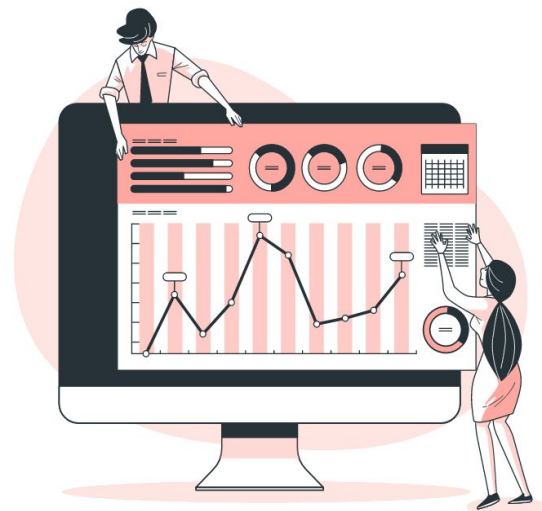


Investment in Startup Company

Project 3 Classification



Yuwen Huang
2/10/2020

Statistic and Facts

01

Over 627,000 new business open each year.



04

40% of startups actually turn a profit

02

90% of startup companies fail

03

Less than 50 % of business make it to 5th year



Introduction

- What you might be interested in before investing in a company:



Introduction

- What you might be interested in before investing in a company:
 - a. Which company has potential to success?
 - b. How long does a company take to success?
(file IPO or be acquired)
 - c. Which industry has higher success rate?



Introduction

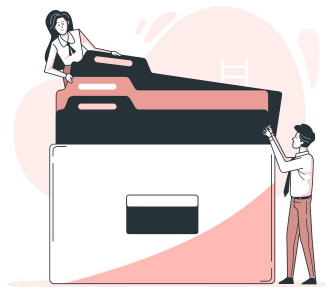
- What you might be interested in before investing in a company:
 - a. Which company has potential to success?
 - b. How long does a company take to success?
(file IPO or be acquired)
 - c. Which industry has higher success rate?
- **Goal:**
 - a. Create classification model to predict if the company will success or fail.
 - b. Help investors to select right company to fund.



Data Description

01 Data:

- Data: 196,553 companies data from Crunchbase
- US GDP Data from Datahub.com



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02 Target labels:

- Success (File IPO/ Acquisition)
- Fail (No funding over 2 years)



Data Description

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02 Target labels:

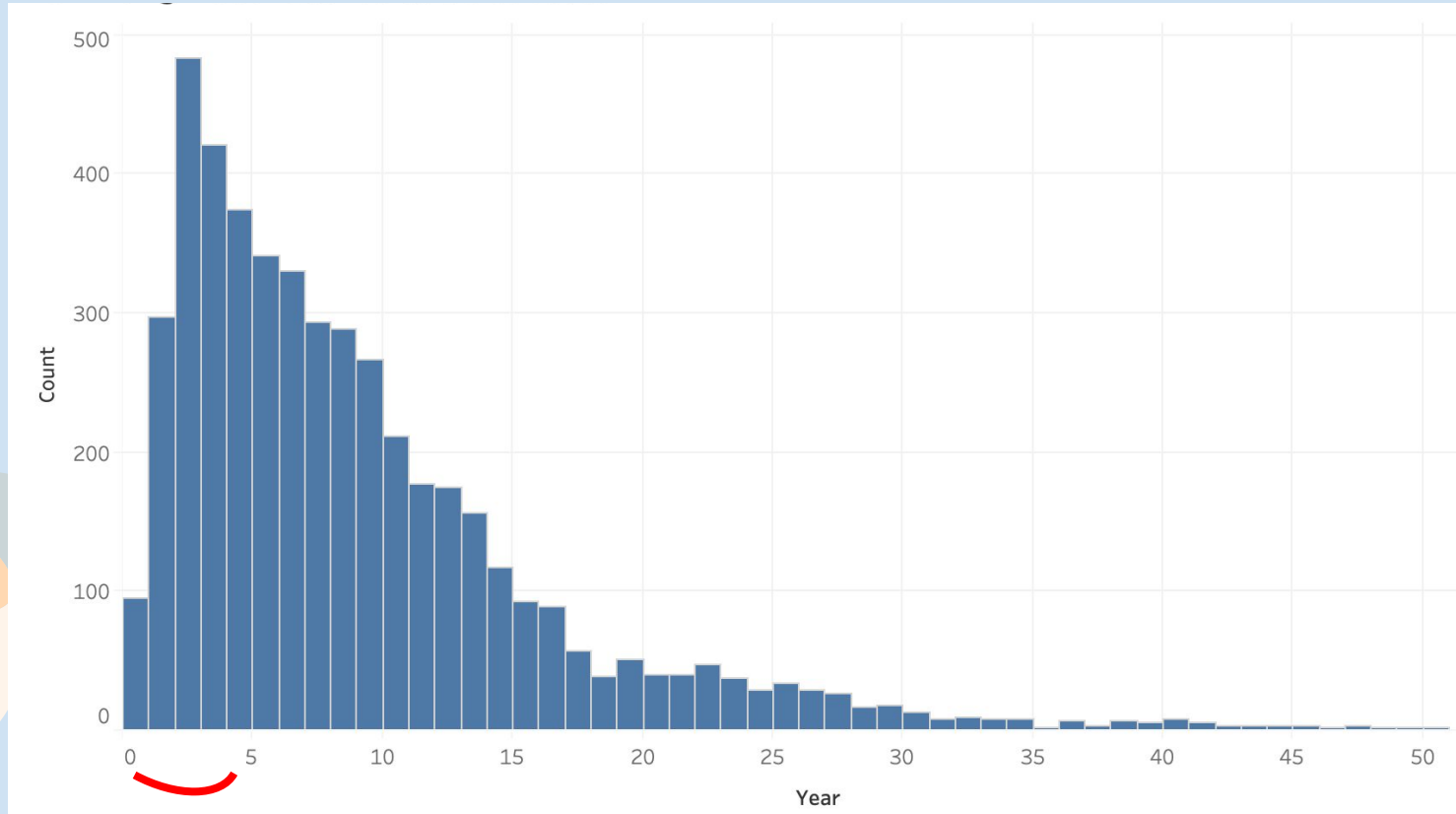
- Success (File IPO/ Acquisition)
- Fail (No funding over 2 years)

03 Features Variables

- **Company info**
(name, type, location, logo, relationships, Milestones, founded year)
- **Funding info**
(funding round & total \$)
- **US GDP**

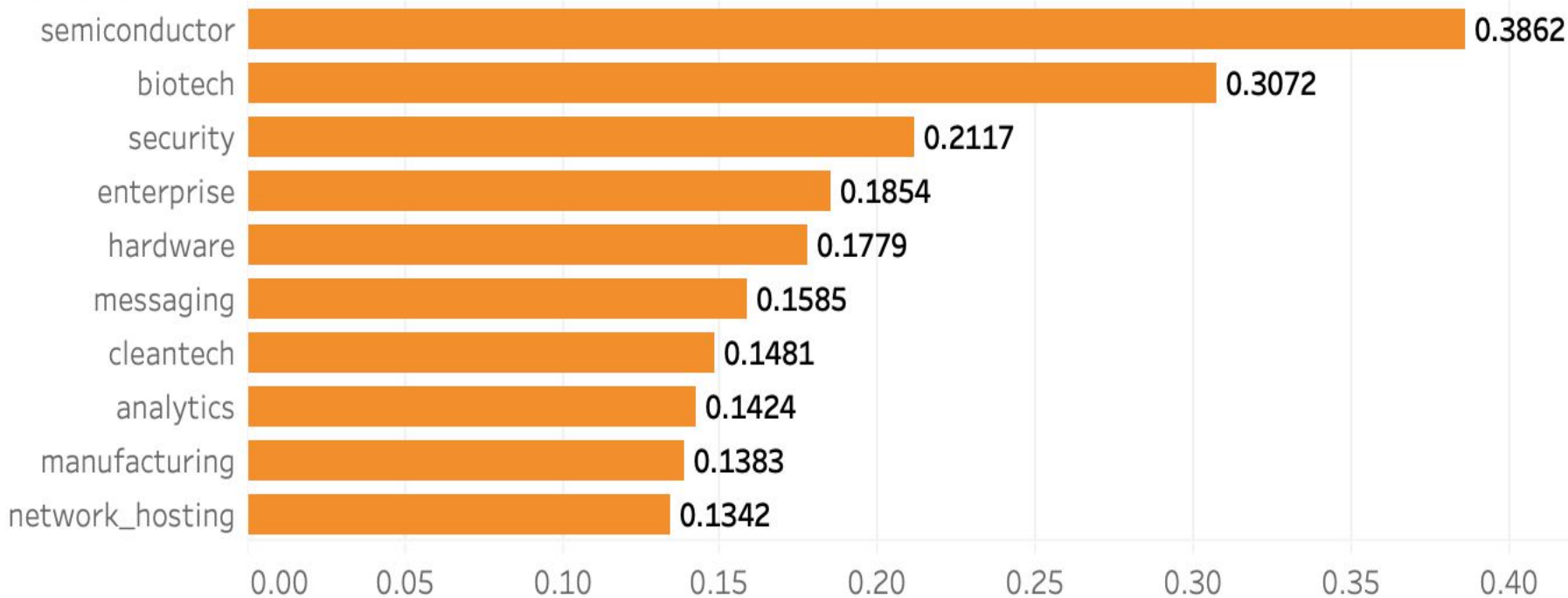


How Long Does It Take to Success?



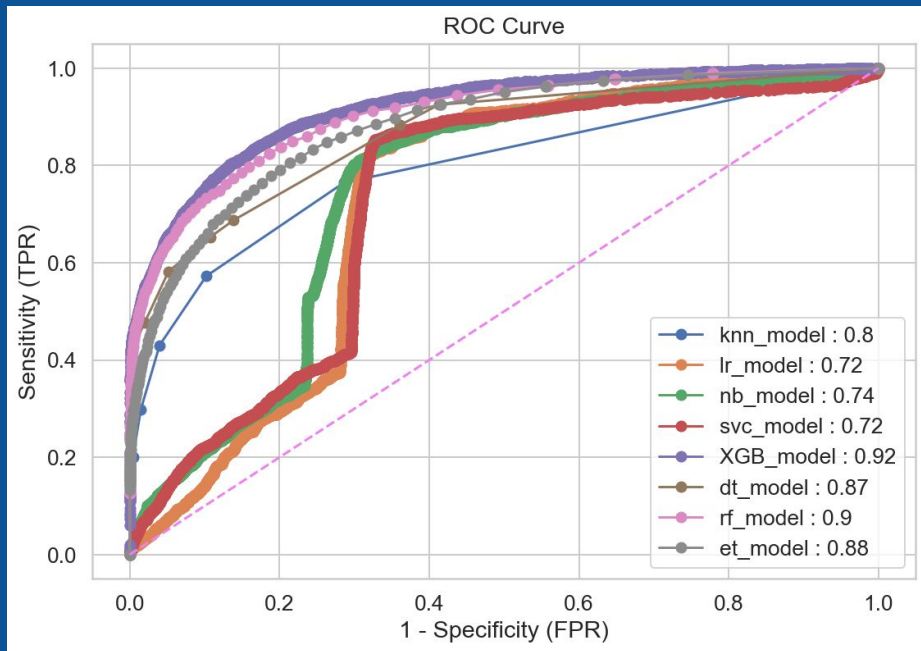
Success Rate by Industry

Category Code ▮



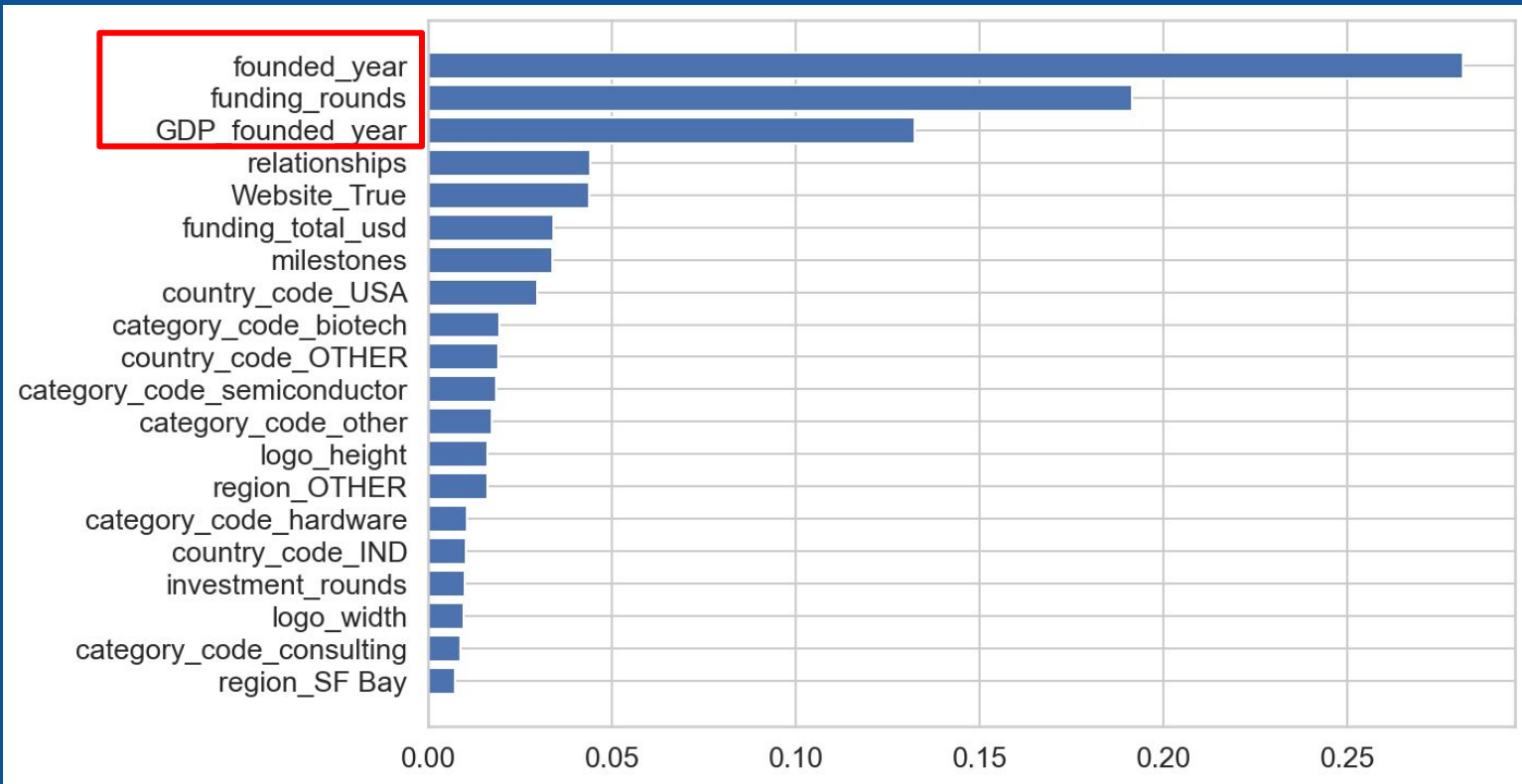
Success Rate ▮

Model Selection & Training

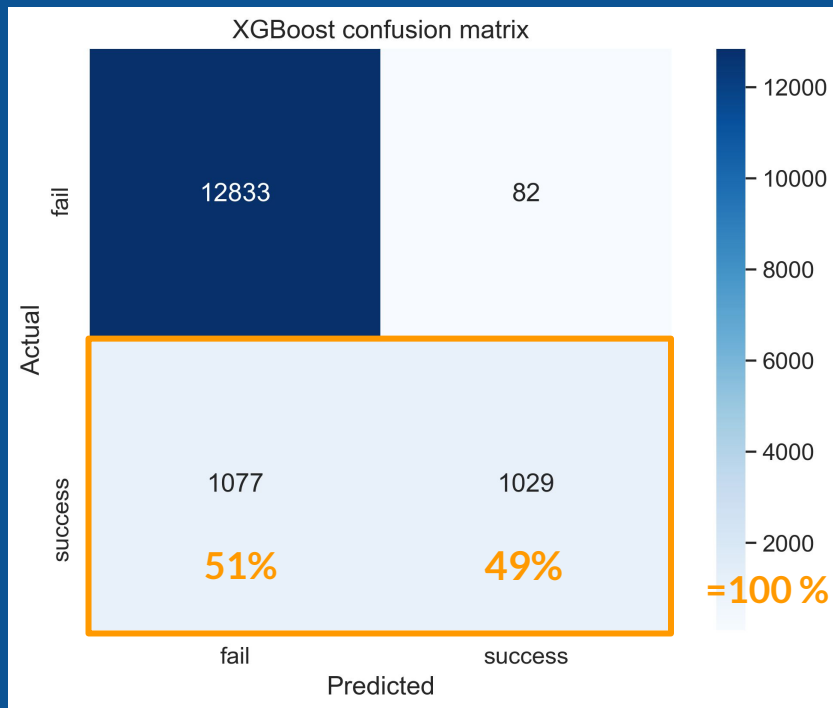


Model	PRECISION	RECALL	F1 score
XGBOOST	0.93	0.46	0.62
Random Forest	0.90	0.48	0.63
KNN	0.71	0.38	0.50

XGBoost- Feature Importances



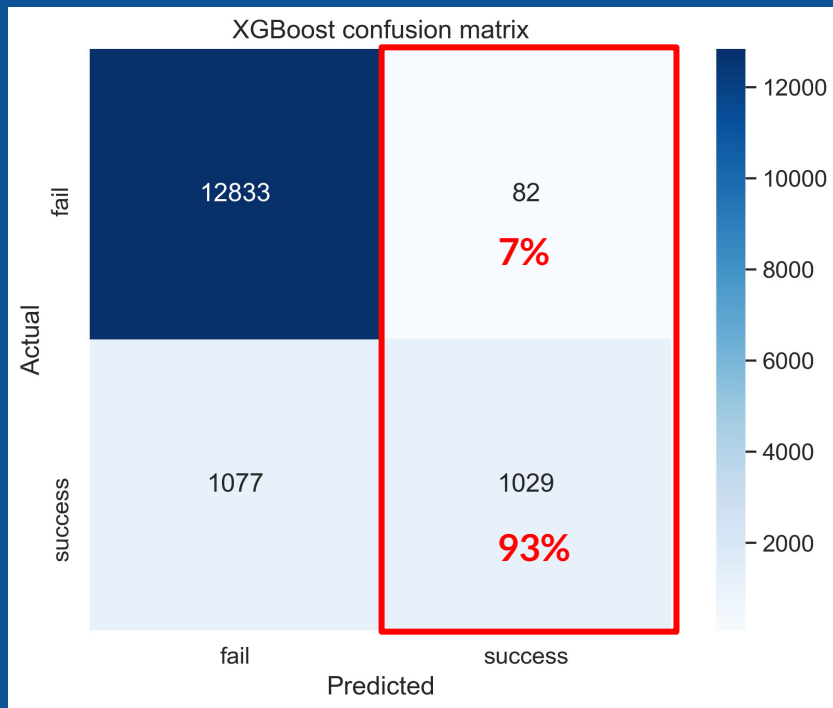
Conclusions



Final Model: XGBOOST

- Recall: 0.49
- Precision: 0.93
- F1 score: 0.64
- ROC: 0.9034

Conclusions



||

100%

Final Model: XGBOOST

- Recall: 0.49
- **Precision: 0.93**
- F1 score: 0.64
- ROC: 0.9034

Thank You!



Reference

Review 42

<https://review42.com/resources/what-percentage-of-startups-fail/#:~:text=An%20estimated%2090%25%20of%20new%20startups%20fail.&text=Around%2020%25.,to%20the%2015%2Dyear%20mark.>

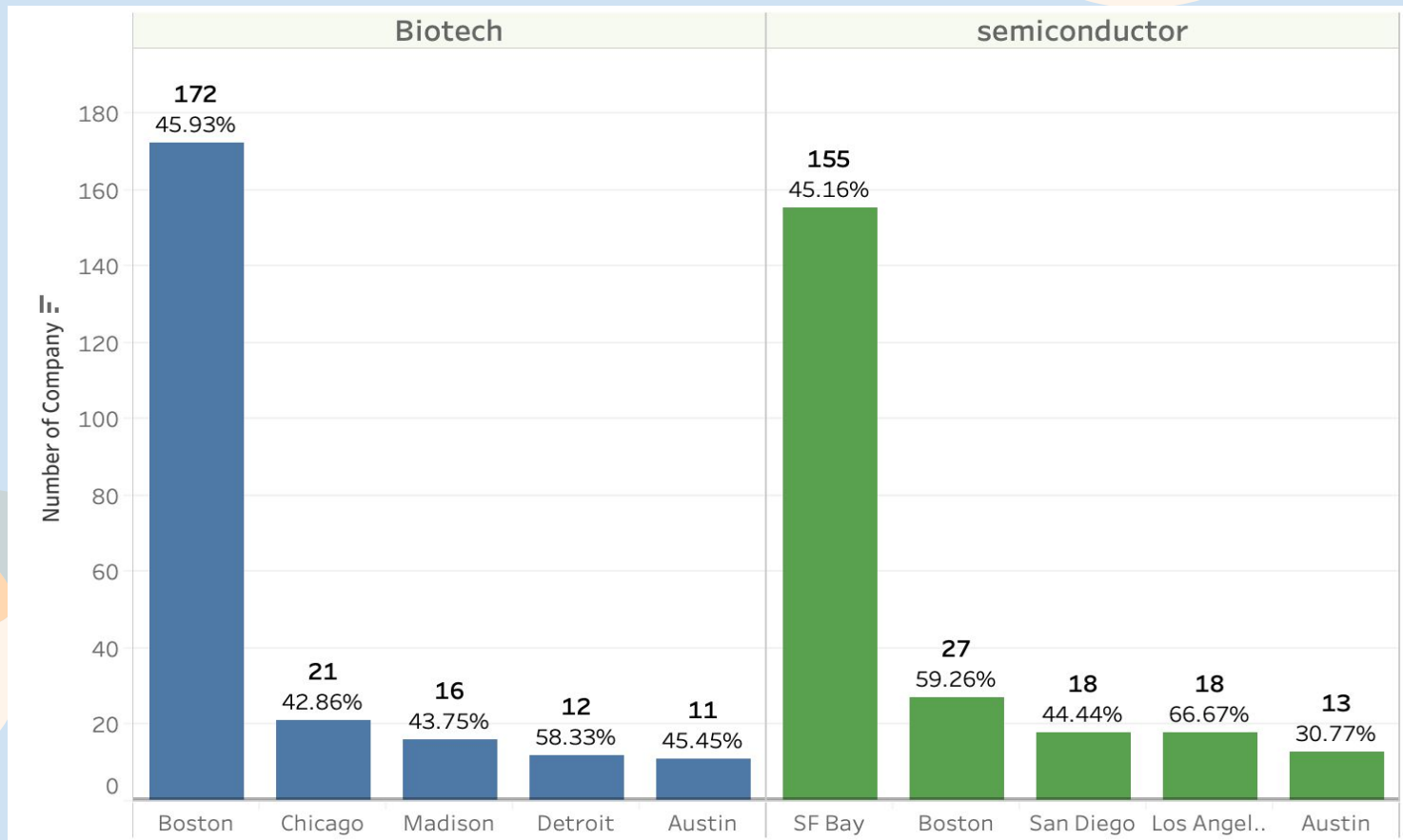
CHRON

<https://smallbusiness.chron.com/information-small-business-startups-2491.html>

Appendix



Success Rate by City



Top Funding Company

Company Name	Region	Category Code	
Clearwire	Seattle	mobile	5,700,000,000
Verizon Communications, ..	New York	mobile	3,985,050,000
Facebook	SF Bay	social	2,425,700,000
Solyndra	SF Bay	manufacturing	1,765,504,319
Terra-Gen Power	New York	cleantech	1,200,000,000
Twitter	SF Bay	social	1,160,166,511
Groupon	Chicago	web	1,147,288,416
Xerox	OTHER	hardware	1,100,000,000
Sirius XM Radio, Inc.	unknown	public_relations	1,055,750,000
Blackberry	Waterloo	hardware	1,000,000,000

Total Funding

Variable definition

Founding round	the number of times startups are going back to the market to raise more capital has been growing.
milestone	Event or Announcement
relationship	Number of individual link with company

