



# BOSTON

Harnessing data science for  
*smarter*, more *efficient*, and  
more *effective* work



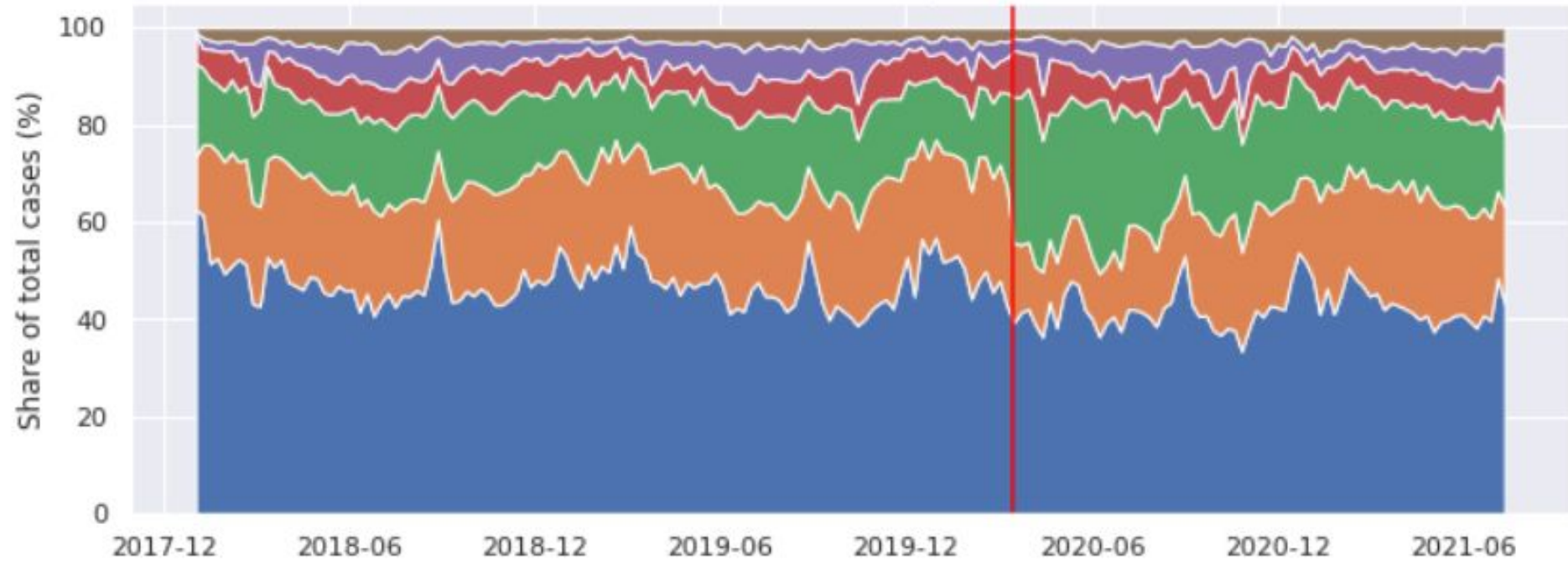
Weekly 311 cases  
Boston 2018 - 07/2021



# Weekly 311 cases Boston 2018 - 2020

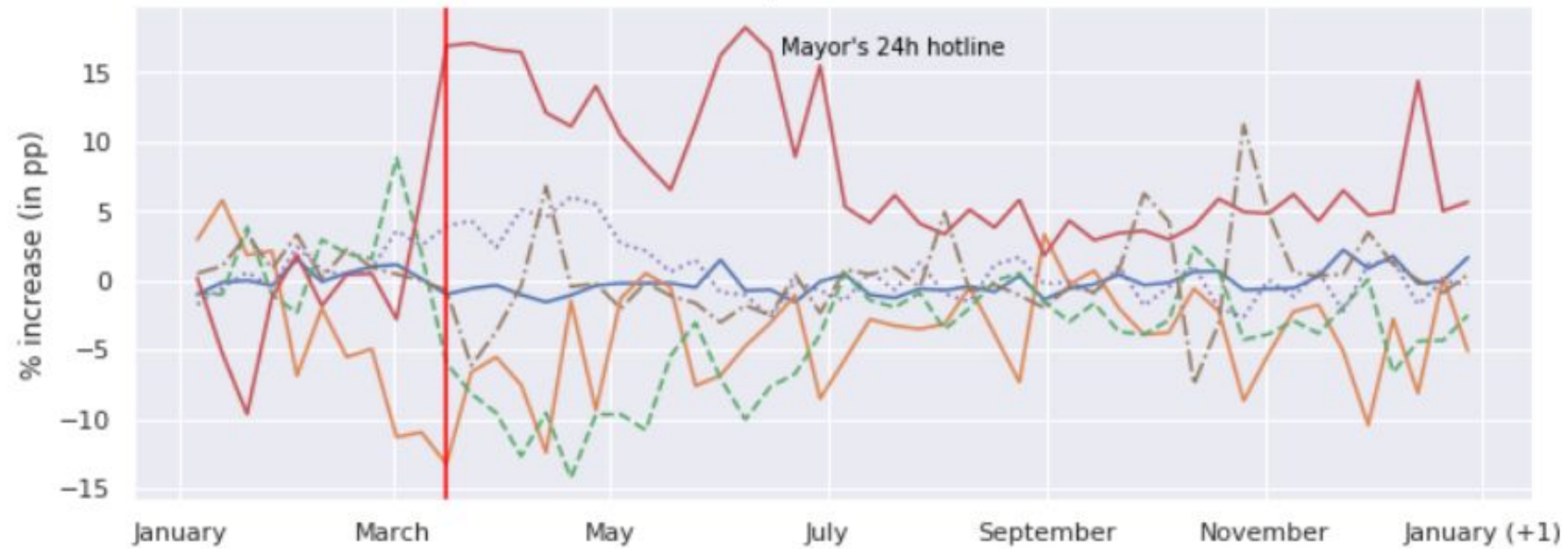


Share of cases by the department it was assigned to  
Boston 2018 - 07/2021



- Public health emergency declared
- Public Works Department
- Transportation - Traffic Division
- Mayor's 24 Hour Hotline
- Inspectional Services
- Parks & Recreation Department
- Other

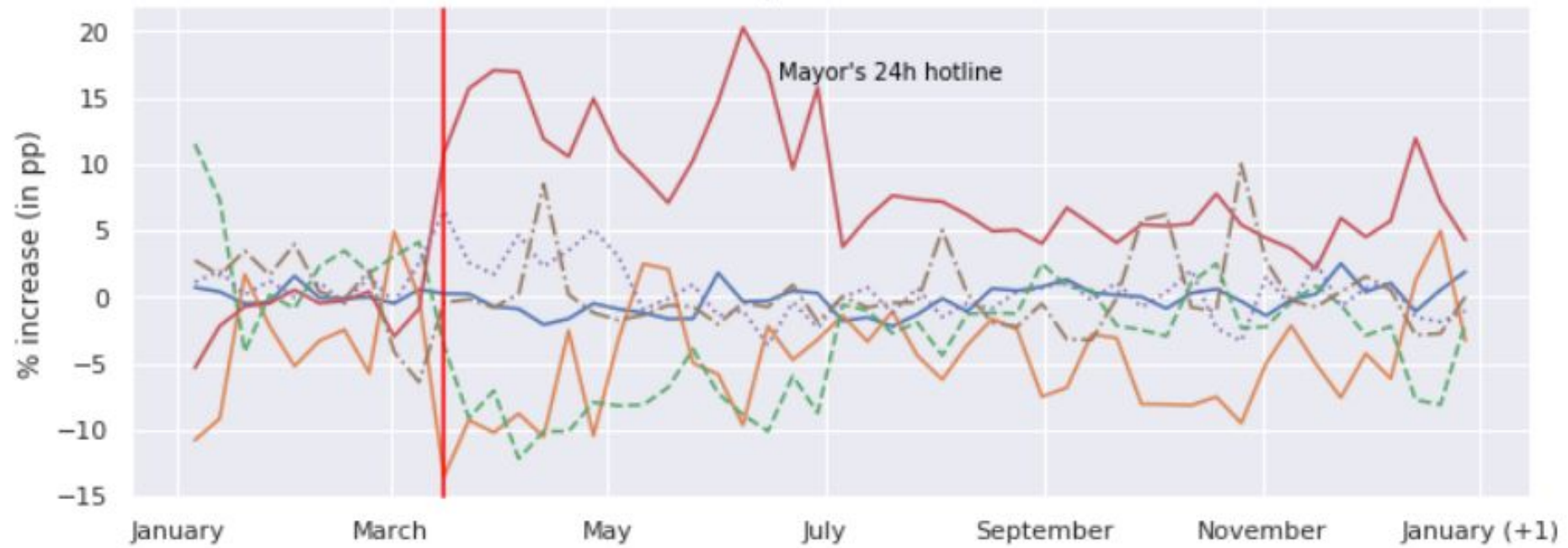
### Additional shares of 311 cases seen in 2020 Compared to 2019



#### Department assigned to the case

- Public Works Department
- Transportation - Traffic Division
- Mayor's 24 Hour Hotline
- Inspectional Services
- Parks & Recreation Department
- Public health emergency declared

### Additional shares of 311 cases seen in 2020 Compared to 2018



- Department assigned to the case
- Public Works Department
  - Transportation - Traffic Division
  - Mayor's 24 Hour Hotline
  - Inspectional Services
  - Parks & Recreation Department
  - Public health emergency declared

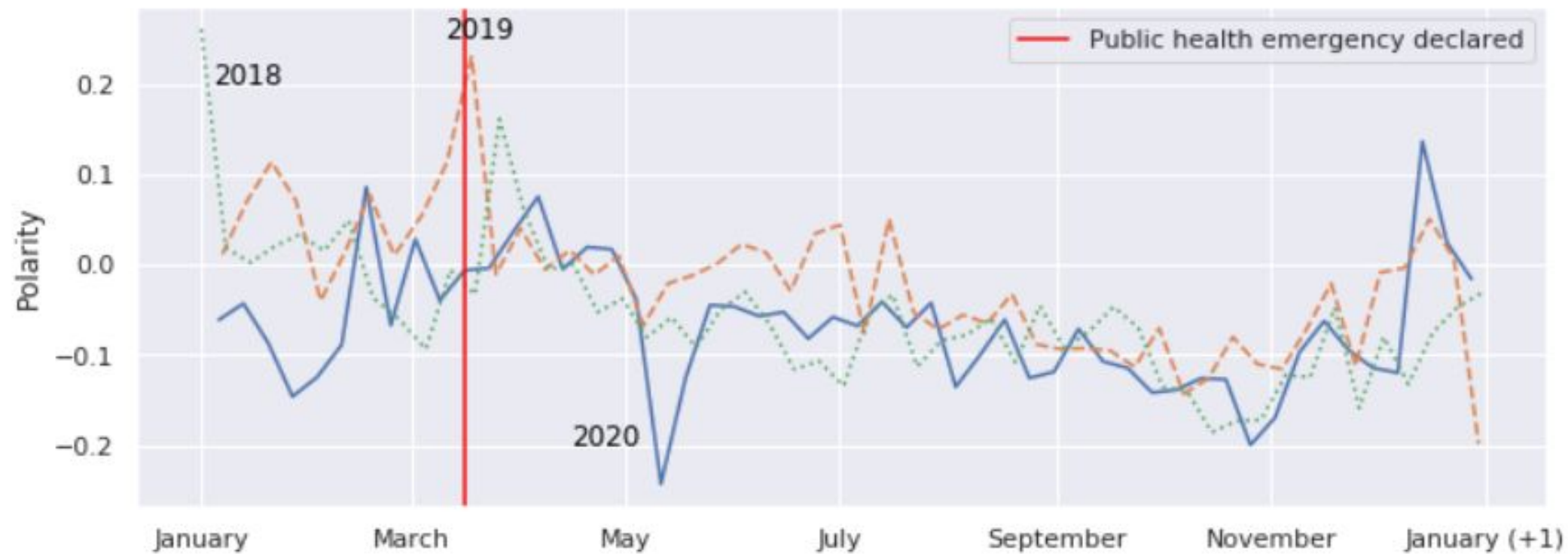
# Sentiment Analysis

**Polarity: (-1)Negative to (1)Positive**

**Subjectivity: (0) Fact to (1) Opinion**



Polarity: weekly average in 311 case description  
Boston 2018 - 2020





Subjectivity: weekly average in 311 case description  
Boston 2018 - 2020



# Topic Modelling

**Latent Dirichlet Allocation (LDA)**

- **Topic 1: Illegal parking**

- '0.058\*"vehicle" + 0.042\*"plate" + 0.039\*"license" + 0.039\*"details" + 0.037\*"parked" + 0.029\*"illegally" + 0.028\*"car" + 0.024\*"street" + 0.020\*"type" + 0.019\*"state"'

- **Topic 2: Animal/tree incident**

- '0.047\*"animal" + 0.028\*"type" + 0.026\*"time" + 0.026\*"sidewalk" + 0.023\*"occurred" + 0.021\*"incident" + 0.019\*"date" + 0.017\*"tree" + 0.017\*"animals" + 0.016\*"officer"'

- **Topic 3: ?**

- 0.086\*"type" + 0.076\*"details" + 0.051\*"description" + 0.040\*"sr" + 0.035\*"referred" + 0.034\*"case" + 0.034\*"location" + 0.020\*"street" + 0.017\*"pole" + 0.017\*"request"'

- **Topic 4: Resident being blocked**

- '0.035\*"street" + 0.020\*"sidewalk" + 0.019\*"st" + 0.018\*"trash" + 0.017\*"parking" + 0.014\*"park" + 0.012\*"parked" + 0.009\*"blocking" + 0.009\*"ticket" + 0.008\*"resident"'

- **Topic 5: Abandoned vehicle**

- '0.063\*"car" + 0.053\*"abandoned" + 0.045\*"pothole" + 0.033\*"plate" + 0.032\*"license" + 0.031\*"available" + 0.025\*"additional" + 0.019\*"number" + 0.018\*"noticed" + 0.018\*"make"'

- **Topic 6: Trash/Curbside pick-up**

- '0.095\*"trash" + 0.084\*"pickup" + 0.066\*"day" + 0.056\*"additional" + 0.052\*"alley" + 0.049\*"scheduled" + 0.048\*"curbside" + 0.037\*"specify" + 0.033\*"recycling" + 0.031\*"info"'