
NOV 01
2019
PREDICTING STARTUP
FAILURES
Alison Glazer

# INTRO

- Crunchbase Enterprise paid service
- VCs source thousands of potential investments annually
- Use early performance data to predict future outcomes

CrunchBase

# METHODOLOGY

DATA:

- Crunchbase
- Companies founded within last decade with 2+ funding rounds

ASSUMPTIONS:

- IPO or M&A = SUCCESS | No funding in >2.5 years = CLOSED

IMPLEMENTATION:

- Classification Algorithms + Web App

TOOLS:




# FEATURES, MODELS & METRICS

**Model**: Logistic Regression

**Features**:

- Funding amounts
- Funding timing
- Industry
- Location

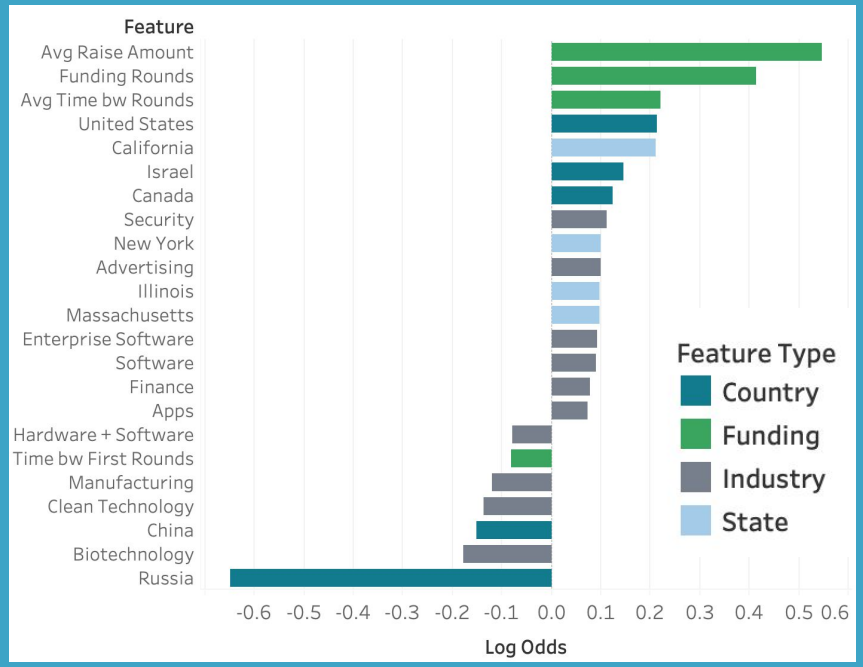
**Metric**: $f_\beta$ score

# RESULTS

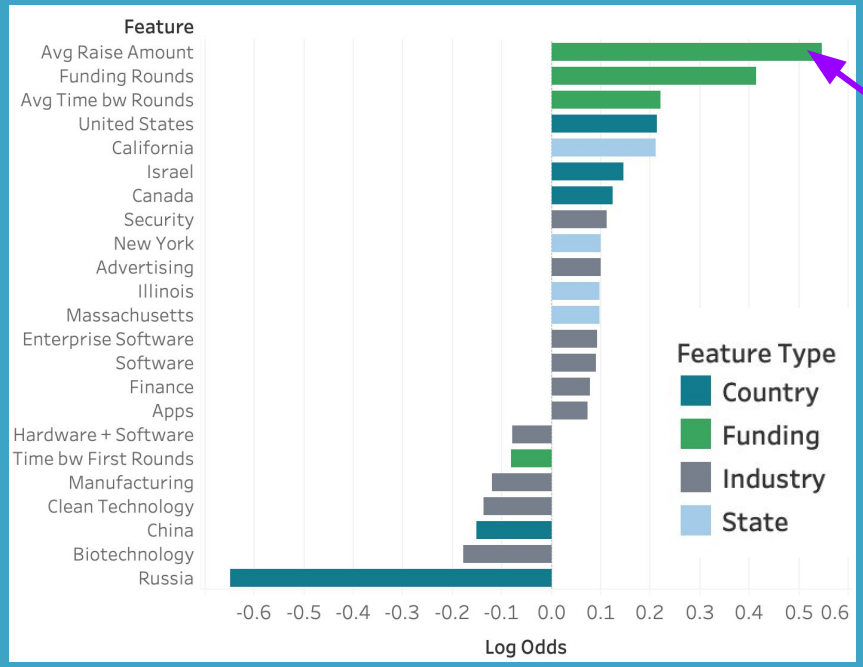
Baseline likelihood
of success

31%

# RESULTS

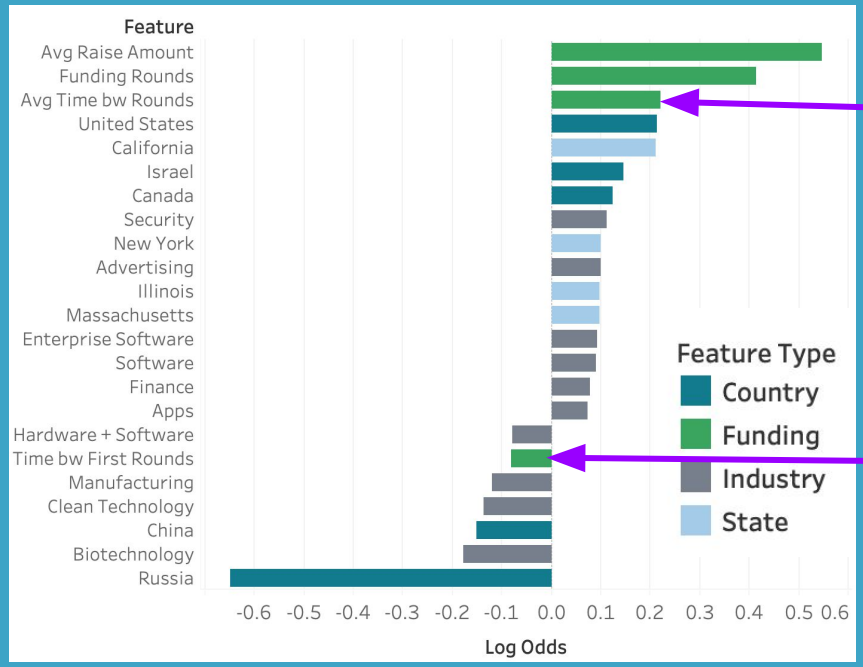

Feature
Avg Raise Amount
Funding Rounds
Avg Time bw Rounds
United States
California
Israel
Canada
Security
New York
Advertising
Illinois
Massachusetts
Enterprise Software
Software
Finance
Apps
Hardware + Software
Time bw First Rounds
Manufacturing
Clean Technology
China
Biotechnology
Russia
-0.6 -0.5 -0.4 -0.3 -0.2 -0.1 0.0 0.1 0.2 0.3 0.4 0.5 0.6
Log Odds
Feature Type
Country
Funding
Industry
State

# RESULTS




⬆️ MONEY =
⬆️ SUCCESS

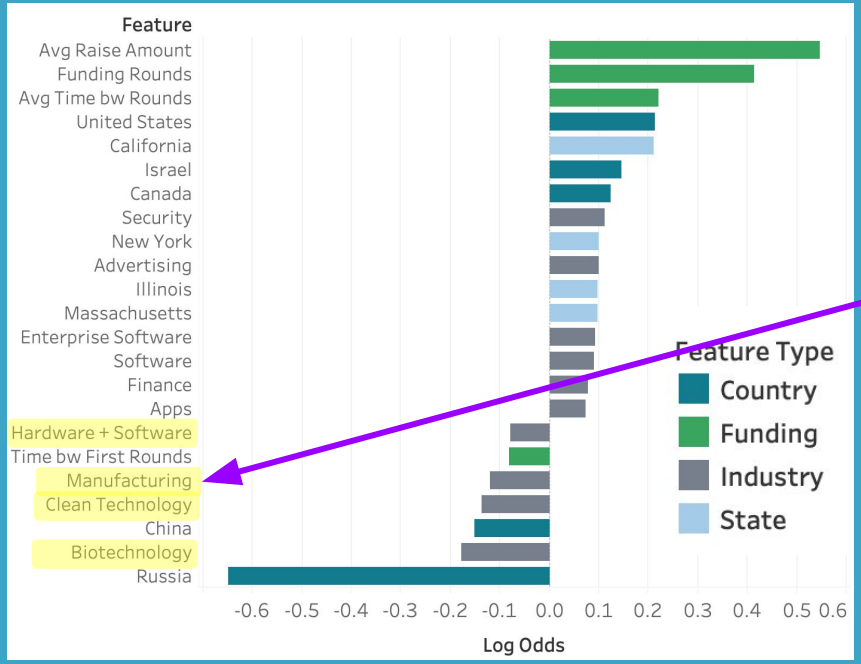
# RESULTS




↑ AVERAGE TIME BETWEEN ROUNDS = ↑ SUCCESS

↑ TIME BETWEEN 1ST AND 2ND ROUND = ↓ SUCCESS

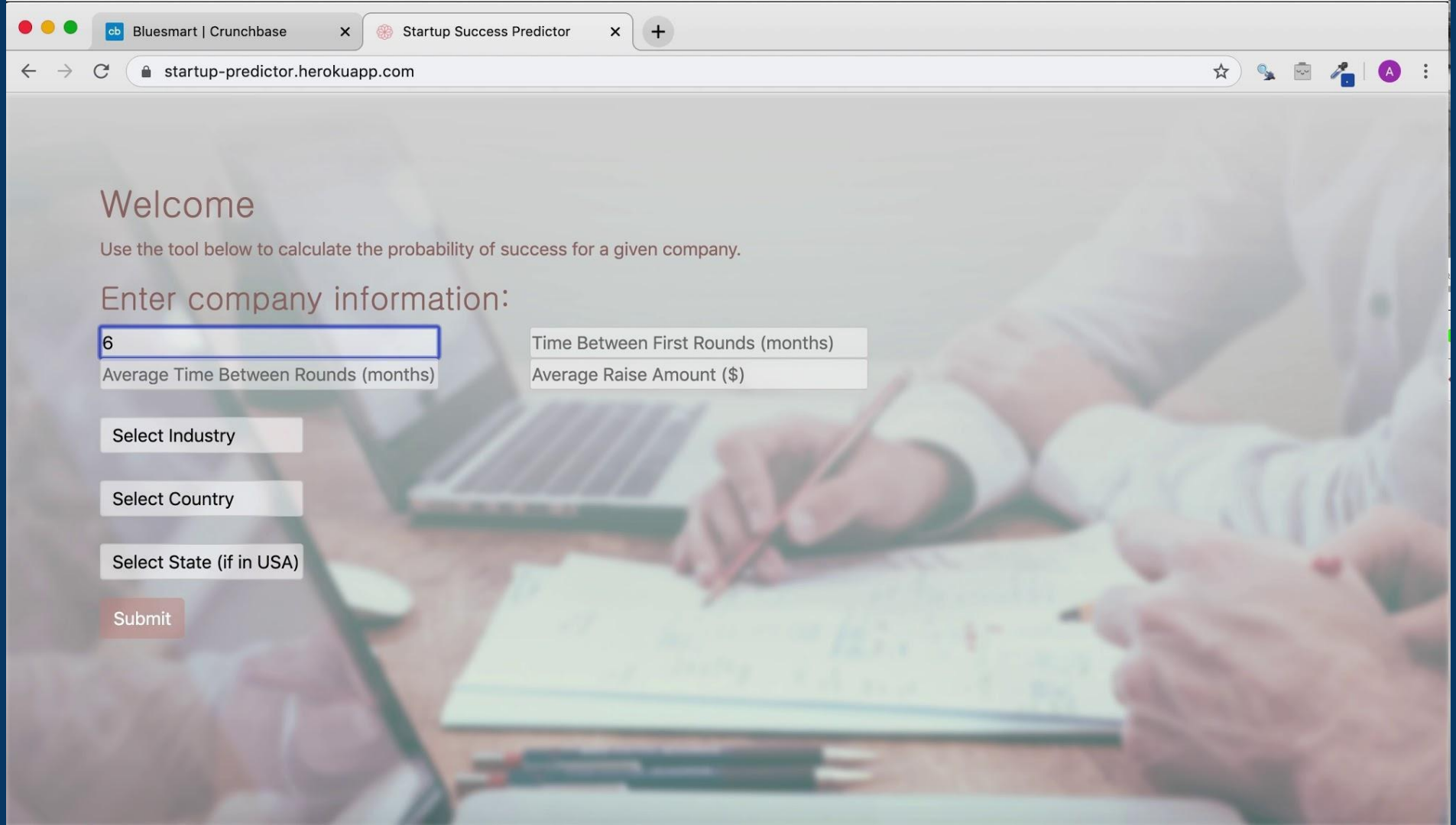
# RESULTS




**HARDWARE COMPANIES ARE MORE LIKELY TO FAIL**

# RESULTS

$$f_{\beta} = 0.85$$


Bluesmart | Crunchbase
Startup Success Predictor
startup-predictor.herokuapp.com
Welcome
Use the tool below to calculate the probability of success for a given company.
Enter company information:
6
Average Time Between Rounds (months)
Time Between First Rounds (months)
Average Raise Amount ($)
Select Industry
Select Country
Select State (if in USA)
Submit

# QUESTIONS?


I THINK WE SHOULD BUILD AN SQL DATABASE.
UH-OH
DOES HE UNDERSTAND WHAT HE SAID OR IS IT SOMETHING HE SAW IN A TRADE MAGAZINE AD?
WHAT COLOR DO YOU WANT THAT DATABASE?
I THINK MAUVE HAS THE MOST RAM.
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# SOURCES


https://www.toptal.com/finance/venture-capital-consultants/state-of-venture-capital-industry-2019

https://seekingalpha.com/article/4203810-2-types-investing-trading-errors

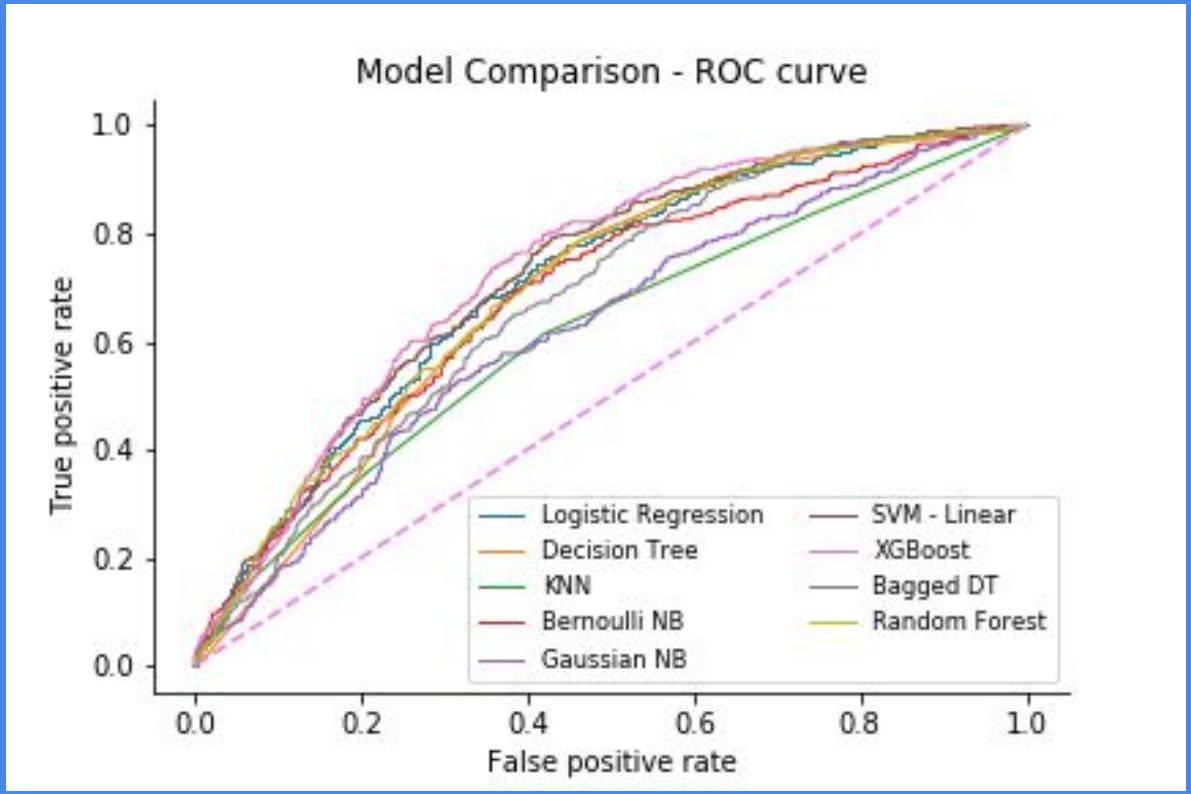
http://www.industryventures.com/2017/02/07/the-venture-capital-risk-and-return-matrix/

http://www.angelblog.net/Venture_Capital_Funds_How_the_Math_Works.html

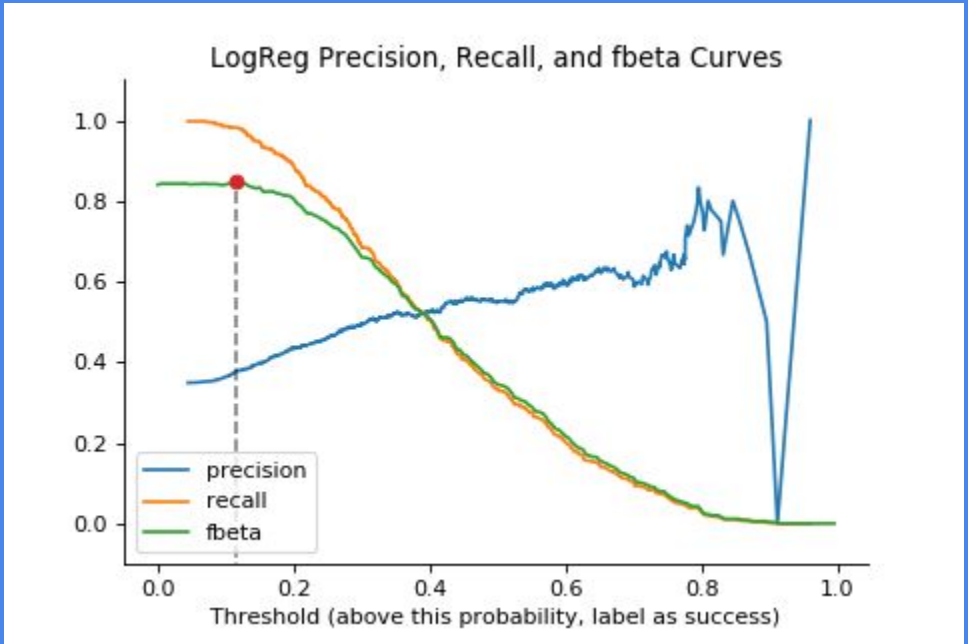
https://techcrunch.com/2017/05/17/heres-how-likely-your-startup-is-to-get-acquired-at-any-stage/

# APPENDIX

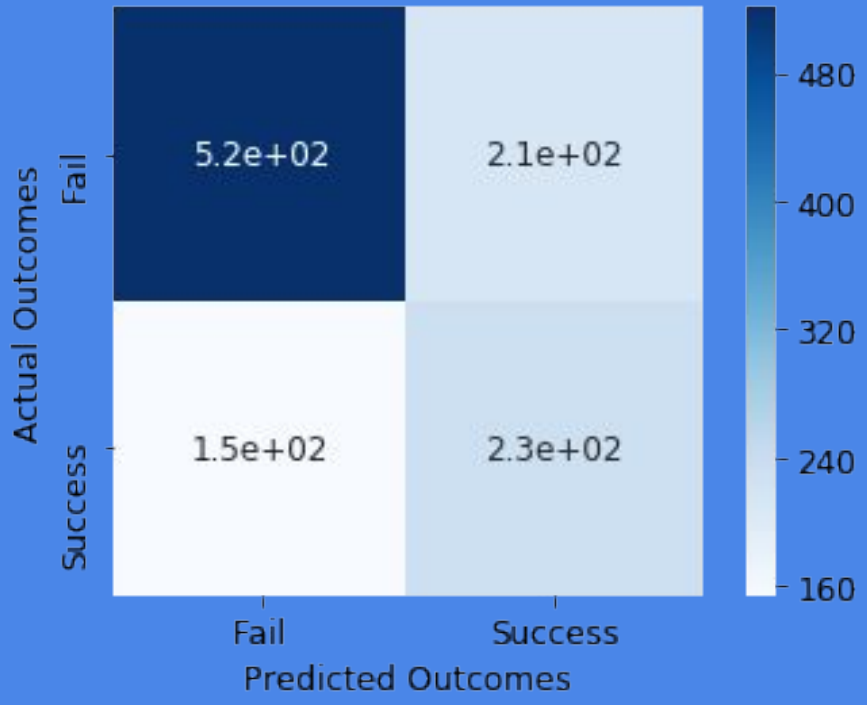
# MODEL COMPARISON - ROC CURVE



# PRECISION RECALL CURVE



# CONFUSION MATRIX



# DECISION TREE EXAMPLE