Charles Schwab: How Our Interaction Analytics Enabled Self Service Call Volume Prediction and Tracking

Robert Dahl
Sr. Manager – Research and Market Analysis
Charles Schwab & Co.
Robert Dahl

Sr. Manager, Research and Market Analysis
Interaction Analytics Team, Contact Center Experience
Twenty Year Schwab Veteran
Using Tableau since version 10.2
Tableau Desktop Certified Associate
Aliases: Bob, Darth, Bob Dole, Carlos the Jackal

Tableau Public Profile:
https://public.tableau.com/profile/robert.dahl#!/
Agenda

1. What is Interaction Analytics
2. Our Challenges
3. The Call Topic Trending Dashboard
4. The Sequel and the Spin-Offs
5. Predictive Analysis
6. Q&A
Warning: The Dashboards are real, but the data is either redacted or made up!
#FakeData
What is Interaction Analytics
The Interaction Analytics Team

• Our Mission: Analyzing the voice of the client and collaborating with the business. Our passion for our work informs, impacts, and influences our business partners

• Our primary tool: Interaction Analytics (aka Speech Analytics)
What is Interaction Analytics?

- Software that records and transcribes client phone calls to our contact centers
- Categorizes calls based on keyword searches built out by the team
  - Over 80 categories tracking a wide variety of call topics and behaviors
- Example:
  - Emotions category: ticked*, shoot*, darn*, frack*, upset, “you people”
    - (* not the real words in the category as this is a family friendly presentation)
Combine with Other Data Sources

- Phone Metadata
- Web Logs
- Demographic Data
- Trading and Order Data
- Client Surveys
- Money Movement Data

Speech Analytics
Our Process

Business Question

Interaction Analytics finds the calls

Learn the voice of the client

Listen to calls for a deeper dive

Track observations in excel

Use Tableau, word docs, emails, and power point to report out results

Analysis takes from a few hours to a few weeks
Our Pre-Tableau Challenges
Challenges

• Limited in our ability to provide automated reporting
• Leadership was asking for “ad hoc” or “quick hit” analyses on an increasingly regular basis
• Business partners wanted us to track how improvements drove call volumes
• Volume of requests was making it difficult to focus on more impactful work
The Solution

Build a Tableau Dashboard that could:

• Track daily call volume and call duration on all calls to the contact centers
• Track the daily volume and call duration on all 80+ Speech Analytics categories
• Have the data go back for two years
• Overlay the data with key market and company events
• Automatically update the dashboard on a daily basis
• Make it easy enough for the user to self-serve and understand without having to call us
What the frack!?!?!?!*

*(not the real phrase used)*
Call Topic Trending Dashboard
The Call Topic Trending Dashboard

CS&S Call Topic Trending

Call Topic Percentage

The percentage of total calls in a particular call topic per visit data. Last update: 9/3/2019 7:38:42 PM

Total Daily Call Volume and Average Call Duration

Total Daily Call Volume and Average Call Duration reflects the count of calls for Core CS&S and the average length of calls. All data is collected from Verint and the IDW. Average duration is an estimate of Verint call durations (full time) based on IDW data, and does not include any after call wrap time. Holidays are highlighted below.
What we had to learn

Alteryx (Mark Fowler)

1. Connect to Speech Analytics data housed in our data warehouse
2. Join it with our events tracking spreadsheet
3. Shape the data for use in Tableau
4. Automate the workflow to run the on a daily basis (this was actually me!)
5. How to join in phone traffic data to add call duration tracking (came in version 2.0, and I figured it out! 😊)

Tableau (Robert Dahl and John Seaquist):

1. How to group and create dynamic filtering for our 80+ Speech Analytics categories
2. How to overlay events on the chart that are also filtered by category
3. How to allow the user to view the data with or without weekend days
4. How to highlight holidays
5. How to allow the user to toggle between a volume or percentage of volume view
Step—1 Dynamic Filtering

Three calculations to create the dynamic filtering:

1. The Branden Fulton Memorial Calculation
   • if/then statement using the Left function to create groups of categories
   • Added it to the Filters Shelf
   • Show the filter (labeled Category Group on the dashboard) and select to show only relevant values
   • Taught to us by our Tableau mentor Branden Fulton
   • Branden is still alive

2. Regexp 1
   • REGEXP_EXTRACT function splits the two letter pneumonic from the category name
   • Added it to the Filters Shelf

3. Regexp 2
   • REGEXP_EXTRACT function splits the category name from the two letter pneumonic
   • Added to the Filters Shelf and works in tandem with the Regexp 1 calculation
   • Show the filter (labeled Category on the dashboard) with only relevant values selected

4. User selects Category Group dropdown first, then selects from the Category dropdown second
   • Only categories related to the category group will appear in the Category dropdown
A dual axis chart and two calculations to overlay events on the Call Topic Percentage Chart:

1. Create a dual axis chart with each chart being the call topic volume. Change chart two type to a circle on the marks card
2. The Event Type 2 calculation plots the events on the chart and allows us to categorize the type of event
   - Uses the ISNULL function
   - Added to Size, Color, and the Tool Tip on the marks card
   - Indicator only shows on chart for the dates an event occurs and the call topic chosen
3. The Events calculation allows us to chart up to four events on the same day for the same call topic
   - if/then statement using the ISNULL function
   - Added to the Tool Tip on the Marks card
Impact of the Call Topic Trending Dashboard

1) Corporate action event created high call volume
2) In-depth call study done
3) Recommended changes resulted in lower call volumes for next event
4) Call tracking already in place, business partner can self serve
Impact of the Call Topic Trending Dashboard

- Business Partners can self-service
- More time for in-depth studies
- Over 2,600 page views since launch

- About 200+ work hours saved
- We can focus on key company initiatives
- And not all of them were mine!
But wait, there is more, if you act now.........
The Sequel
The Spin-Off
Trading Dashboard

Chart 1 - Key Trading Metrics by Channel

Week of: Category: All Calls

Trading Metric:

Newer Trading Platform

Older Trading Platform

Trading Platform

Hip Trading Platform

Oldest Trading Platform

Less Hip Trading Platform

Alternate Trading Platform

Cool Trading Platform

Super Cool Trading Platform

Chart 2 - Key Metrics Historical Trending

Select Key Metric: Trade Ratio - Trading Platform
The Half-Donut Chart

Mmmm, donuts…….

1. Challenge:
   - Create a half donut or “gauge” chart that changes colors based on the underlying KPI

2. Solution:
   - Cut pie chart into six slices
   - Create a separate calculation for each slice so only four of the six slices show on the chart depending on the underlying KPI
   - Assign the appropriate colors to each measure name

```sql
if [calls per channel per trade calculation] <= 50 then (if [calls per channel per trade calculation] < 25 then 25 - [calls per channel per trade calculation] elseif [calls per channel per trade calculation] >= 25 then 0)
END) elseif [calls per channel per trade calculation] > 50 then 0 END
```
Oh, and one more thing......
(no, it’s not a new iPad)
Predictive Analysis
Corporate Actions Predictive Analysis

- Tableau’s Cluster analysis has helped to predict call volumes based on data collected from past events – helping to understand the impact of process improvements and changes.

### Voluntary Actions: Call Volume & Percentages

<table>
<thead>
<tr>
<th>Call Volume</th>
<th>Offer Complexity</th>
<th>Avg Call Duration (sec)</th>
<th>Percentage of Shareholder Calls</th>
<th>Percent Agent Dials to CRSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,076</td>
<td>5</td>
<td>715</td>
<td>16.3%</td>
<td>11.2%</td>
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<td>626</td>
<td>10.9%</td>
<td>18.0%</td>
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<td>523</td>
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<td>9.3%</td>
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<td>503</td>
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<td>9.3%</td>
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<tr>
<td>1,176</td>
<td>3</td>
<td>568</td>
<td>7.5%</td>
<td>12.0%</td>
</tr>
</tbody>
</table>

Voluntary Average: 3 601 7.5% 12.2%
Corporate Actions Predictive Analysis

• Clustering on scatter plots helps to quickly identify outliers which assists in guiding further analysis

• Identifying what the difference between acceptable and successful results versus challenging results has led to process and communication improvements

• Utilizing data and analysis from past events helps to predict call volumes. In some cases down to within +/- .5%
1) Classify the Corporate Action (Voluntary or Mandatory)

2) Assign a level of complexity

3) Determine the number of shareholders

4) Factor in time frame

5) Forecast Call Volumes in Tableau

6) Capacity Planning determines staffing levels
Takeaways

1. Understand the role of the Interaction Analytics team at Charles Schwab

2. Discovered how we leveraged Tableau to track Interaction Analytics data and give leadership tools to self serve

3. Learned the Tableau skills the team had to acquire to build and maintain the dashboards

4. Got a look at the predictive analysis we’ve done in Tableau
Questions!?
Please complete the session survey in the mobile app

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