

Choose fields to add to report:

- State
- SKU
- Month
- Sales

Drag fields between areas below:

Report Filter Column Labels

Row Labels: Month

Values: Sum of Sales

Defer Layout Update Update

And use Excel to arrange it quickly in a pivot table

Home Insert Page Layout Formulas Data Review View Add-Ins Hyperion Oracle BI Crystal Ball

Define Assumption Define Decision Define Forecast Define Clear Select Freeze Cell Prefs

Start Stop Reset Step

Tools

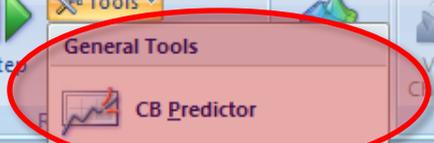
General Tools

CB Predictor

View Charts Create Report Analyze Extract Data

Help Resources About Help

H9	A	B	C	D	E	F
1	Sum of Sales	SKU	State			
2		Cola				
3	Month	California	Nevada	Oregon	Utah	Washingt
4	1998-01	822.0907695	62.44238436	832.9460656	531.8802765	162.118
5	1998-02	1461.685137	80.78361196	349.3253811	458.7236327	204.867
6	1998-03	2077.161483	305.9595542	678.057348	524.1235788	15.88450
7	1998-04	362.9447678	175.9196057	204.8874557	193.7672135	178.1882
8	1998-05	1811.746082	194.4330938	463.5484934	639.0132566	80.74862
9	1998-06	3881.092163	166.2720831	215.2984149	384.2509643	60.31396
10	1998-07	3232.295594	189.0294054	88.41805322	141.4835139	109.9055
11	1998-08	6714.200998	297.1524558	165.4778653	23.15096733	337.7100
12	1998-09	2329.496591	285.2303758	475.147092	123.1167688	87.85190
13	1998-10	3598.623891	235.3423365	811.5522629	279.9017784	188.9658
14	1998-11	1314.682319	84.27867152	505.8278258	608.7833821	200.23
15	1998-12	3673.790518	134.7532091	253.1894381	192.084162	218.2577
16	1999-01	1802.786283	383.4759321	1478.598069	851.8716677	194.8463
17	1999-02	2325.303866	296.676978	949.2953691	799.3918306	314.2423
18	1999-03	2428.693942	431.385328	1272.881417	656.4996975	181.6602
19	1999-04	664.7861803	316.00105	737.4578667	361.9223528	332.2564
20	1999-05	3011.544799	353.1642347	823.5728585	1021.751	
21	1999-06	5921.010532	608.8817316	417.4276509	656.8649	
22	1999-07	6057.117013	336.9135166	480.8148707	459.7866	
23	1999-08	9037.96293	454.971418	643.6260445	156.6511	
24	1999-09	4728.18936	561.8951768	714.5216514	407.2107	
25	1999-10	6657.221038	513.7591632	1046.681566	640.8601891	232.5961069
26	1999-11	5544.492738	292.9853758	723.8588647	1178.68508	340.9452101



Select the data set and in the Crystal Ball ribbon (Excel 2007) or toolbar (Excel 2000 or 2003), select CB Predictor, the time-series forecasting tool

Home Insert Page Layout Formulas Data Review View Add-Ins Hyperion Oracle BI Crystal Ball Options Design

Define Assumption Define Decision Define Forecast Define Clear Select Freeze Cell Prefs Copy Paste

Start Stop Reset Step Tools Save or Restore Run Preferences OptQuest View Charts Create Report Extract Data Analyze Help Resources About Help

E16 fx Month

A B C D E F G H I J K

1	Sum of Sales	SKU	State								
2		Cola									
3	Month	California	Nevada	Oregon	Utah						
4	1998-01	822.0907695	62.44238436	832.9460656	531						
5	1998-02	1461.685137	80.78361196	349.3253811	458						
6	1998-03	2077.161483	305.9595542	678.057348	524.1253788						
7	1998-04	362.9447678	175.9196057	204.8874557	193.7672135						
8	1998-05	1811.746082	194.4330938	463							
9	1998-06	3881.092163	166.2720831	215							
10	1998-07	3232.295594	189.0294054	88							
11	1998-08	6714.200998	297.1524558	165							
12	1998-09	2329.496591	285.2303758	4							
13	1998-10	3598.623891	235.3423365	81							
14	1998-11	1314.682319	84.27867152	505							
15	1998-12	3673.790518	134.7532091	253							
16	1999-01	1802.786283	383.4759321	147							
17	1999-02	2325.303866	296.676978	949							
18	1999-03	2428.693942	431.385328	127							
19	1999-04	664.7861803	316.00105	737							
20	1999-05	3011.544799	353.1642347	823							
21	1999-06	5921.010532	608.8817316	417							
22	1999-07	6057.117013	336.9135166	480							
23	1999-08	9037.96293	454.971418	643							
24	1999-09	4728.18936	561.8951768	714							
25	1999-10	6657.221038	513.7591632	104							
26	1999-11	5544.492738	292.9853758	723.8588647	1178.68508	340.9452101					

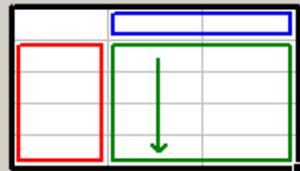
Use the Predictor wizard to define the forecast parameters for the next 12 months, based on the past 5 years of data

CB Predictor

Input Data | Data Attributes | Method Gallery | Results

Step 1. Enter a cell range on your spreadsheet that contains one or more data series:
 Range: [Western Historical Cola Sales!\$A\$3:\$F\$39] [Select...]

Step 2. Show how your data is arranged:
 First row has headers
 Data in rows
 Data in columns
 First column has dates



Step 3. Optional -- view a graph of your data along with summary statistics: [View Data...]

<< Back | Next >> | Preview... | Run | Cancel | Help

Home Insert Page Layout Formulas Data Review View Add-Ins Hyperion Oracle BI Crystal Ball Options Design

Define Assumption Define Decision Define Forecast Define Clear Select Freeze Cell Prefs Copy Paste

Start Stop Reset Step Tools Save or Restore Run Preferences OptQuest View Charts Create Report Extract Data Analyze Help Resources About Help

E16 fx Month

A B C D E F G H I J K

1	Sum of Sales	SKU	State			
2		Cola				
3	Month	California	Nevada	Oregon	Utah	
4	1998-01	822.0907695	62.44238436	832.9460656	531.8802765	162.118691
5	1998-02	1461.685137	80.78361196	349.3253811	458.7236327	204.867665
6	1998-03	2077.161483	305.9595542	678.057348	524.1235788	15.88450535
7	1998-04	362.9447678	175.9196057	204.8874557	193.7672135	178.1882431
8	1998-05	1811.746082	194.4330938	463.1111111	312.1111111	111.1111111
9	1998-06	3881.092163	166.2720831	215.1111111	111.1111111	111.1111111
10	1998-07	3232.295594	189.0294054	88.1111111	111.1111111	111.1111111
11	1998-08	6714.200998	297.1524558	165.1111111	111.1111111	111.1111111
12	1998-09	2329.496591	285.2303758	4.1111111	111.1111111	111.1111111
13	1998-10	3598.623891	235.3423365	81.1111111	111.1111111	111.1111111
14	1998-11	1314.682319	84.27867152	50.1111111	111.1111111	111.1111111
15	1998-12	3673.790518	134.7532091	25.1111111	111.1111111	111.1111111
16	1999-01	1802.786283	383.4759321	14.1111111	111.1111111	111.1111111
17	1999-02	2325.303866	296.676978	94.1111111	111.1111111	111.1111111
18	1999-03	2428.693942	431.385328	12.1111111	111.1111111	111.1111111
19	1999-04	664.7861803	316.00105	73.1111111	111.1111111	111.1111111
20	1999-05	3011.544799	353.1642347	82.1111111	111.1111111	111.1111111
21	1999-06	5921.010532	608.8817316	41.1111111	111.1111111	111.1111111
22	1999-07	6057.117013	336.9135166	48.1111111	111.1111111	111.1111111
23	1999-08	9037.96293	454.971418	64.1111111	111.1111111	111.1111111
24	1999-09	4728.18936	561.8951768	71.1111111	111.1111111	111.1111111
25	1999-10	6657.221038	513.7591632	10.1111111	111.1111111	111.1111111
26	1999-11	5544.492738	292.9853758	723.8588647	1178.68508	340.9452101

Include data type and seasonality

CB Predictor

Input Data | Data Attributes | Method Gallery | Results

Step 4. Indicate the type of data you have and its seasonality:

Data is in **months** with seasonality of **12** months
 no seasonality (all seasonal methods skipped)

Step 5. Optional -- check here if you have dependencies within your data and you would like to use linear regression to forecast the dependent variables:

Use multiple linear regression: **Select Variables...**

Method: **Standard** **Stepwise Options...**

Include constant in regression equation

<< Back | Next >> | Preview... | Run | Cancel | Help

Define Assumption Define Decision Define Forecast Define

Copy Paste Clear Select Freeze Cell Prefs

Start Stop Reset Step

Tools Save or Restore Run Preferences

OptQuest

View Charts Create Report Extract Data Analyze

Help Resources About Help

	A	B	C	D
1	Sum of Sales	SKU	State	
2		Cola		
3	Month	California	Nevada	Oregon
4	1998-01	822.0907695	62.44238436	832.9460656
5	1998-02	1461.685137	80.78361196	349.3253811
6	1998-03	2077.161483	305.9595542	678.057348
7	1998-04	362.9447678	175.9196057	204.8874557
8	1998-05	1811.746082	194.4330938	463.1237788
9	1998-06	3881.092163	166.2720831	215.8843033
10	1998-07	3232.295594	189.0294054	88.1237788
11	1998-08	6714.200998	297.1524558	165.8843033
12	1998-09	2329.496591	285.2303758	41.1237788
13	1998-10	3598.623891	235.3423365	81.1237788
14	1998-11	1314.682319	84.27867152	50.1237788
15	1998-12	3673.790518	134.7532091	25.1237788
16	1999-01	1802.786283	383.4759321	14.1237788
17	1999-02	2325.303866	296.676978	94.1237788
18	1999-03	2428.693942	431.385328	12.1237788
19	1999-04	664.7861803	316.00105	73.1237788
20	1999-05	3011.544799	353.1642347	82.1237788
21	1999-06	5921.010532	608.8817316	41.1237788
22	1999-07	6057.117013	336.9135166	48.1237788
23	1999-08	9037.96293	454.971418	64.1237788
24	1999-09	4728.18936	561.8951768	71.1237788
25	1999-10	6657.221038	513.7591632	104.1237788
26	1999-11	5544.492738	292.9853758	723.8588647

Predictor offers 8 different time-series methods. The software will calculate all 8 (if selected) and show the user the best method

CB Predictor

Input Data | Data Attributes | Method Gallery | Results

Step 6. Select one or more of the time-series methods from the gallery. CB Predictor will run each method you select and will recommend the one that best forecasts your data.

Nonseasonal | Seasonal

No Trend

- Single Moving Average
- Single Exp. Smoothing
- Seasonal Additive
- Seasonal Multiplicative

Trend

- Double Moving Average
- Double Exp. Smoothing
- Holt-Winters' Additive
- Holt-Winters' Multiplicative

Select All | Clear All | Double-click methods to view descriptions and parameters | Advanced...

<< Back | Next >> | Preview... | Run | Cancel | Help

Home Insert Page Layout Formulas Data Review View Add-Ins Hyperion Oracle BI Crystal Ball Options Design

Define Assumption Define Decision Define Forecast Define Clear Select Freeze Cell Prefs Copy Paste

Start Stop Reset Step Tools Save or Restore Run Preferences OptQuest View Charts Create Report Extract Data Help Resources About Help

F12 fx Month

	A	B	C	D	E	F	G	H	I	J	K
1	Sum of Sales	SKU	State								
2		Cola									
3	Month	California	Nevada	Oregon	Utah						
4	1998-01	822.0907695	62.44238436	832.9460656	531.8						
5	1998-02	1461.685137	80.78361196	349.3253811	458.7250527	204.807605					
6	1998-03	2077.161483	305.9595542	678.057348	524.1235788	15.88450535					
7	1998-04	362.9447678	175.9196057	204.8874557	193.7672135	178.1882431					
8	1998-05	1811.746082	194.4330938	463.1111111	311.1111111	111.1111111					
9	1998-06	3881.092163	166.2720831	215.1111111	111.1111111	111.1111111					
10	1998-07	3232.295594	189.0294054	88.1111111	111.1111111	111.1111111					
11	1998-08	6714.200998	297.1524558	165.1111111	111.1111111	111.1111111					
12	1998-09	2329.496591	285.2303758	41.1111111	111.1111111	111.1111111					
13	1998-10	3598.623891	235.3423365	81.1111111	111.1111111	111.1111111					
14	1998-11	1314.682319	84.27867152	50.1111111	111.1111111	111.1111111					
15	1998-12	3673.790518	134.7532091	25.1111111	111.1111111	111.1111111					
16	1999-01	1802.786283	383.4759321	14.1111111	111.1111111	111.1111111					
17	1999-02	2325.303866	296.676978	94.1111111	111.1111111	111.1111111					
18	1999-03	2428.693942	431.385328	12.1111111	111.1111111	111.1111111					
19	1999-04	664.7861803	316.00105	73.1111111	111.1111111	111.1111111					
20	1999-05	3011.544799	353.1642347	82.1111111	111.1111111	111.1111111					
21	1999-06	5921.010532	608.8817316	41.1111111	111.1111111	111.1111111					
22	1999-07	6057.117013	336.9135166	48.1111111	111.1111111	111.1111111					
23	1999-08	9037.96293	454.971418	64.1111111	111.1111111	111.1111111					
24	1999-09	4728.18936	561.8951768	71.1111111	111.1111111	111.1111111					
25	1999-10	6657.221038	513.7591632	10.1111111	111.1111111	111.1111111					
26	1999-11	5544.492738	292.9853758	723.8588647	1178.68508	340.9452101					

You can also select the number of periods to forecast and other options.

CB Predictor

Input Data | Data Attributes | Method Gallery | Results

Step 7. Enter the number of periods to forecast: 12

Step 8. Select a confidence interval: 5% and 95%

Step 9. Select the results you want:

Paste forecasts at cell: Base Case for by rows columns

Report Charts Results table Methods table

Title: Western Region Cola

Step 10. Click Preview to see a graph of the results. Click Run to output the results.

<< Back | Next >> | Preview... | Run | Cancel | Help

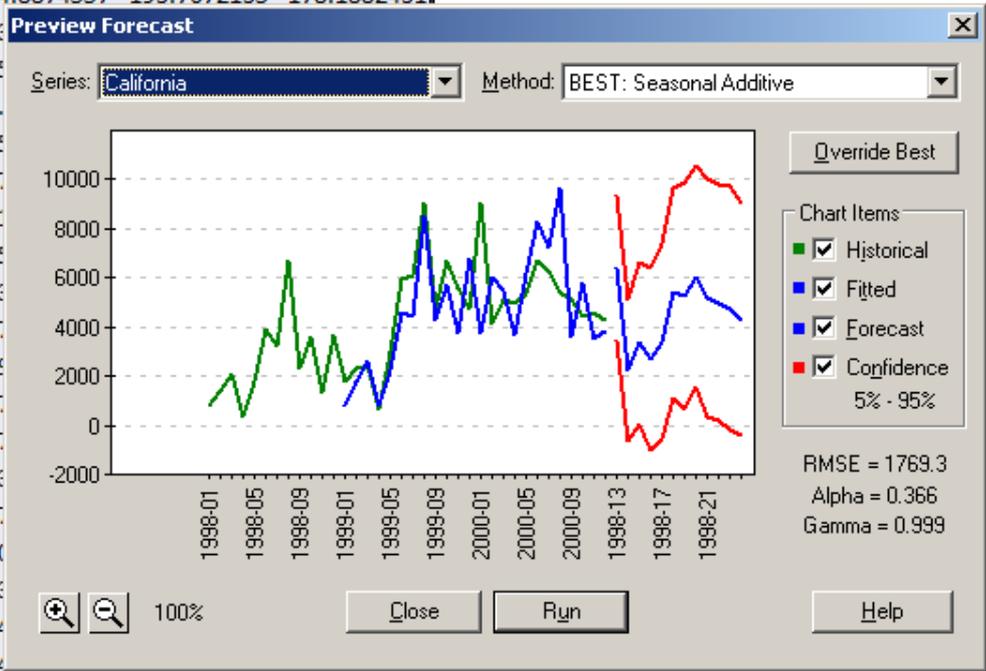
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Define Assumption Define Decision Define Forecast Define Clear Select Freeze Cell Prefs Copy Paste

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	A	B	C	D	E
1	Sum of Sales	SKU	State		
2		Cola			
3	Month	California	Nevada	Oregon	Utah
4	1998-01	822.0907695	62.44238436	832.9460656	531.88027
5	1998-02	1461.685137	80.78361196	349.3253811	458.72363
6	1998-03	2077.161483	305.9595542	678.057348	524.12357
7	1998-04	362.9447678	175.9196057	204.8874557	178.1882431
8	1998-05	1811.746082	194.4330938	46	
9	1998-06	3881.092163	166.2720831	21	
10	1998-07	3232.295594	189.0294054	88	
11	1998-08	6714.200998	297.1524558	16	
12	1998-09	2329.496591	285.2303758	4	
13	1998-10	3598.623891	235.3423365	81	
14	1998-11	1314.682319	84.27867152	50	
15	1998-12	3673.790518	134.7532091	25	
16	1999-01	1802.786283	383.4759321	14	
17	1999-02	2325.303866	296.676978	94	
18	1999-03	2428.693942	431.385328	12	
19	1999-04	664.7861803	316.00105	73	
20	1999-05	3011.544799	353.1642347	82	
21	1999-06	5921.010532	608.8817316	41	
22	1999-07	6057.117013	336.9135166	48	
23	1999-08	9037.96293	454.971418	64	
24	1999-09	4728.18936	561.8951768	71	
25	1999-10	6657.221038	513.7591632	10	
26	1999-11	5544.492738	292.9853758	723.8588647	1178.68508 340.9452101

The results of the best method can be previewed before running. The left part of the chart shows historical data with the fitted data and shorter right part of the chart shows the forecasted data, bounded by the confidence interval in red.



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D3 6400.32130617287

	A	B	D	E	F	G	H	I	J	K	L	M	N
1													
2			California	Nevada	Oregon	Utah	Washington						
3		Jan	6400.32131	734.611822	1993.66538	961.322076	1097.35769						
4		Feb	2243.76283	730.531759	1078.65366	896.490682	1097.35769						
5		Mar	3353.16514	726.451695	1173.45651	970.596936	1097.35769						
6		Apr	2705.76127	722.371631									
7		May	3416.94228	718.291568									
8	Forecast	Jun	5378.73943	714.211504									
9		Jul	5274.09886	710.13144									
10		Aug	6033.58777	706.051377									
11		Sep	5175.59607	701.971313									

After running Predictor to get the next 12 month forecasts for each of the 5 Western states for our Cola SKU based on historical data, the results are added to the worksheet.

The future forecasts are automatically defined as input assumptions, ready to be used in a simulation, an automated what-if analysis.

Define Assumption: Cell D3

Name: California 1998-13

Normal Distribution

Mean: 6,400.32 Std. Dev.: 1,769.34

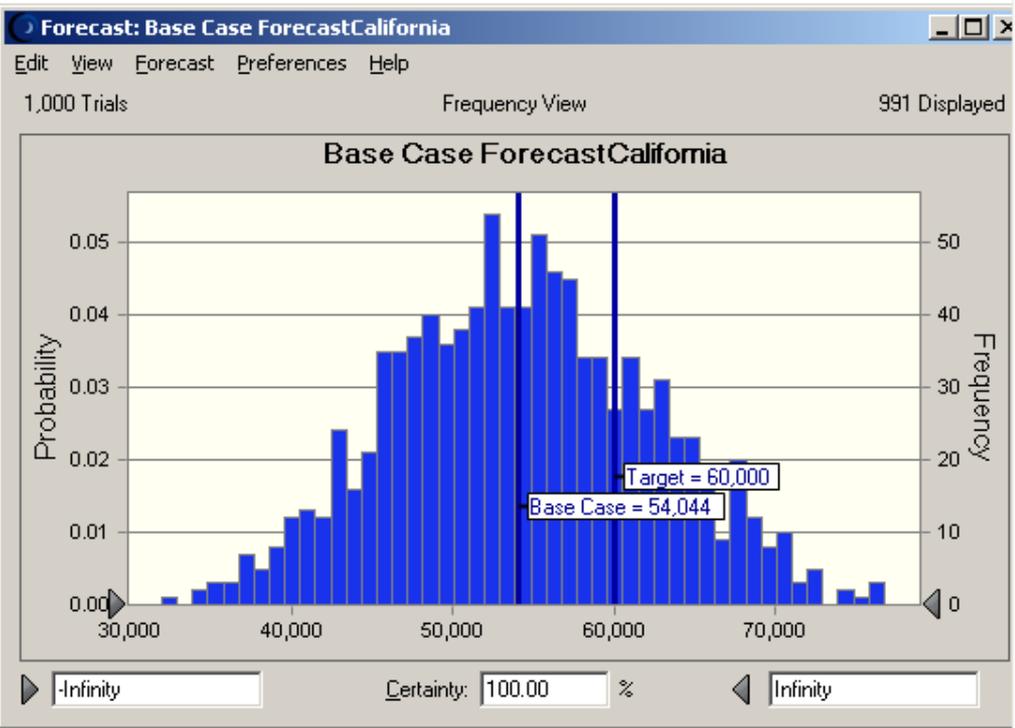
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Define Assumption Define Decision Define Forecast Define Copy Paste Clear Select Freeze Cell Prefs Start Stop Reset Step Tools Save or Restore Run Preferences OptQuest View Charts Create Report Extract Data Help Resources About Help

D3 6400.32130617287

	A	B	D	E	F
1			California	Nevada	Oregon
2					
3		Jan	6400.32131	734.611822	1993.6653
4		Feb	2243.76283	730.531759	1078.6536
5		Mar	3353.16514	726.451695	1173.4565
6		Apr	2705.76127	722.371631	877.65949
7		May	3416.94228	718.291568	837.89692
8	Forecast	Jun	5378.73943	714.211504	690.69387
9		Jul	5274.09886	710.13144	515.76372
10		Aug	6033.58777	706.051377	654.6935
11		Sep	5175.59607	701.971313	857.55669
12		Oct	4986.46816	697.891249	1166.7977
13		Nov	4758.41771	693.811186	859.16896
14		Dec	4316.90215	689.731122	660.16703
15					
16		Base Case Forecast	54,044	8,546	11,36
17		Target	60,000	9,000	12,00



We add up the monthly forecasts for each of the States to get an estimate of the next year's total sales, given historical data. Now just that quickly, we're ready to answer our first question:

"How likely are we to meet or exceed our target for the next year?"

What is Risk Measurement with Monte Carlo Simulation?

Typically, with many applications, we would now look at a handful of scenarios – what if January is lower, or March higher. This gives us a limited range of possibilities, but does not give us insight into everything that could happen, or any probabilities. And it's only those probabilities that can answer our question. We need to do a different kind of simulation. What's called a Monte Carlo simulation.

A Monte Carlo simulation is a series of automated what if trials. Each trial is a different scenario. But instead of manually choosing the variables and again manually changing them, we predefine complete ranges of inputs and let the software quickly and automatically calculate all the corresponding outcomes.

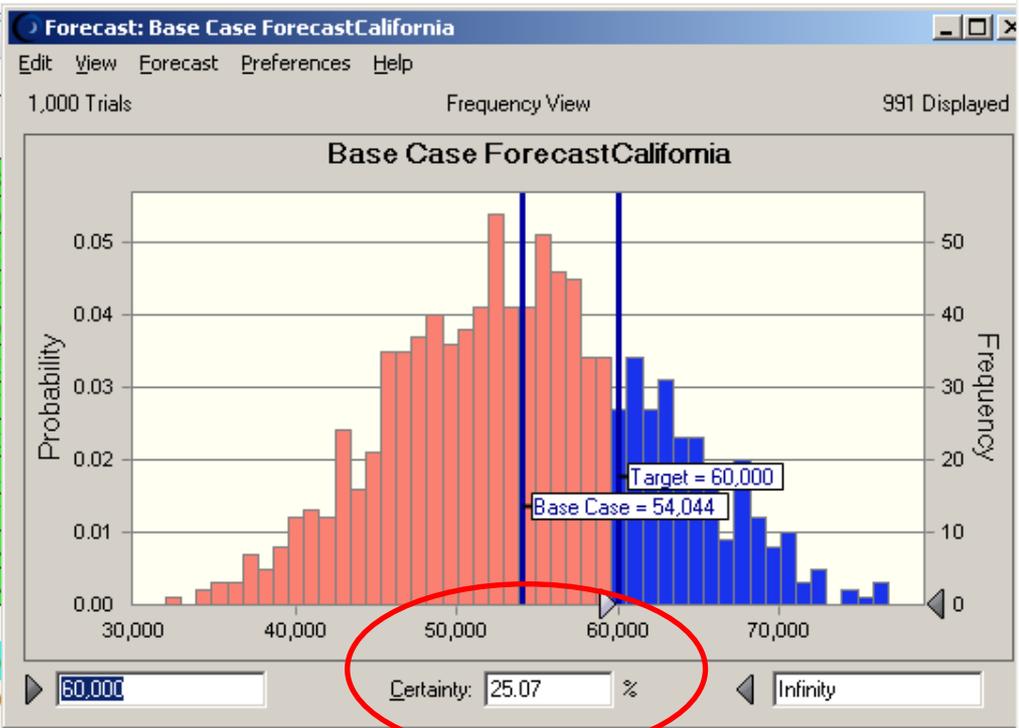
Predictor has already defined each month's forecast as a variable range. A distribution with an expected value and a certain standard deviation. This is one of the key points that differentiates this tool from all other time-series forecasting tools: the automatic definition of variable inputs (or assumptions) ready to be used in a simulation.

Running a what if analysis (Monte Carlo simulation) results in a forecast chart that shows the full range of possible outcomes and their associated probabilities.

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D3		fx 6400.32130617287			
	A	B	D	E	F
1			California	Nevada	Oregon
2					
3	Forecast	Jan	6400.32131	734.611822	1993.6653
4		Feb	2243.76283	730.531759	1078.6536
5		Mar	3353.16514	726.451695	1173.4565
6		Apr	2705.76127	722.371631	877.65949
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13		Nov	4758.41771	693.811186	859.16896
14		Dec	4316.90215	689.731122	660.16703
15					
16		Base Case Forecast	54,044	8,546	11,36
17		Target	60,000	9,000	12,00
18					
19					



Let's answer our question:
 How likely are we to achieve our target for California Cola sales?

The answer: we're only about 25% certain of achieving our goal. Not great... What can we do about it? We'd like to be more confident in meeting our goals. That was our second question: how can we increase the likelihood of meeting our target?

In our example, let's assume that the marketing folks have told us about some new programs that "might" increase our market share. So we'd like to improve our model with these assumptions around an increase in market share and how that might improve our likelihood of meeting our target.

But the marketing folks don't want to guarantee a percentage increase – these are new programs, they don't know for sure. They can, however, give us a range about which they're pretty confident. They say that for California, they expect the programs to give us a 1% increase in market share. But, they say, it could be as little as 0% or as much as 2%. Let's translate this human definition of a variable input into one the software can immediately apply to improve our model.

				Min	Expected	Max	
California	54,044	8%	1.00%	0.15%	1.00%	2.00%	60,799
Nevada	8,546						
Oregon	11,366						
Utah	9,837						
Washington	13,168						

10			California	Neva
11	Target		60,000	
12	Confidence of attaining target (adjusted)	#NUM!		#

We define this increase in market share as a Triangular distribution with the parameters that the marketing folks gave us. This is another key benefit of the software: we can use it to model both when we have data and (almost more important) when we don't have data.

Define Assumption: Cell F4

Name: California

Triangular Distribution

Minimum: 0.15% Likeliest: 1.00% Maximum: 2.00%

Buttons: OK, Cancel, Enter, Gallery, Correlate..., Help

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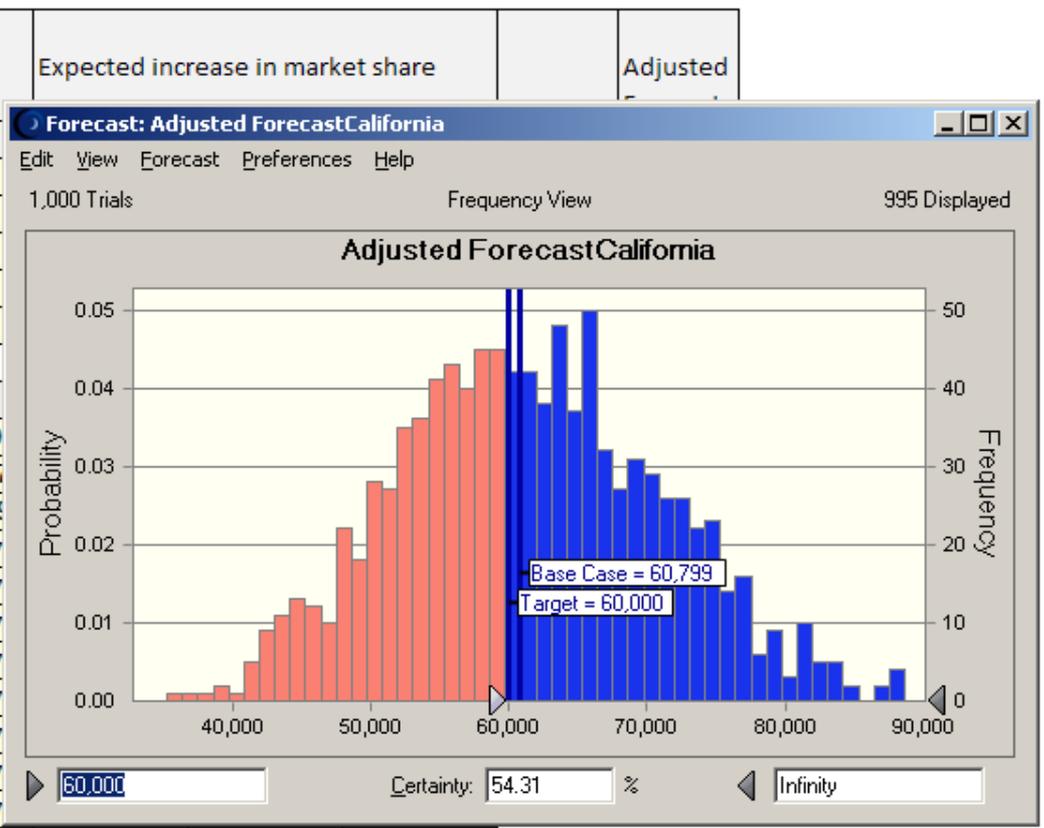
F4 fx 1%

A B C D E F G H I J K L M

Running another simulation with these new assumptions, we see that, in our adjusted forecast, we're now well over 50% certain of meeting our target. A much more comfortable percentage.

We decide that, as long as marketing also commits to executing these new marketing programs, we can commit to our sales forecast.

Plan	Apr	3,004	7			
	May	3,794	7			
	Jun	5,972	7			
	Jul	5,855	7			
	Aug	6,699	7			
	Sep	5,746	739	905	634	1,167
	Oct	5,536	735	1,232	802	1,167
	Nov	5,283	731	907	1,146	1,167



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Reset | Zoom Out | Remove Only | Instructions | Sync Back To Server | Collapse | Submit Data | Redo | R&A Import | Member Sel
Data Source Manager | Pivot | Take Offline | Lock | Refresh | Review | Copy Data | R&A Edit | Function B
Connections | Ad Hoc Analysis | Forms | Task

I17 fx

	A	B	C	D	E	F	G	H	I	J	K
1				California	Nevada	Oregon	Utah	Washington			
2				Cola	Cola	Cola	Cola	Cola			
3	2001	Forecast	January	7,106	774	2,105	977	1,167			
4	2001	Forecast	February	2,491	769	1,139	911	1,167			
5	2001	Forecast	March	3,723	765	1,239	987	1,167			
6	2001	Forecast	April	3,004	761	927	660	1,167			
7	2001	Forecast	May	3,794	756	885	1,122	1,167			
8	2001	Forecast	June	5,972	752	729	872	1,167			
9	2001	Forecast	July	5,855	748	545	634	1,167			
10	2001	Forecast	August	6,699	744	691	523	1,167			
11	2001	Forecast	September	5,746	739	905	634	1,167			
12	2001	Forecast	October	5,536	735	1,232	802	1,167			
13	2001	Forecast	November	5,283	731	907	1,146	1,167			
14	2001	Forecast	December	4,793	726	697	731	1,167			
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POV [BevPlus] x

Sales

Refresh

Smart View Data Source Manager

Provider URL: http://demodrive:13080/aps/SmartView

- DEMOCRIVE
 - ASO_10M
 - ASO_B2m
 - ASOsamp
 - AT
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 - BikesR
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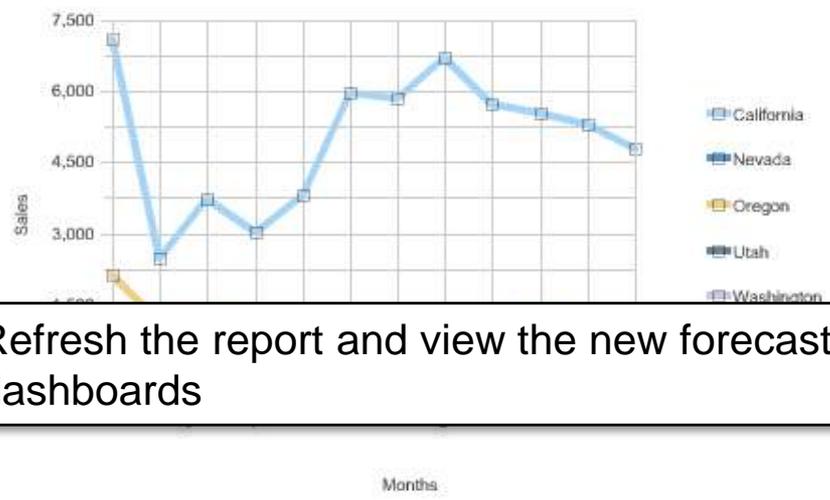
We submit the revised data back to our application

Cola Forecast Western Region

Years **2001**

Forecast Cola

Months	Sales				
	California	Nevada	Oregon	Utah	Washington
January	7,106	774	2,105	977	1,167
February	2,491	769	1,139	911	1,167
March	3,723	765	1,239	987	1,167
April	3,004	761	927	660	1,167
May	3,794	756	885	1,122	1,167
June	5,972	752	729	872	1,167
July	5,855	748	545	634	1,167
August	6,699	744	691	523	1,167
September	5,746	739	905	634	1,167
October	5,536	735	1,232	802	1,167
November	5,283	731	907	1,146	1,167
December	4,793	726	697	731	1,167
Grand Total	60,000	9,000	12,000	10,000	14,000

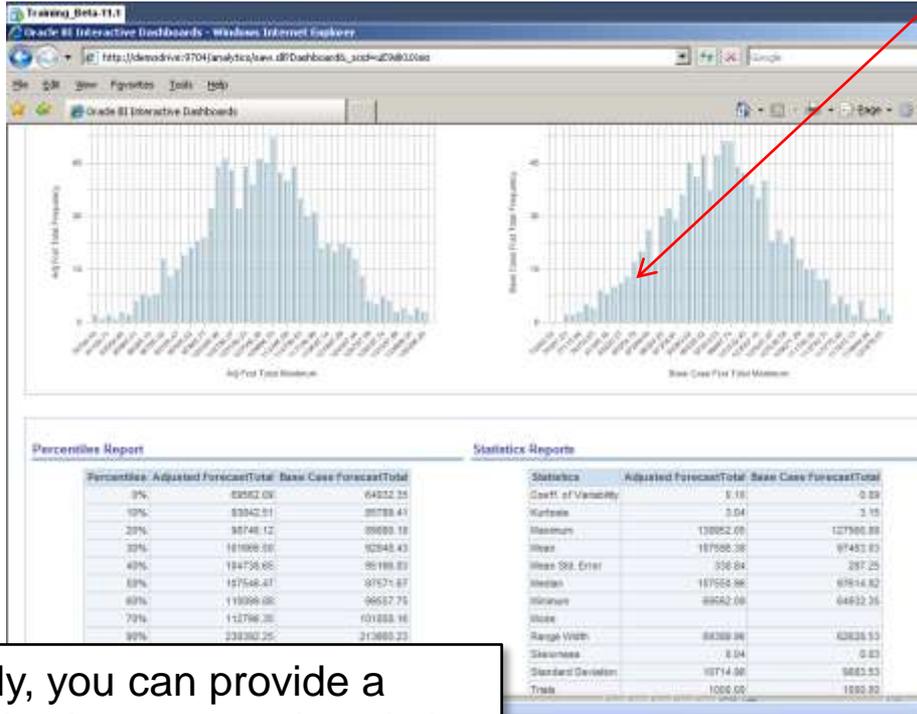


Refresh the report and view the new forecast in our dashboards

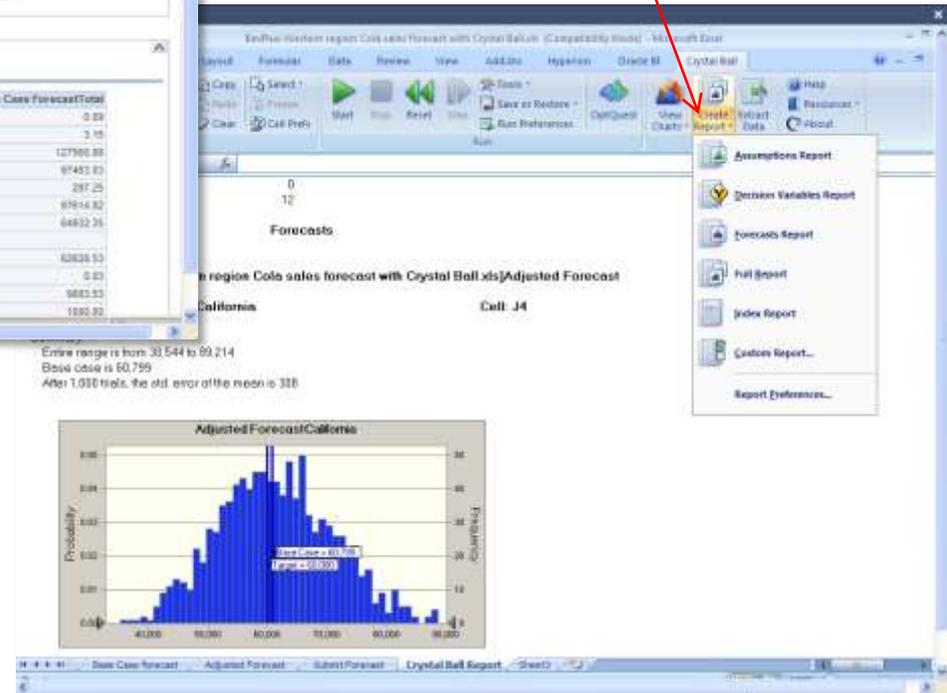
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