



**STEVENS**  
INSTITUTE of TECHNOLOGY  
THE INNOVATION UNIVERSITY®



# Identifying product recall using social networks

*Camilo Abboud*  
*Araceli Zavala*

Advisor: José E. Ramirez-Marquez  
School of Systems and Enterprises



# Objective



Identify when the company has to react to the possibility of a product recall by using social network analysis.

Two main aspects are customer safety and/or product malfunction.



# What is a recall?

A **product recall** is a request to return a product after the discovery of *safety issues* or product *defects* that might endanger the consumer or put the seller at risk of legal action.



Boycott

# Examples of Recall

31 million of boxes were retired because 7 people died of pills which contain cyanide, \$100 million dollars in losses

**TYLENOL**

The lithium-ion battery can overheat. Risk of the products smoking, catching fire and/or exploding. Recall units 500,000 . \$ 350 mill in loses



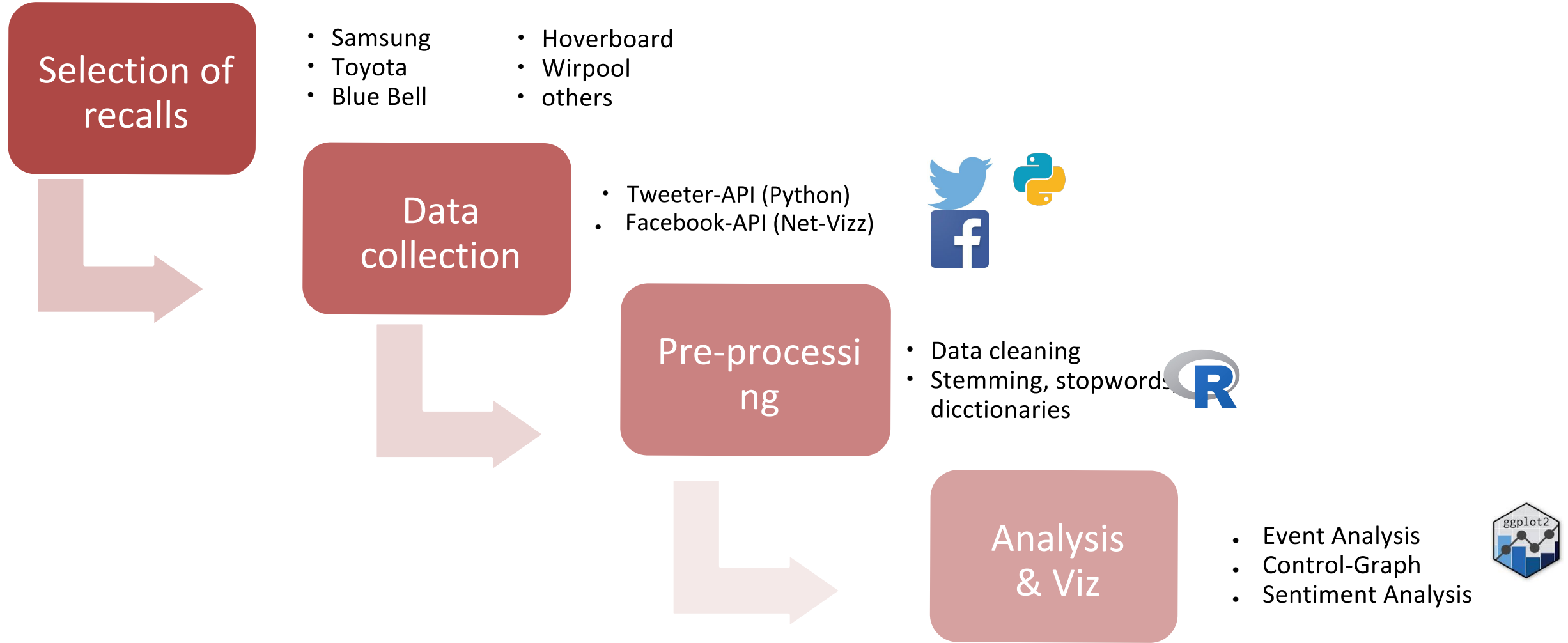
1.5 million of toys were retired because of excess of lead in their painting, \$50 million dollars in losses



Unexplained fires and overheating problems in the Galaxy note 7 smartphone, \$5.3 billion dollars in losses



# Methodology



# The Score Function



Example 1:

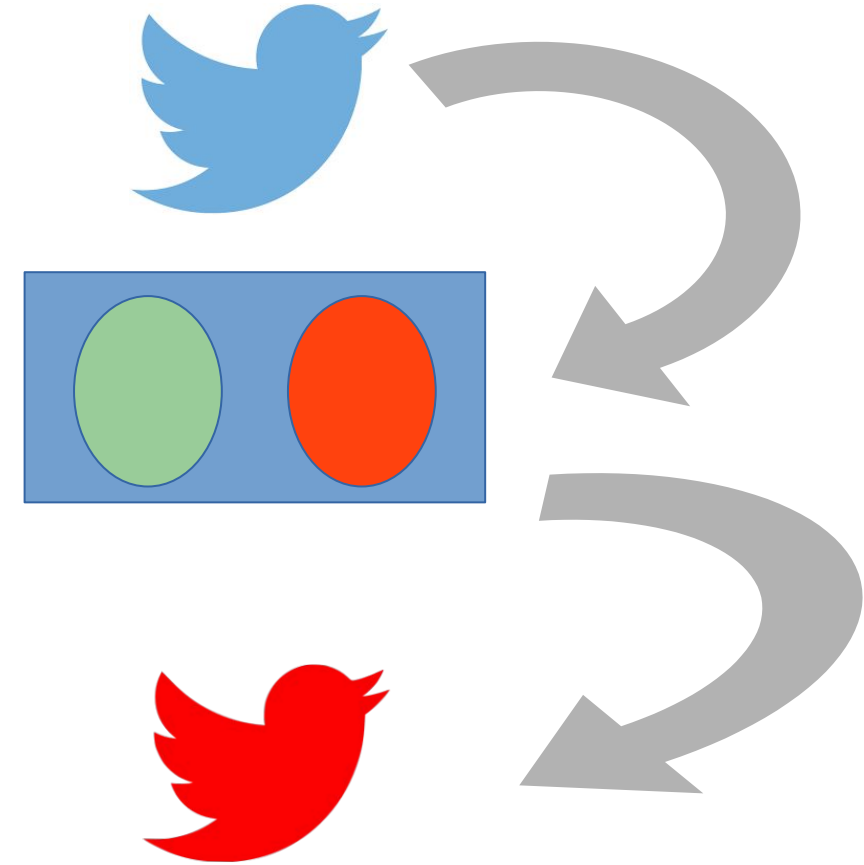
"You are **awsome** and I **love** you"  
--> Score: **+2**

Example 2:

"I **hate** and **hate**. So **angry**. **Die!**"  
--> Score: **-4**

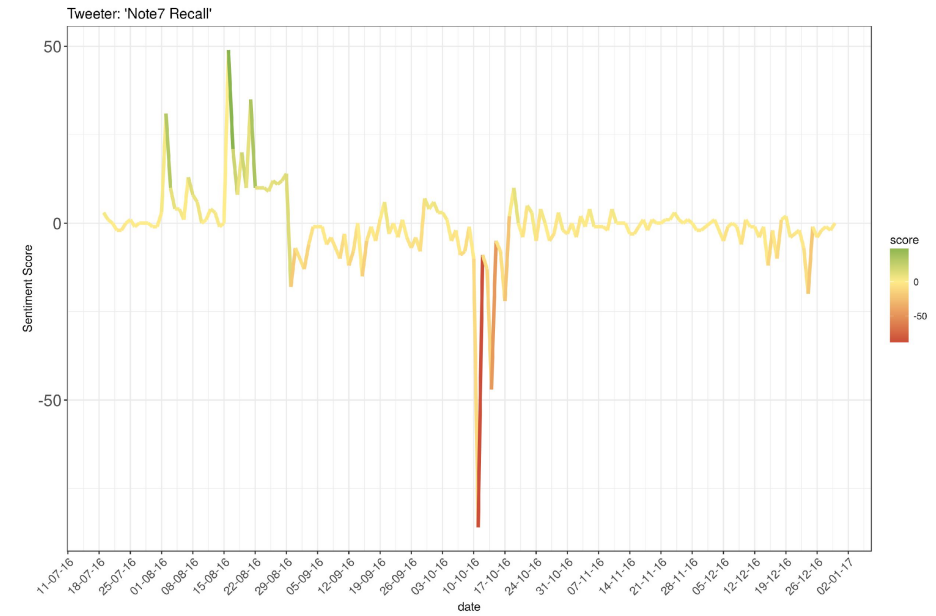
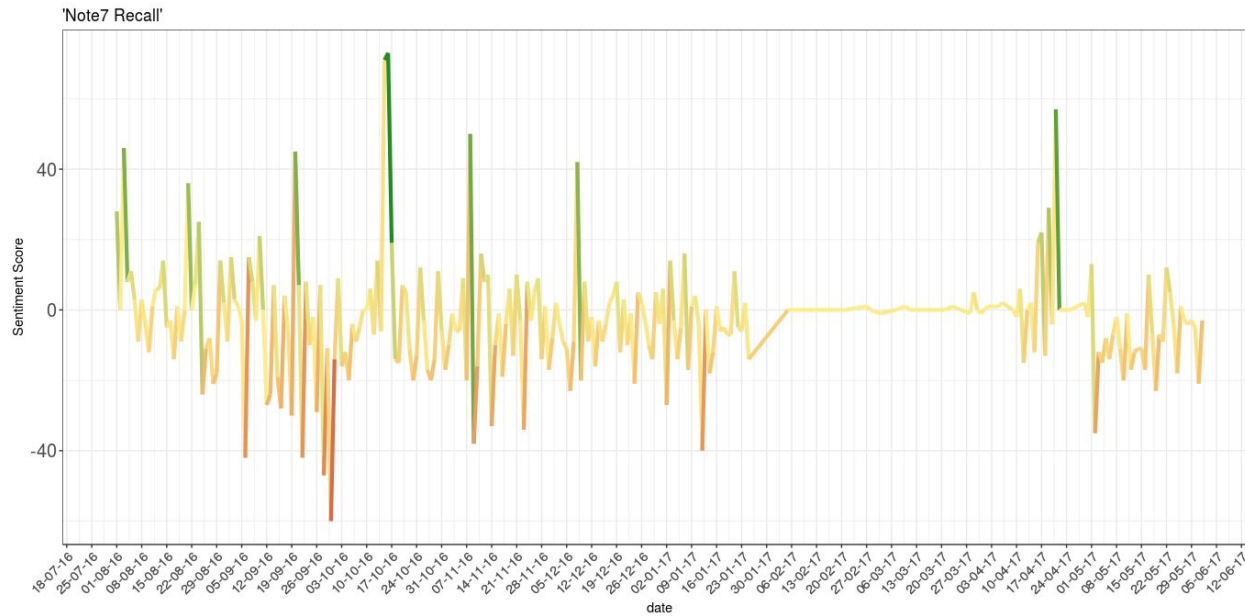
Example 3:

"**Impressed** and **amazed**: you are peerless in your  
**achievement** of unparalleled **mediocrity**"  
--> Score: **2!!!**



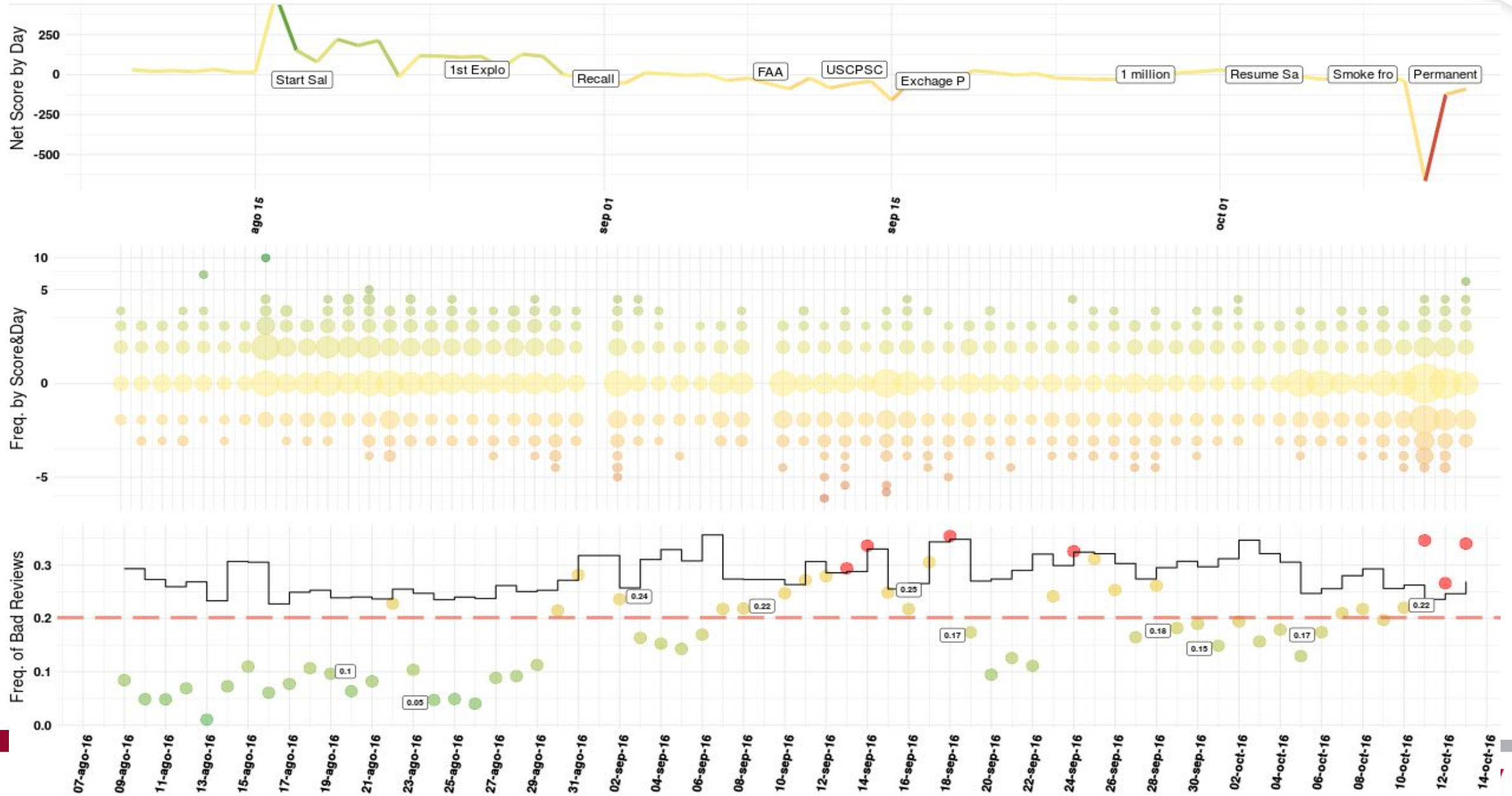


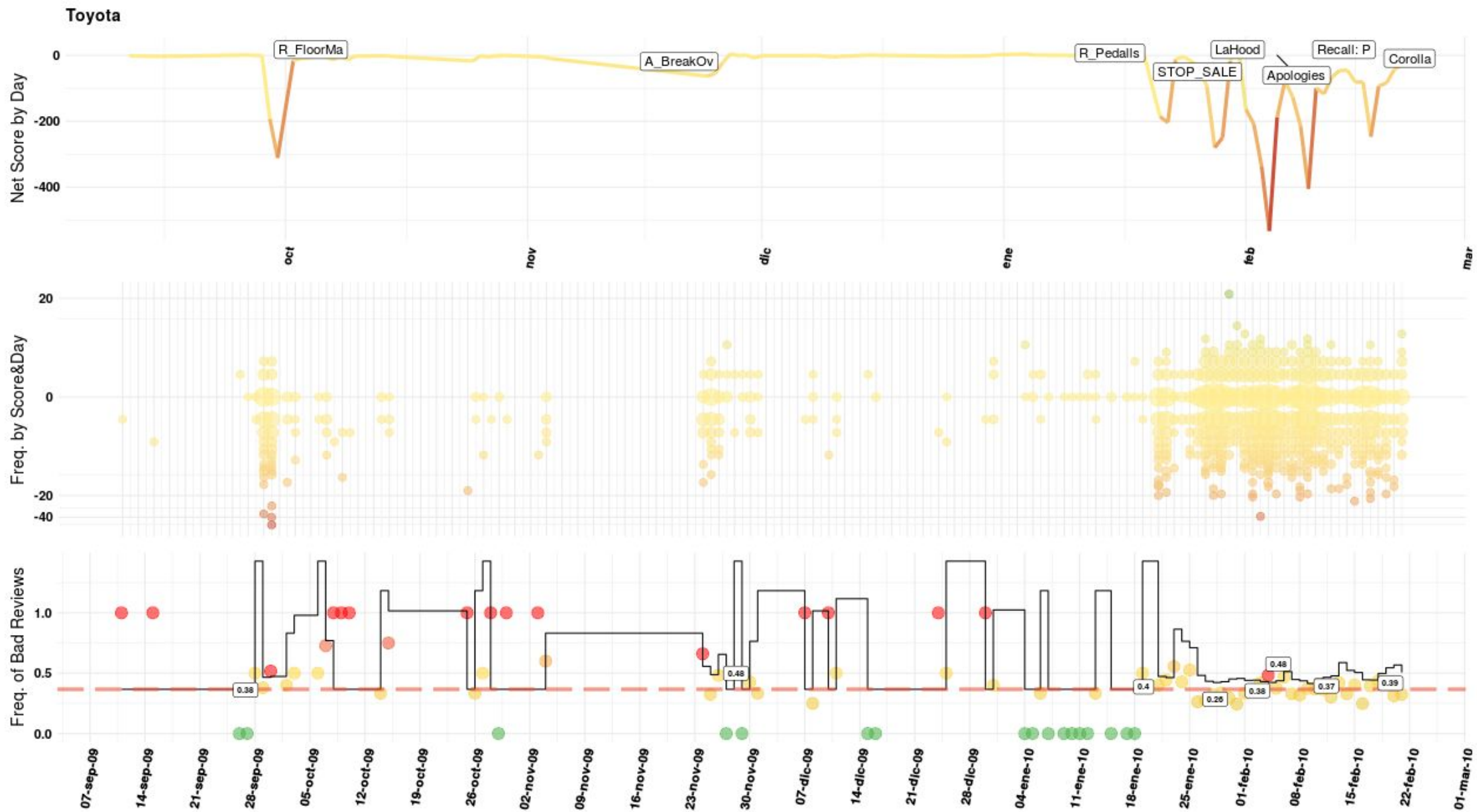
# Data Source Comparison





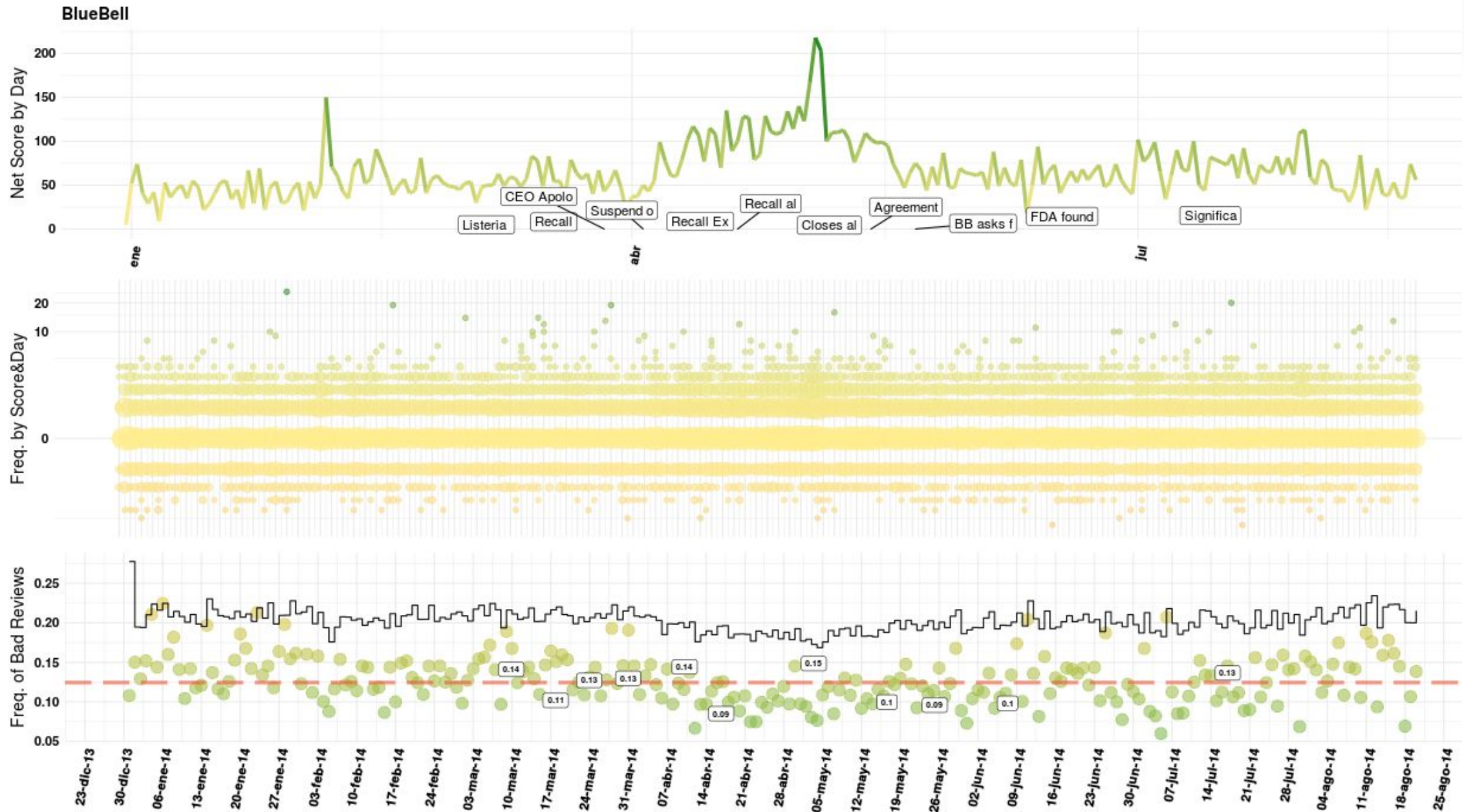


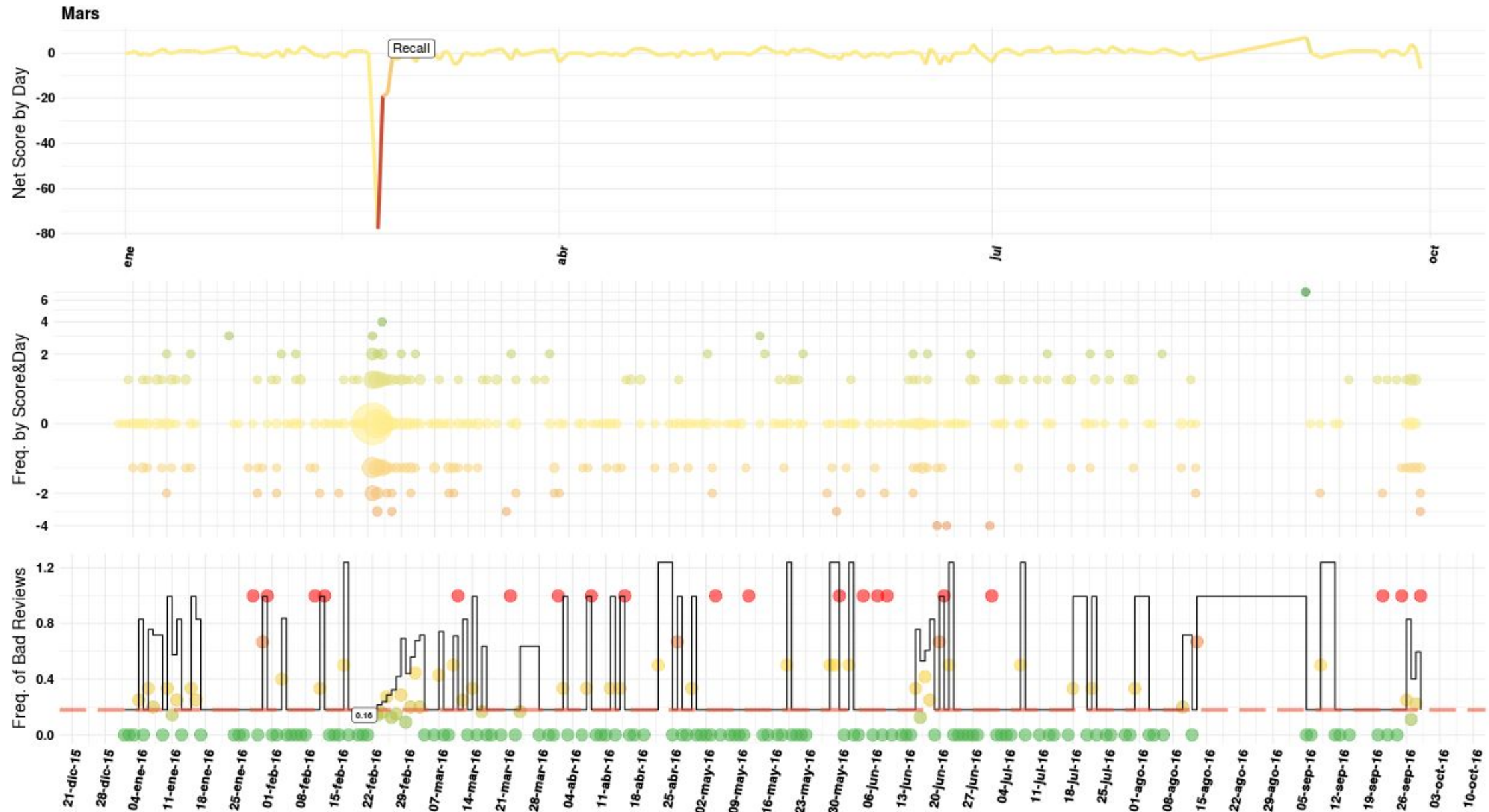






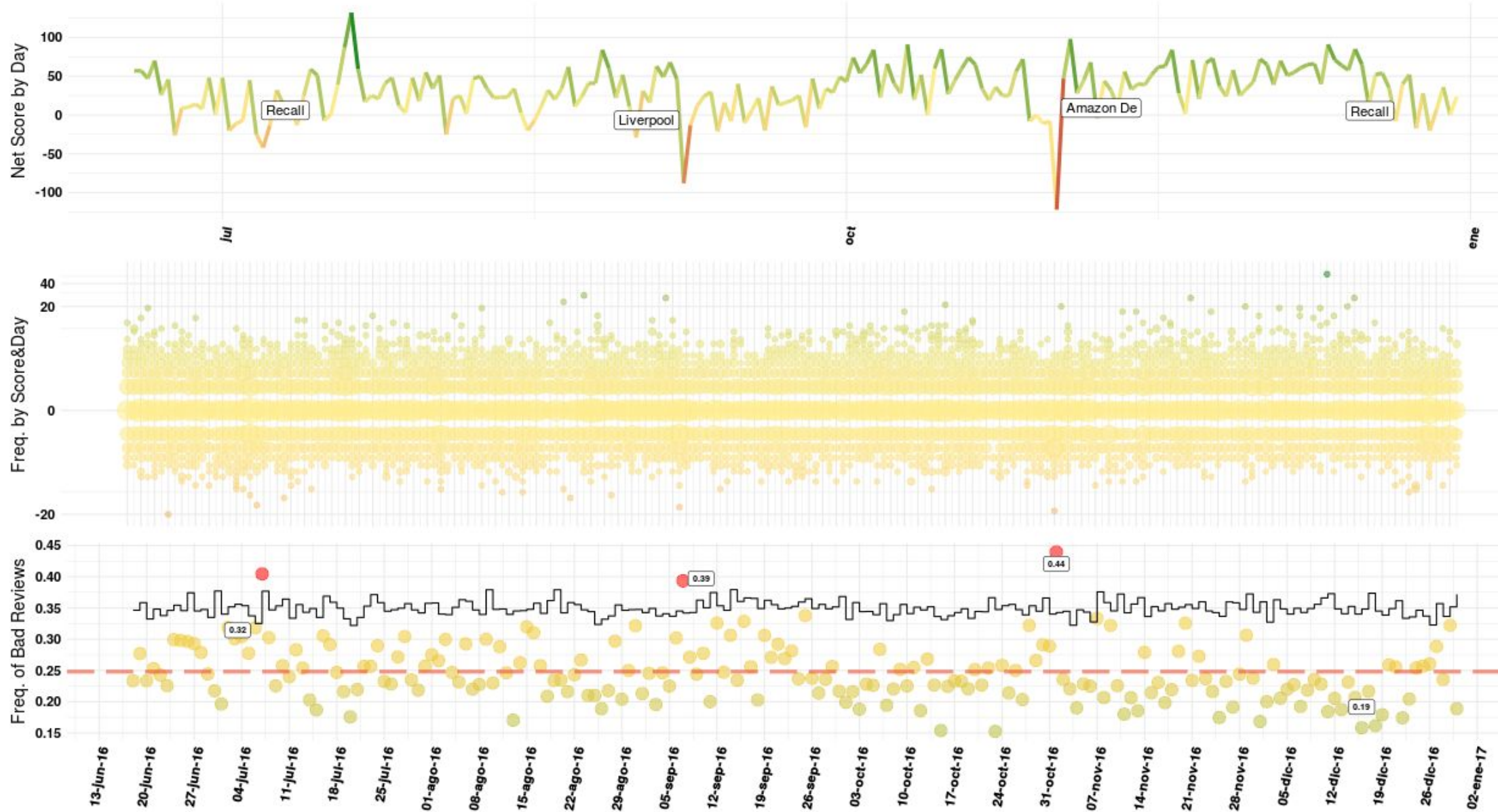








# Hoverboard





# Next Steps

## Score

- Limit extreme values of scores per tweet
  - **Temper vs. Sentiment**
- Weigthing Scores with Metadata
  - **Write vs. RT**
- Dedicated Dictionaries
  - **“Listeria” is a very bad Word**

## Scope

- Financial Impact
  - **Time Response**
- Topic Modelers
  - **LDA, LSH & Clustering**

