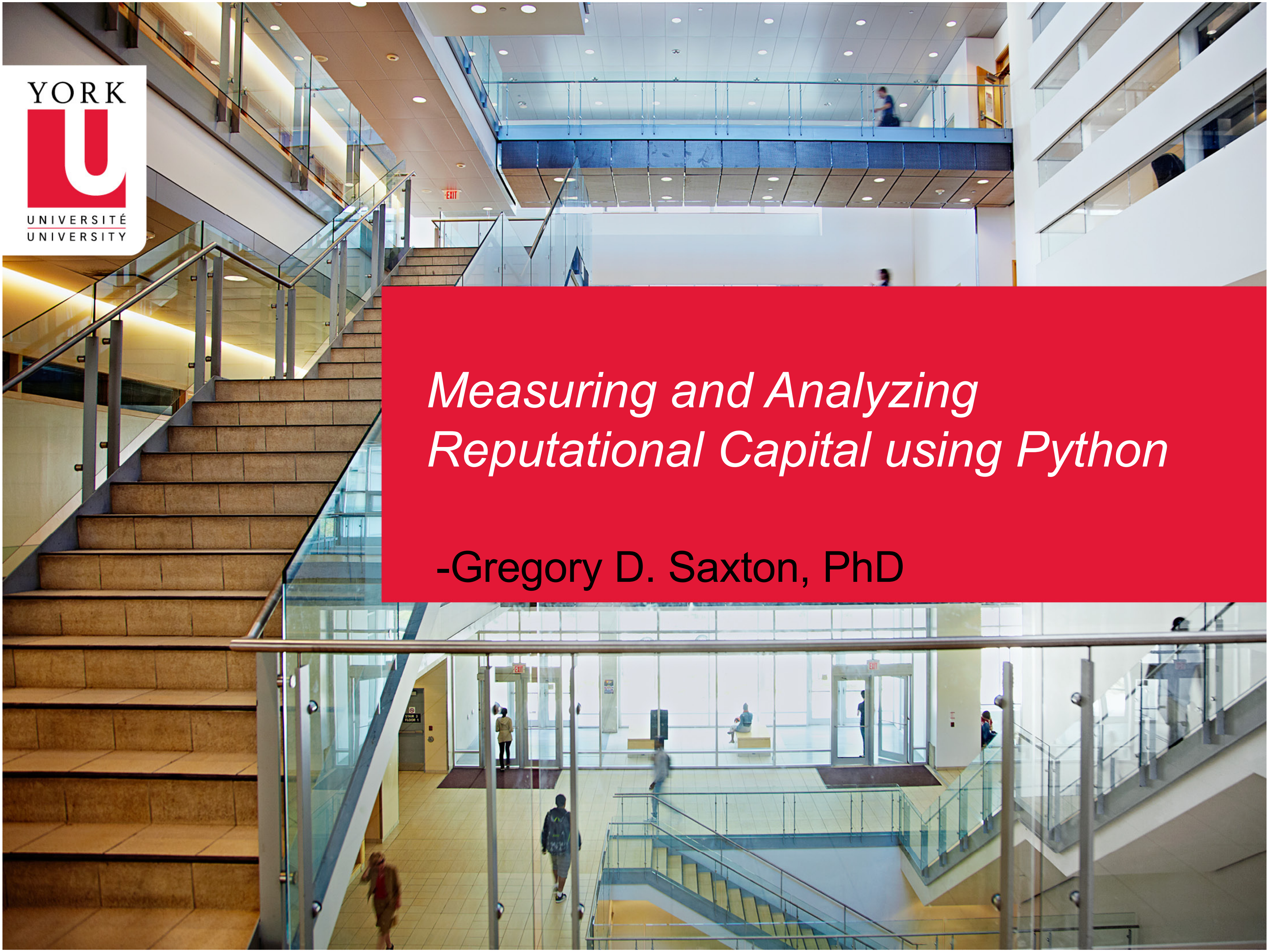

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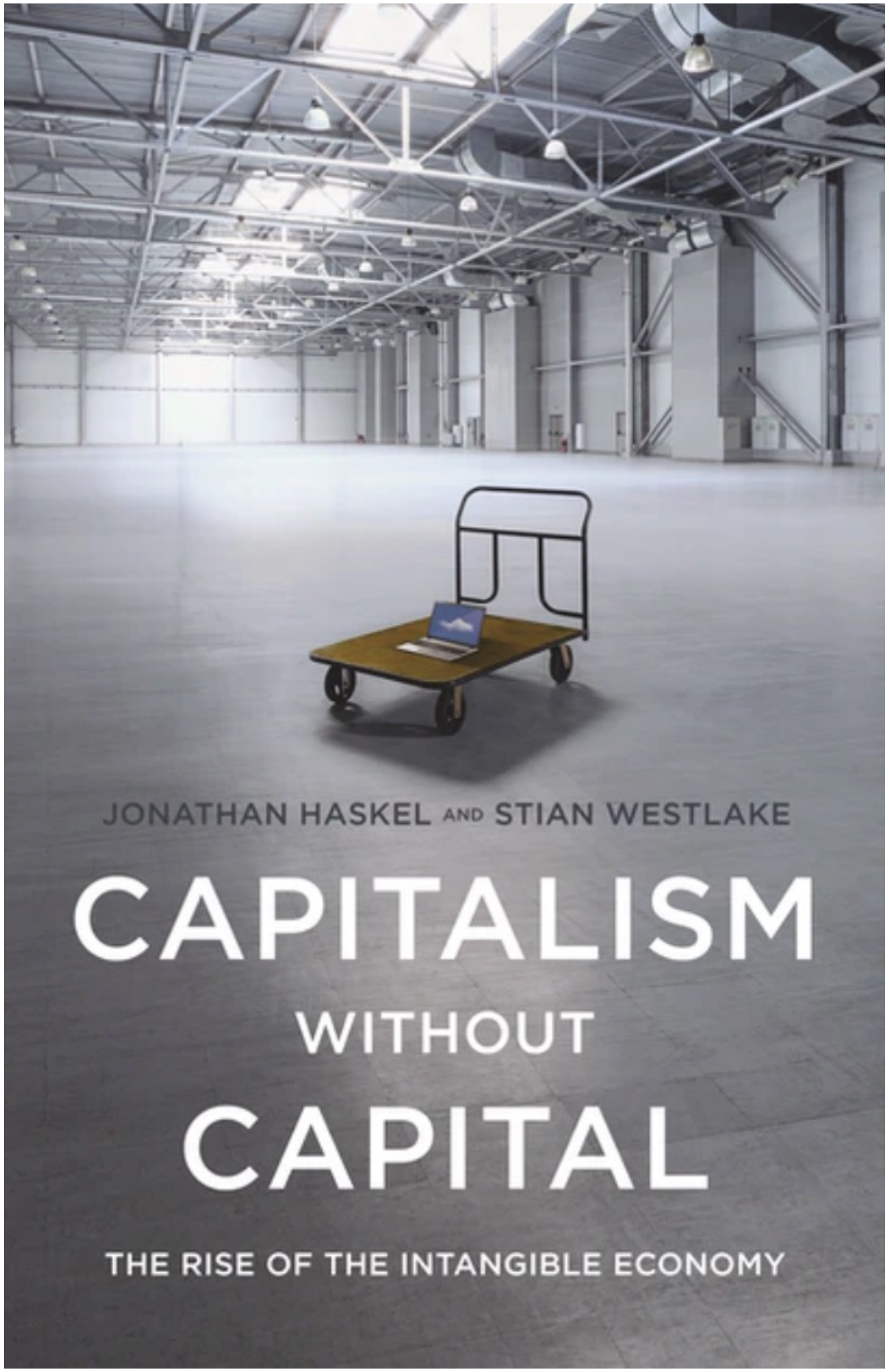
Measuring and Analyzing Reputational Capital using Python

-Gregory D. Saxton, PhD



JONATHAN HASKEL AND STIAN WESTLAKE

CAPITALISM WITHOUT CAPITAL

THE RISE OF THE INTANGIBLE ECONOMY

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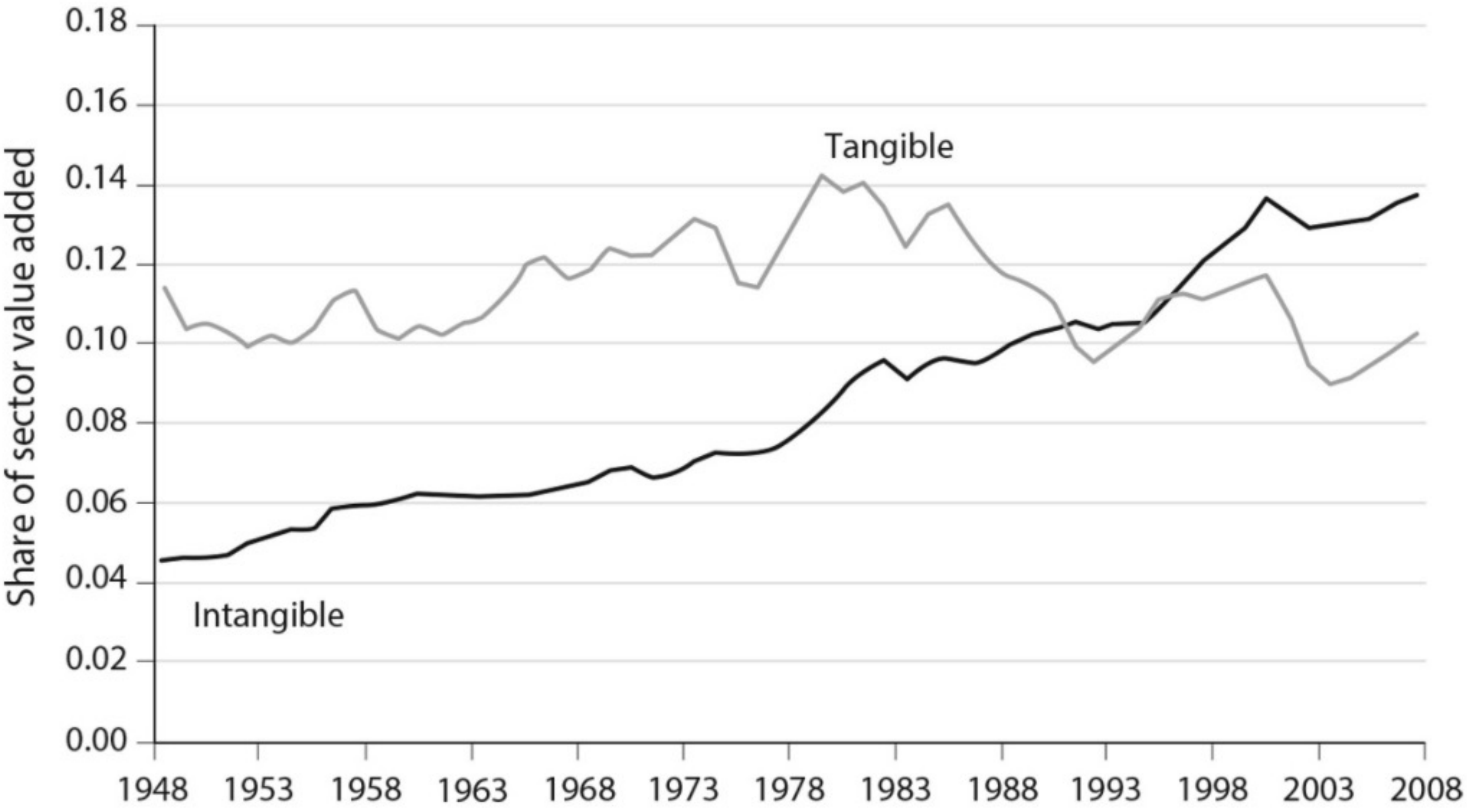
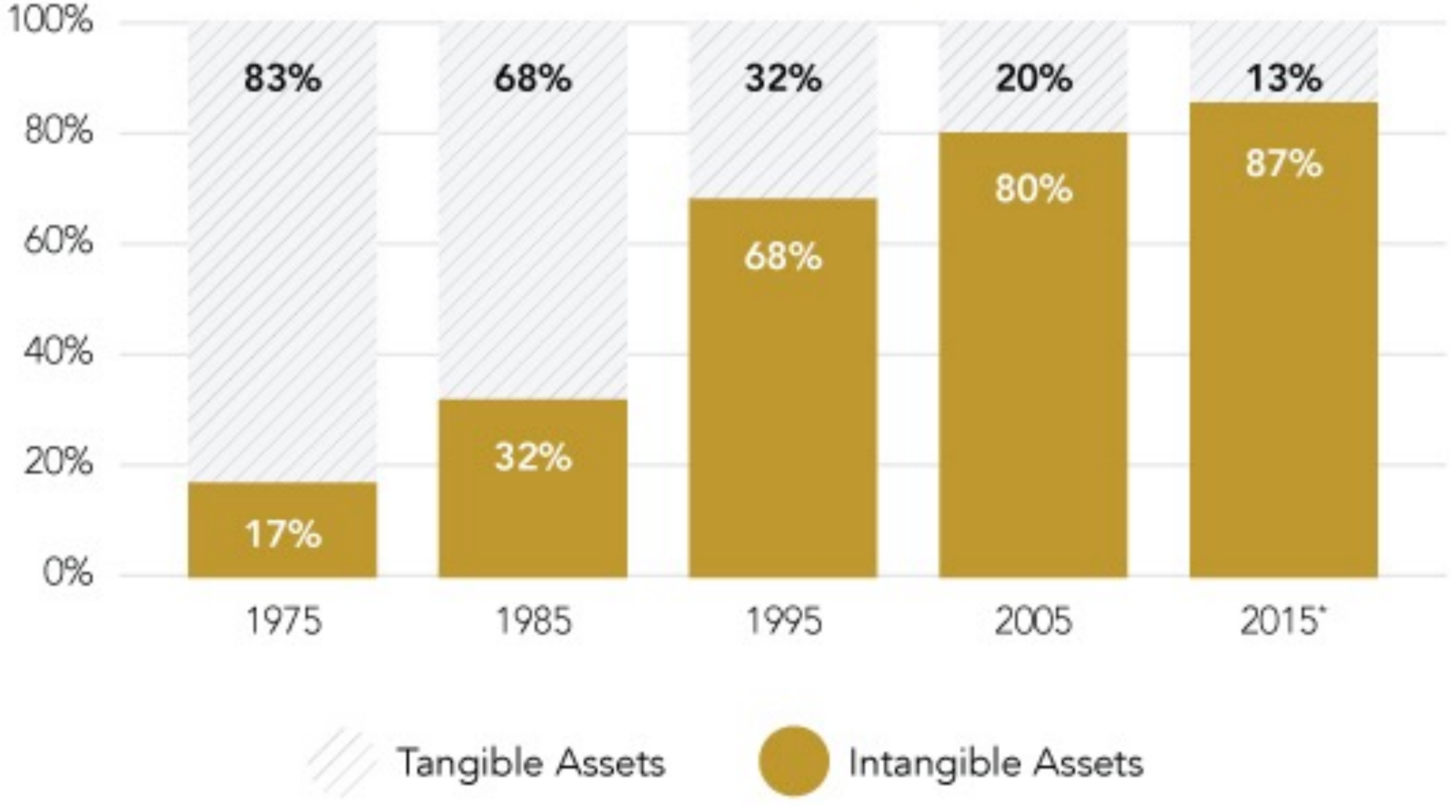


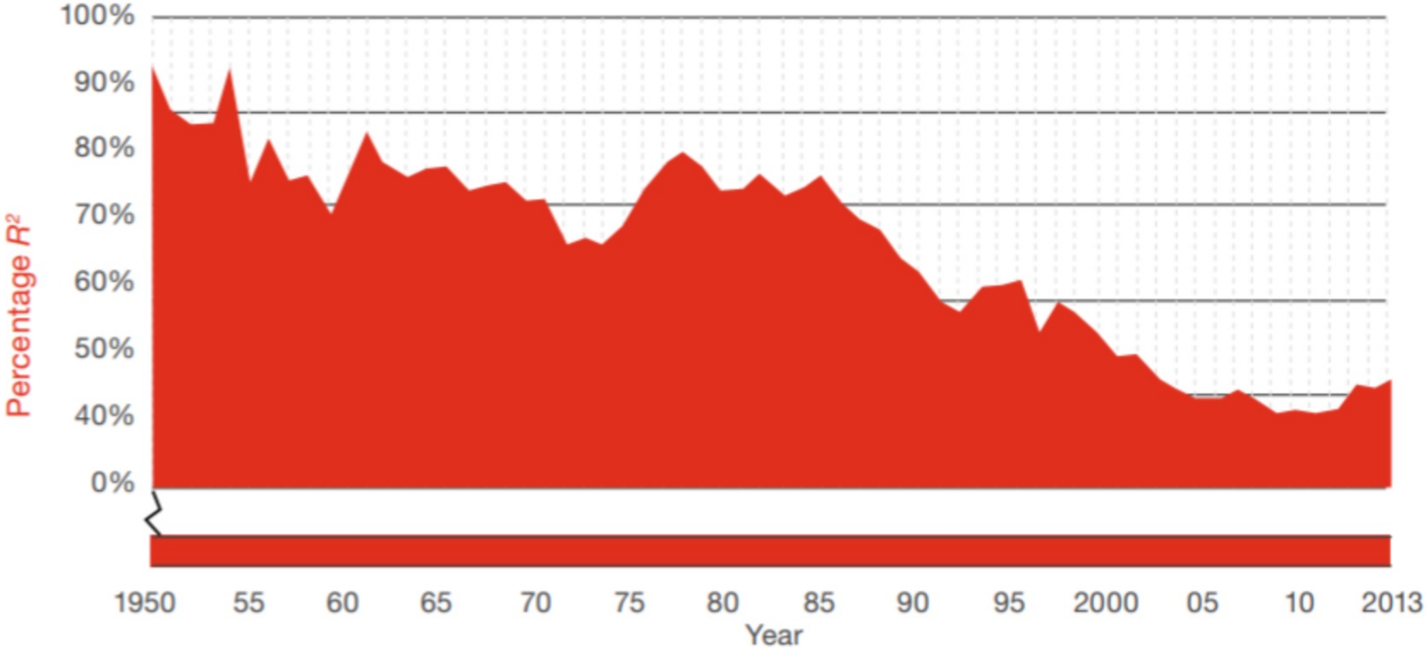
Figure 2.1. Intangible and tangible investment over time, United States. Data are US business investment in intangible and tangible assets relative to US non-farm business sector output, including intangible output. Last datapoint is 2007. Source: Corrado and Hulten 2010, online data appendix.

COMPONENTS *of* S&P 500 MARKET VALUE



SOURCE: OCEAN TOMO, LLC

Adjusted R^2 of regression of corporate market value on reported earnings and book value, 1950-2013



Source: The end of Accounting and the Path Forward for investors and Managers by Baruch Lev and Feng Gu

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Trade Secrets

Organizational Knowledge

Proprietary Software Code

Brand & Reputation

Critical Suppliers & Customers

Research & Development

Strategy & Market Intelligence

Know-How

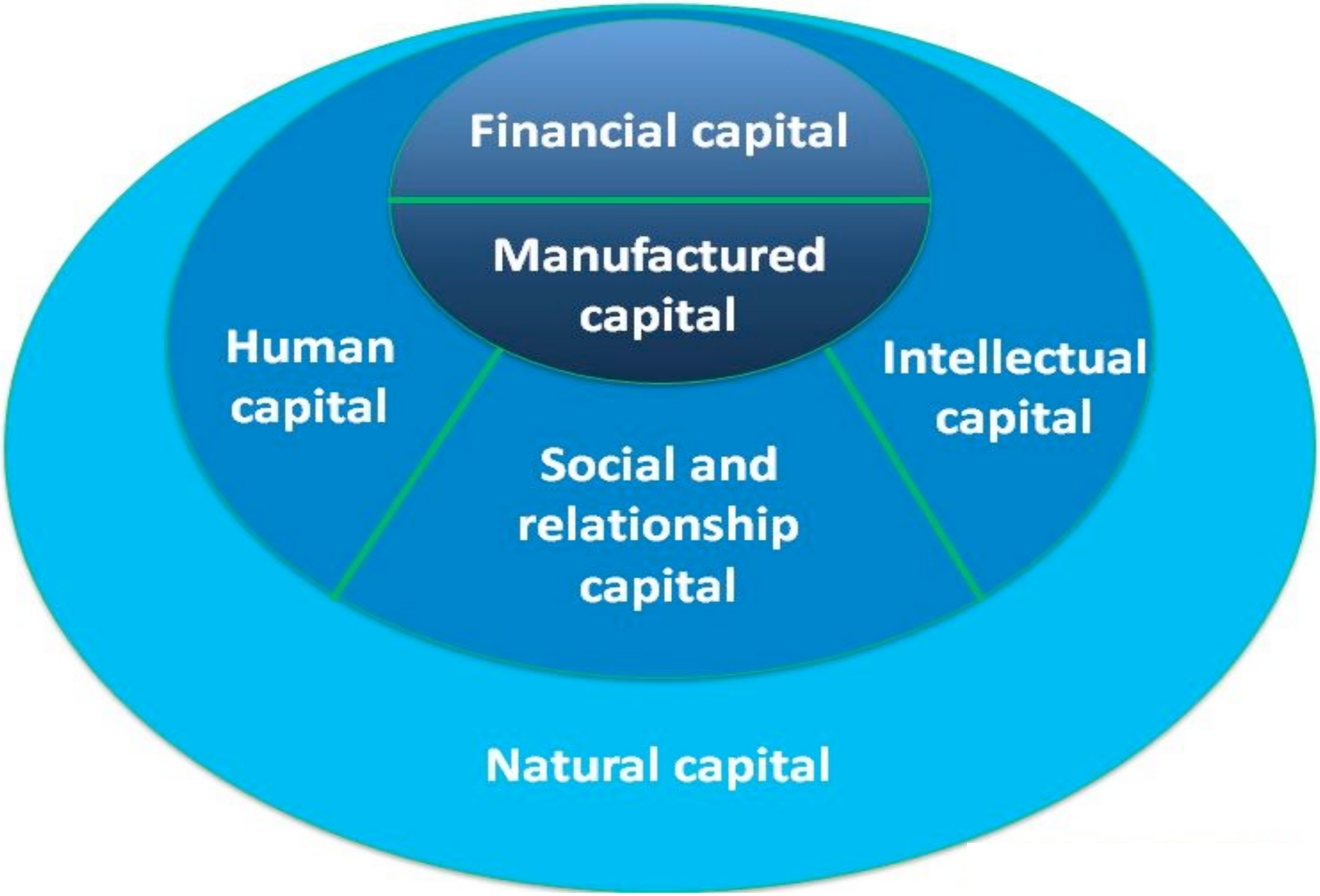
Human Capital

Social Capital

Reputation

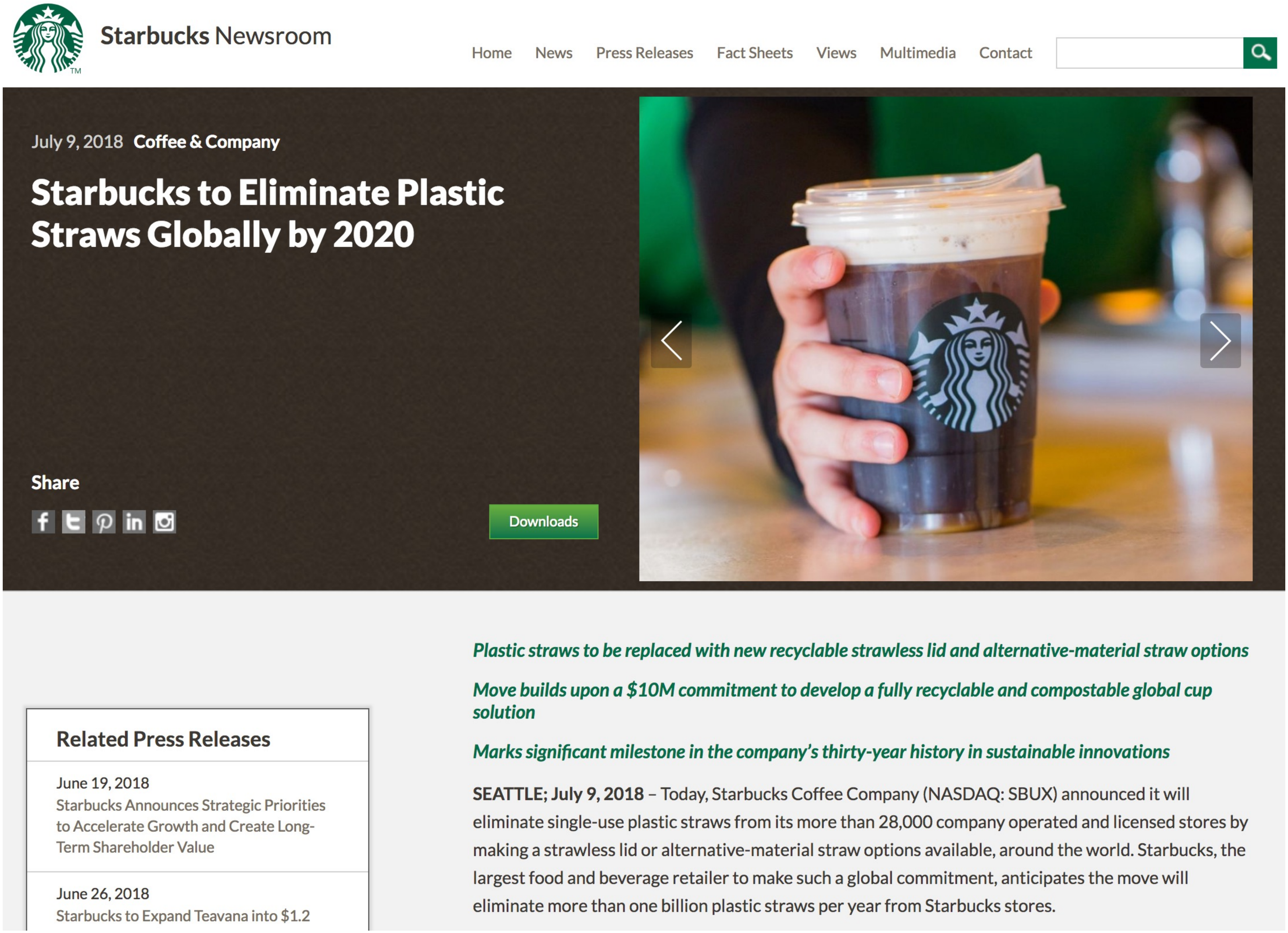
Brand Equity

<IR> and the Six Capitals


Financial capital
Manufactured capital
Human capital
Intellectual capital
Social and relationship capital
Natural capital

Company Reputation

STARBUCKS COFFEE



July 9, 2018 **Coffee & Company**

Starbucks to Eliminate Plastic Straws Globally by 2020

Related Press Releases

June 19, 2018
Starbucks Announces Strategic Priorities to Accelerate Growth and Create Long-Term Shareholder Value

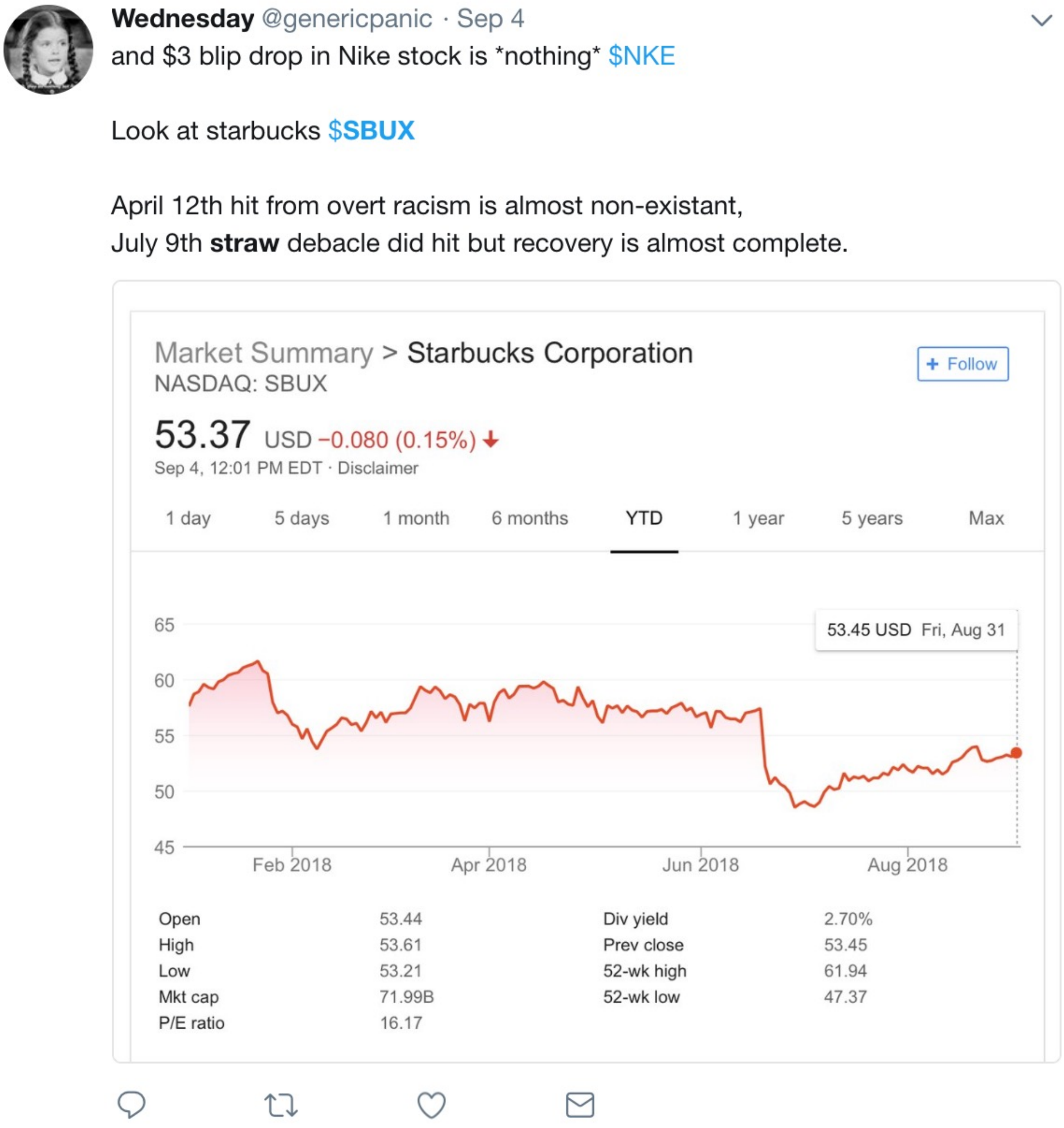
June 26, 2018
Starbucks to Expand Teavana into $1.2

Plastic straws to be replaced with new recyclable strawless lid and alternative-material straw options

Move builds upon a $10M commitment to develop a fully recyclable and compostable global cup solution

Marks significant milestone in the company's thirty-year history in sustainable innovations

SEATTLE; July 9, 2018 – Today, Starbucks Coffee Company (NASDAQ: SBUX) announced it will eliminate single-use plastic straws from its more than 28,000 company operated and licensed stores by making a strawless lid or alternative-material straw options available, around the world. Starbucks, the largest food and beverage retailer to make such a global commitment, anticipates the move will eliminate more than one billion plastic straws per year from Starbucks stores.



Wednesday @genericpanic · Sep 4

and $3 blip drop in Nike stock is *nothing* $NKE

Look at starbucks **$SBUX**

April 12th hit from overt racism is almost non-existant,
July 9th **straw** debacle did hit but recovery is almost complete.

Market Summary > Starbucks Corporation
NASDAQ: SBUX

53.37 USD −0.080 (0.15%)
Sep 4, 12:01 PM EDT · Disclaimer

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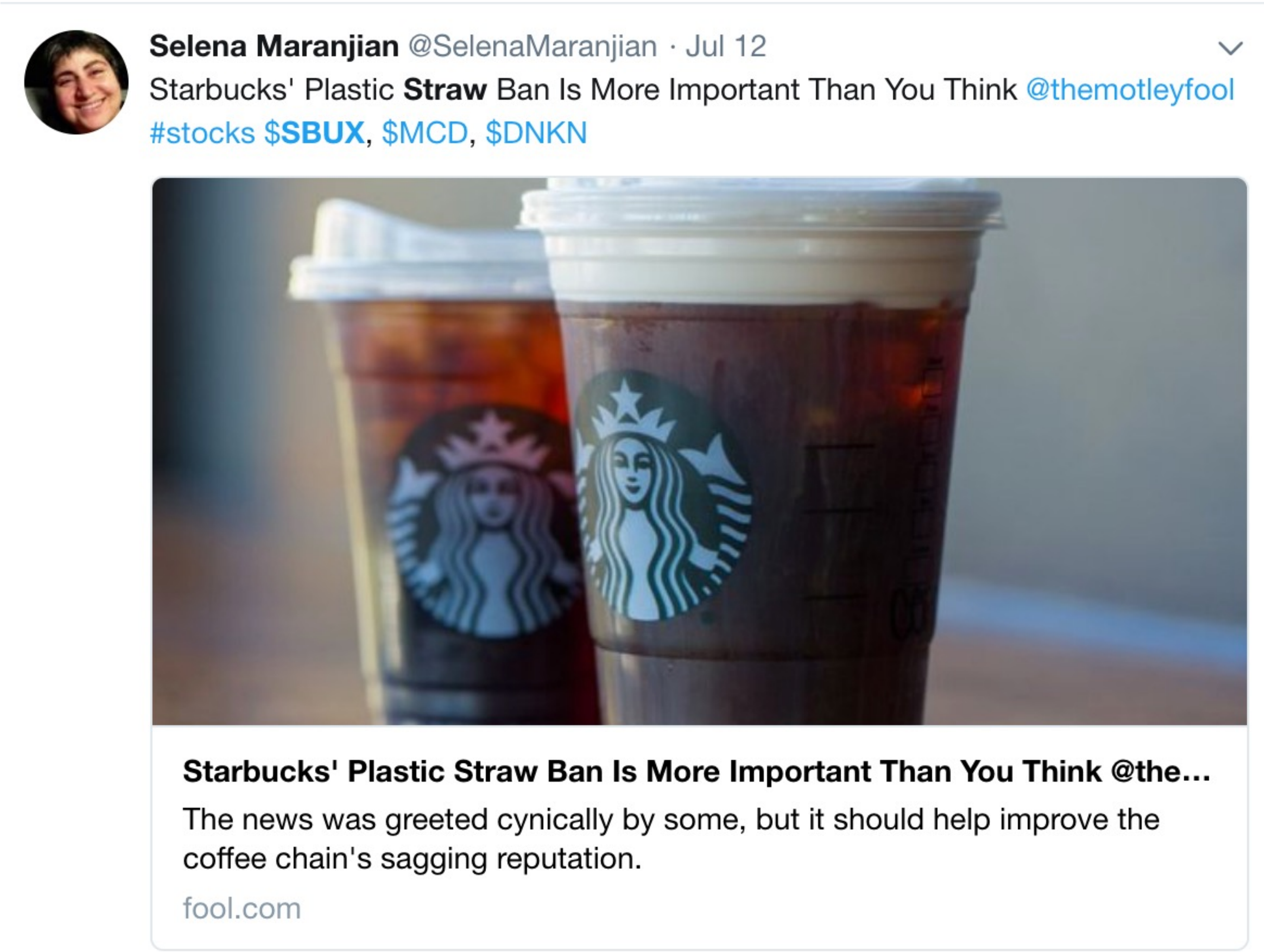
1 day
5 days
1 month
6 months
YTD
1 year
5 years
Max
65
60
55
50
45
Feb 2018
Apr 2018
Jun 2018
Aug 2018
53.45 USD Fri, Aug 31

Open	53.44	Div yield	2.70%
High	53.61	Prev close	53.45
Low	53.21	52-wk high	61.94
Mkt cap	71.99B	52-wk low	47.37
P/E ratio	16.17		



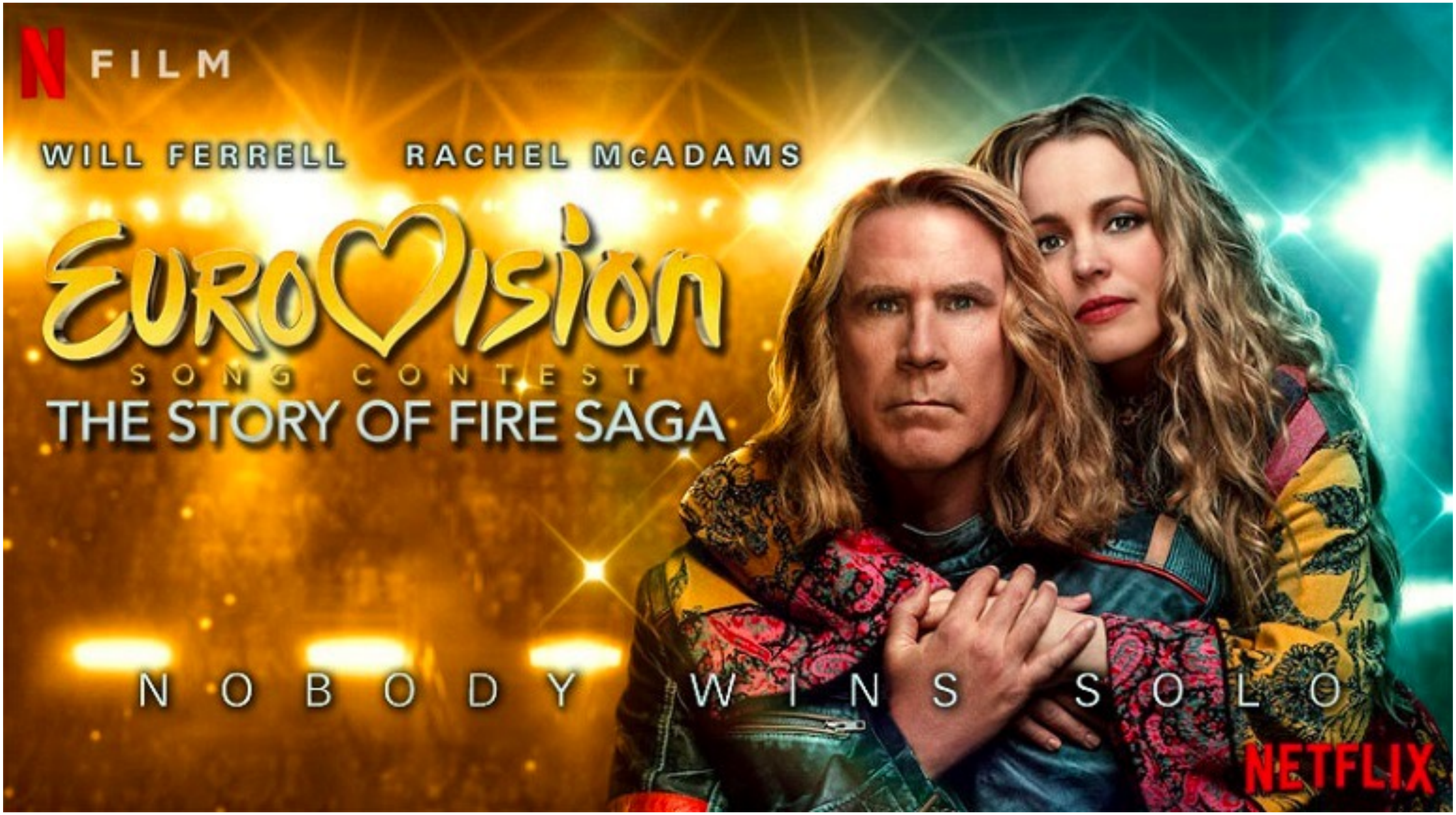
Selena Maranjian @SelenaMaranjian · Jul 12

Starbucks' Plastic **Straw** Ban Is More Important Than You Think @themotleyfool #stocks $**SBUX**, $MCD, $DNKN

Starbucks' Plastic Straw Ban Is More Important Than You Think @the…

The news was greeted cynically by some, but it should help improve the coffee chain's sagging reputation.

fool.com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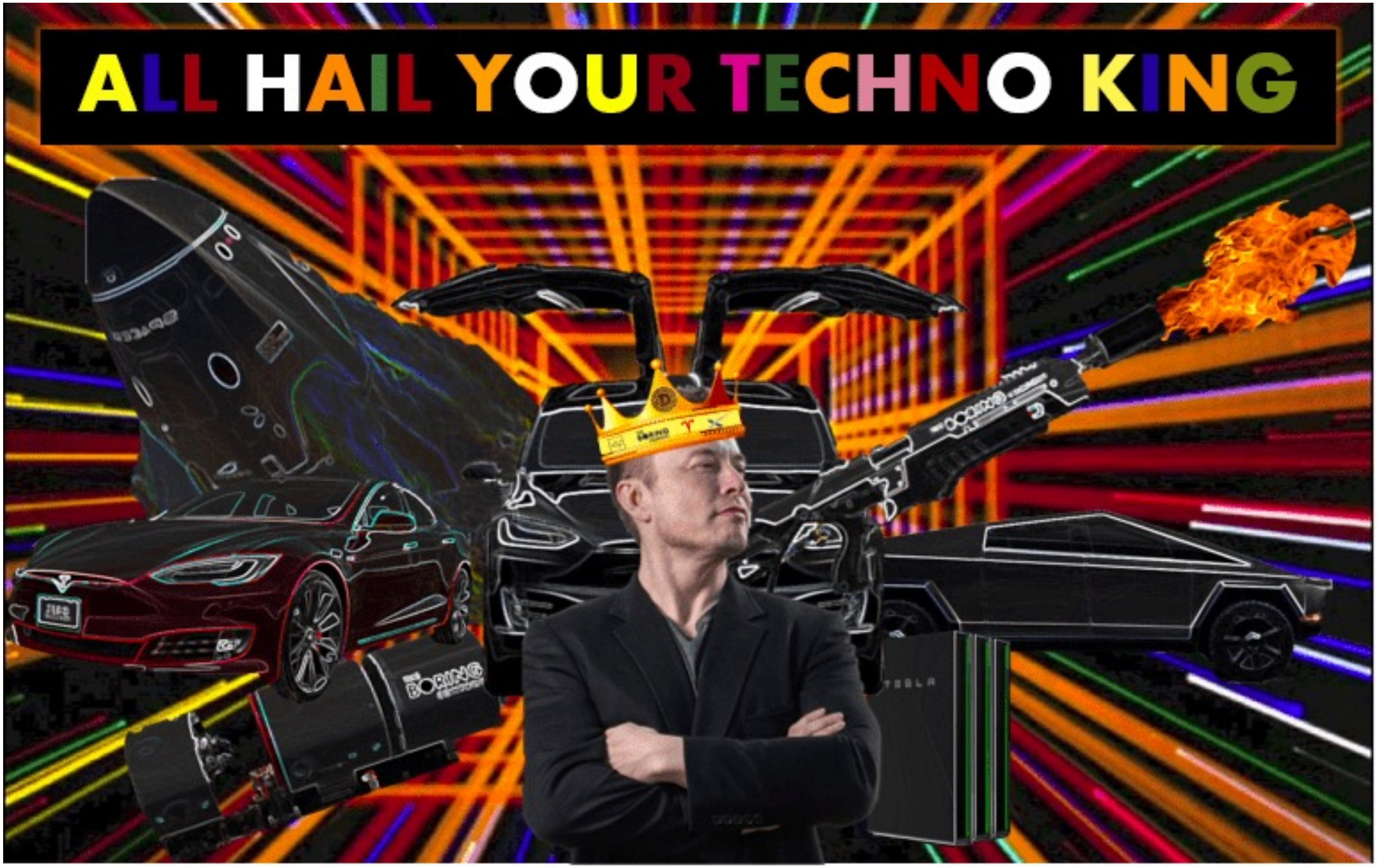
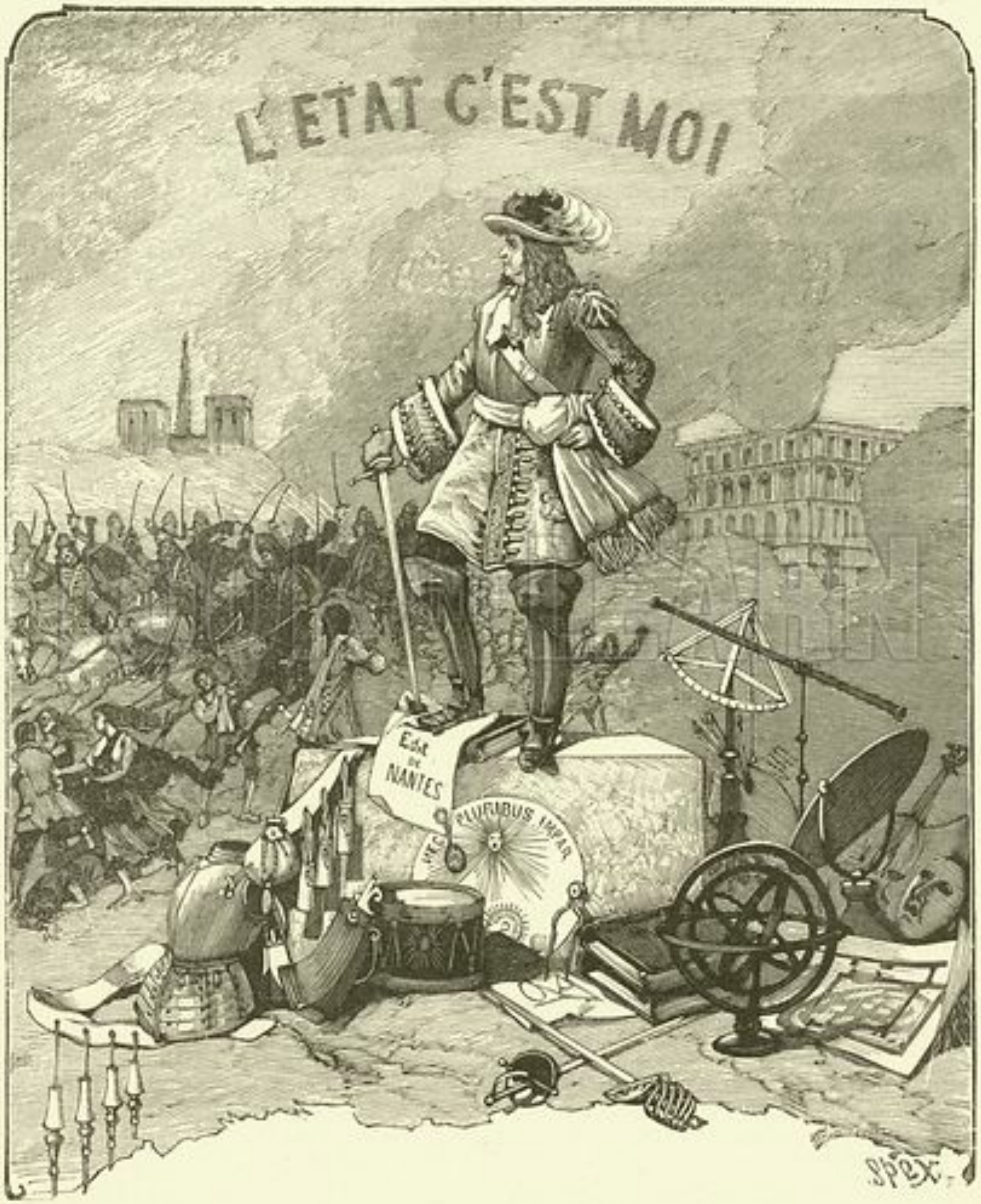
SONG CONTEST
THE STORY OF FIRE SAGA
NOBODY WINS SOLO
NETFLIX

CEO Reputation

GIGAFACTORY TEXAS - OFFICE SPACE WITH FACTORY VIEW


ALL HAIL YOUR TECHNO KING
BORING
TESLA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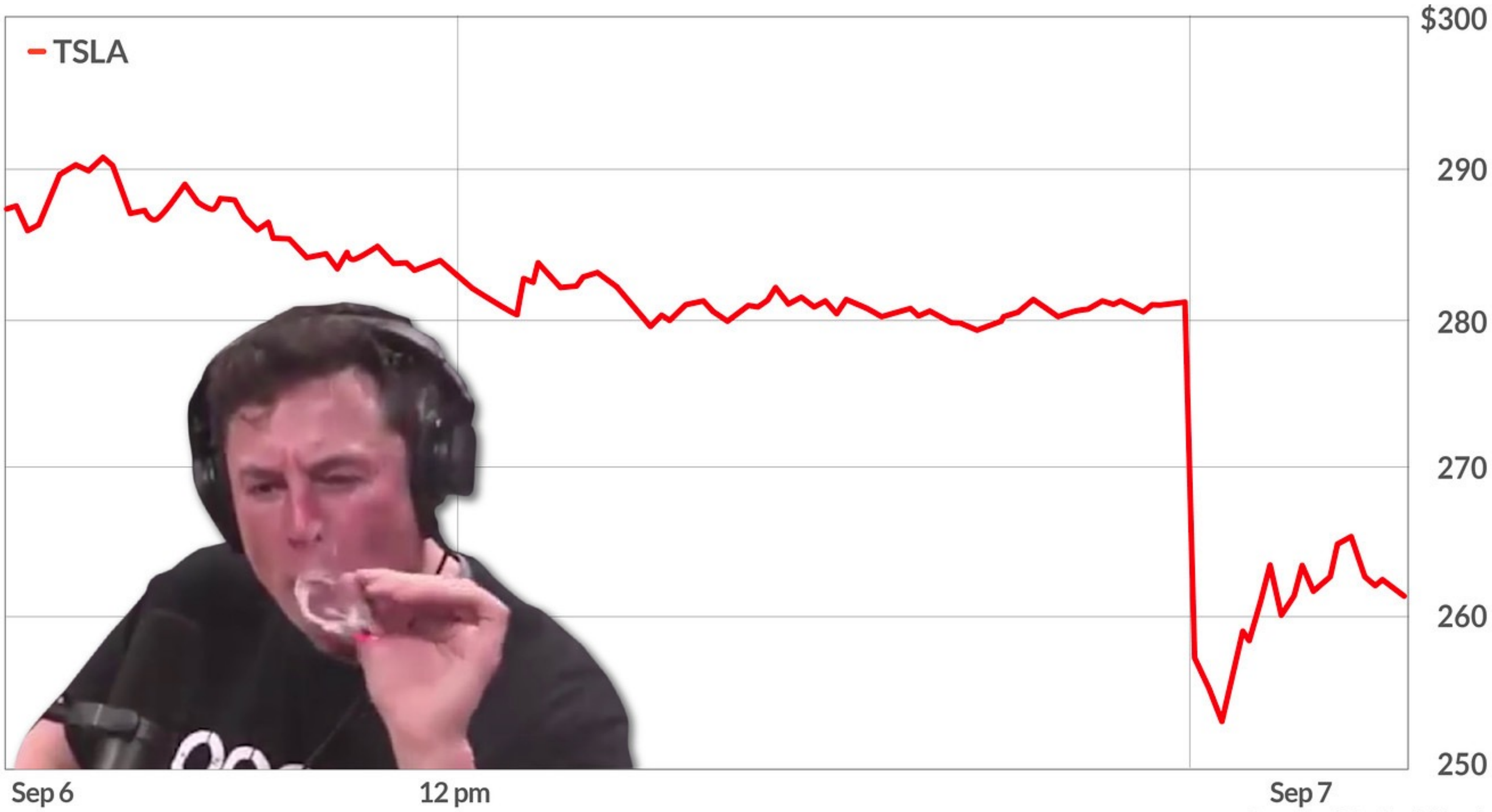
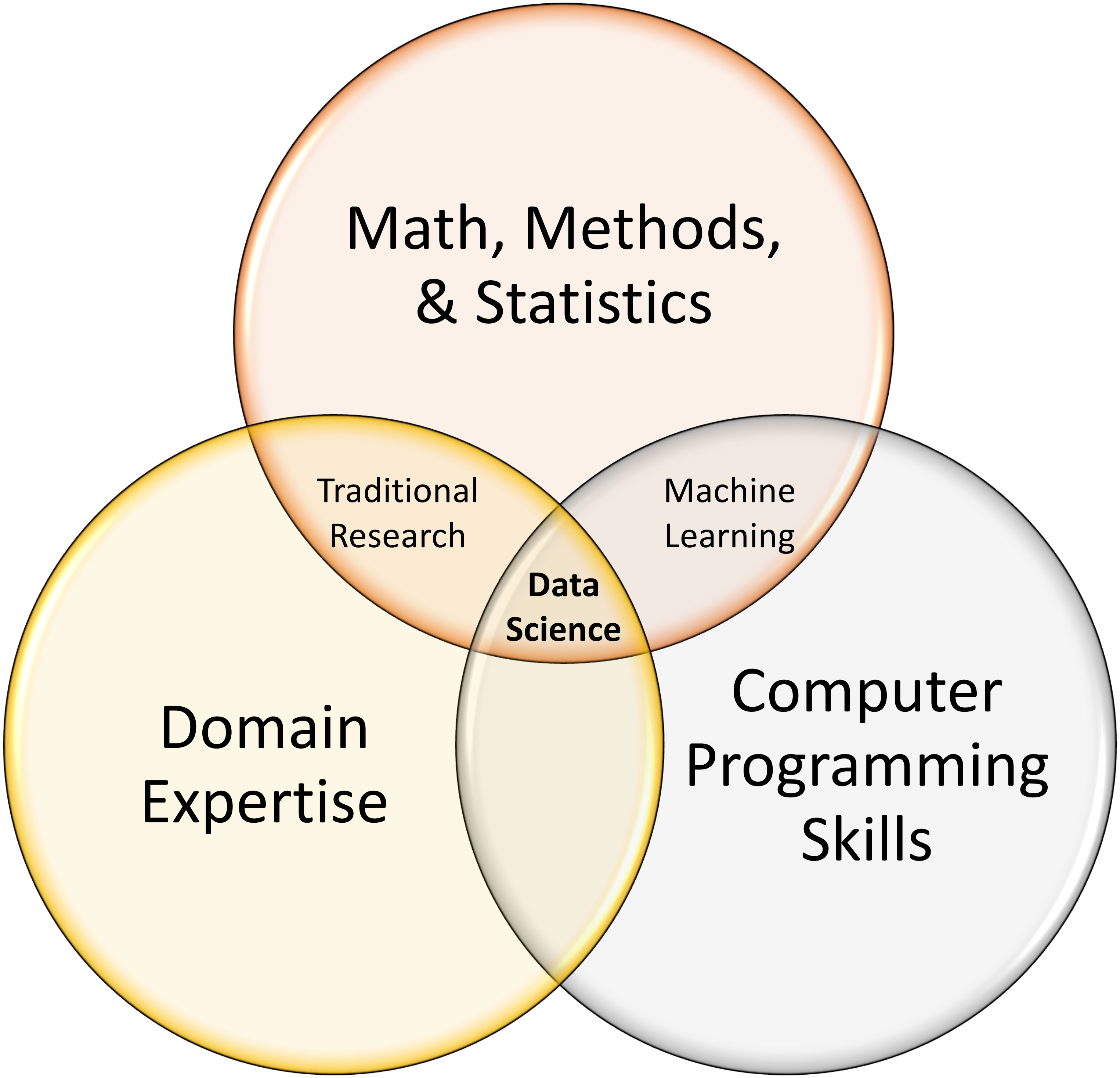
NEC PLURIBUS IMPAR
Spex.

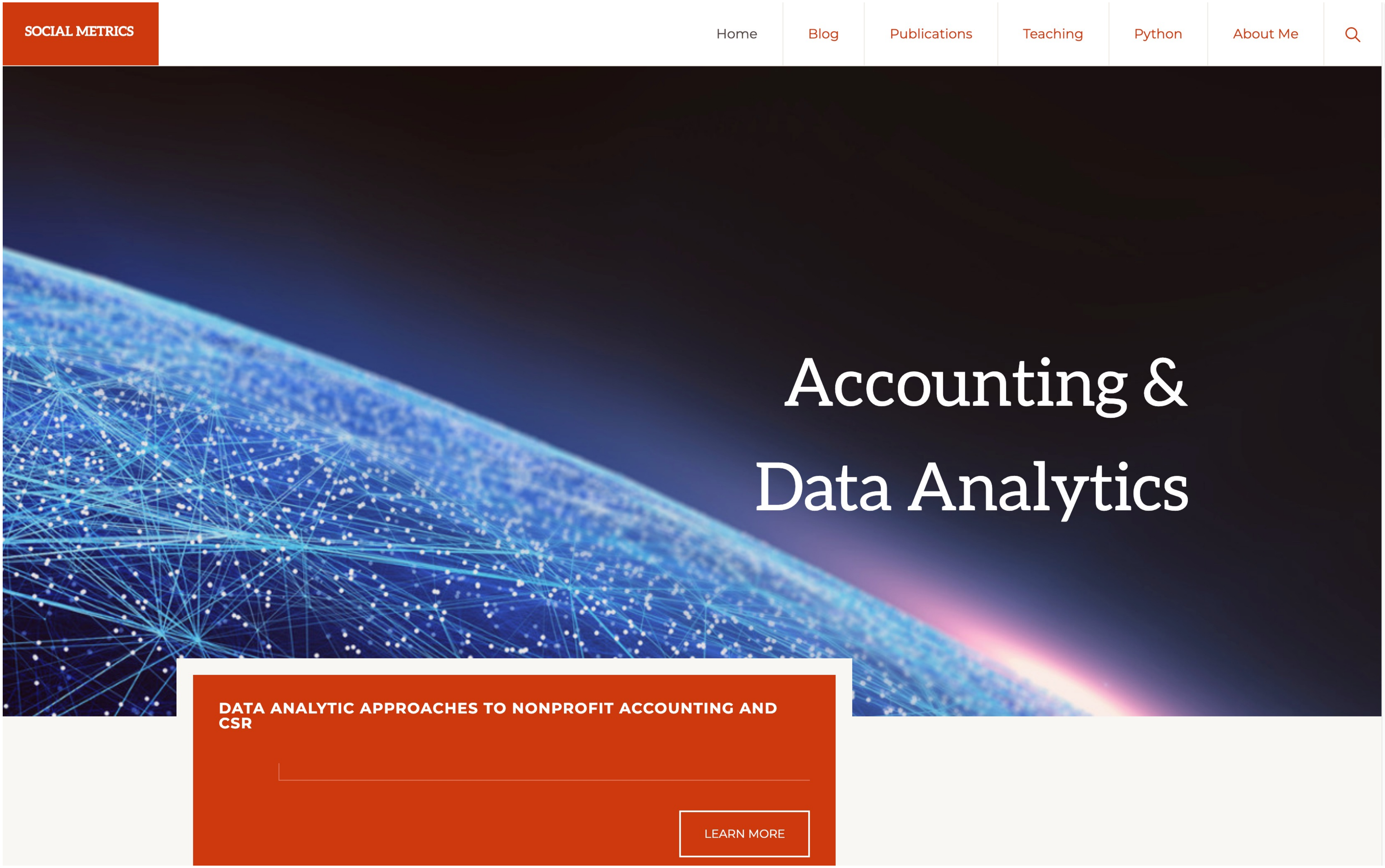


Source: MarketWatch

An Accounting Analytics Approach

Using Data Science to Measure Reputation and other Intangibles


Math, Methods, & Statistics
Traditional Research
Machine Learning
Data Science
Domain Expertise
Computer Programming Skills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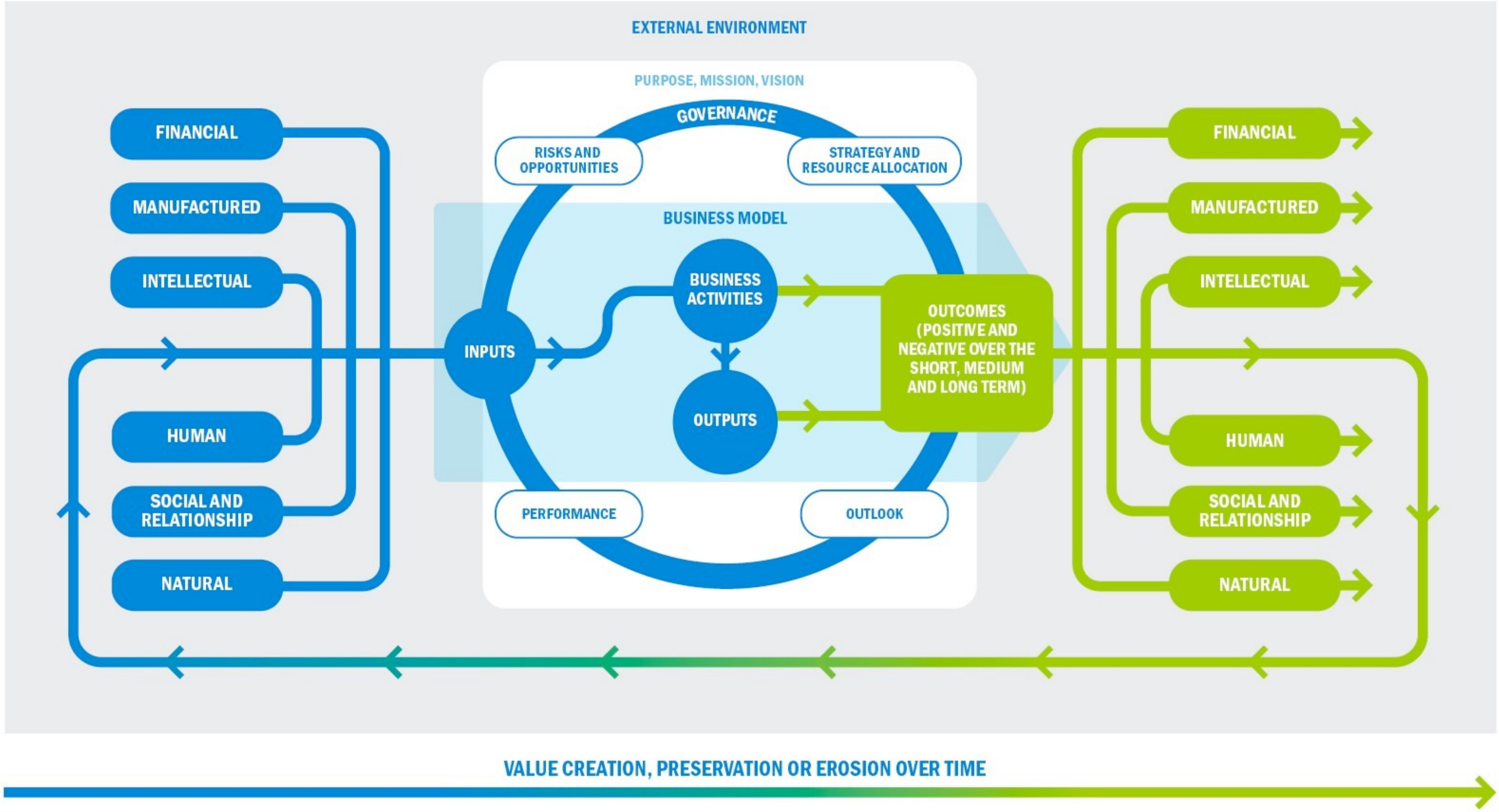
Accounting &
Data Analytics

DATA ANALYTIC APPROACHES TO NONPROFIT ACCOUNTING AND CSR

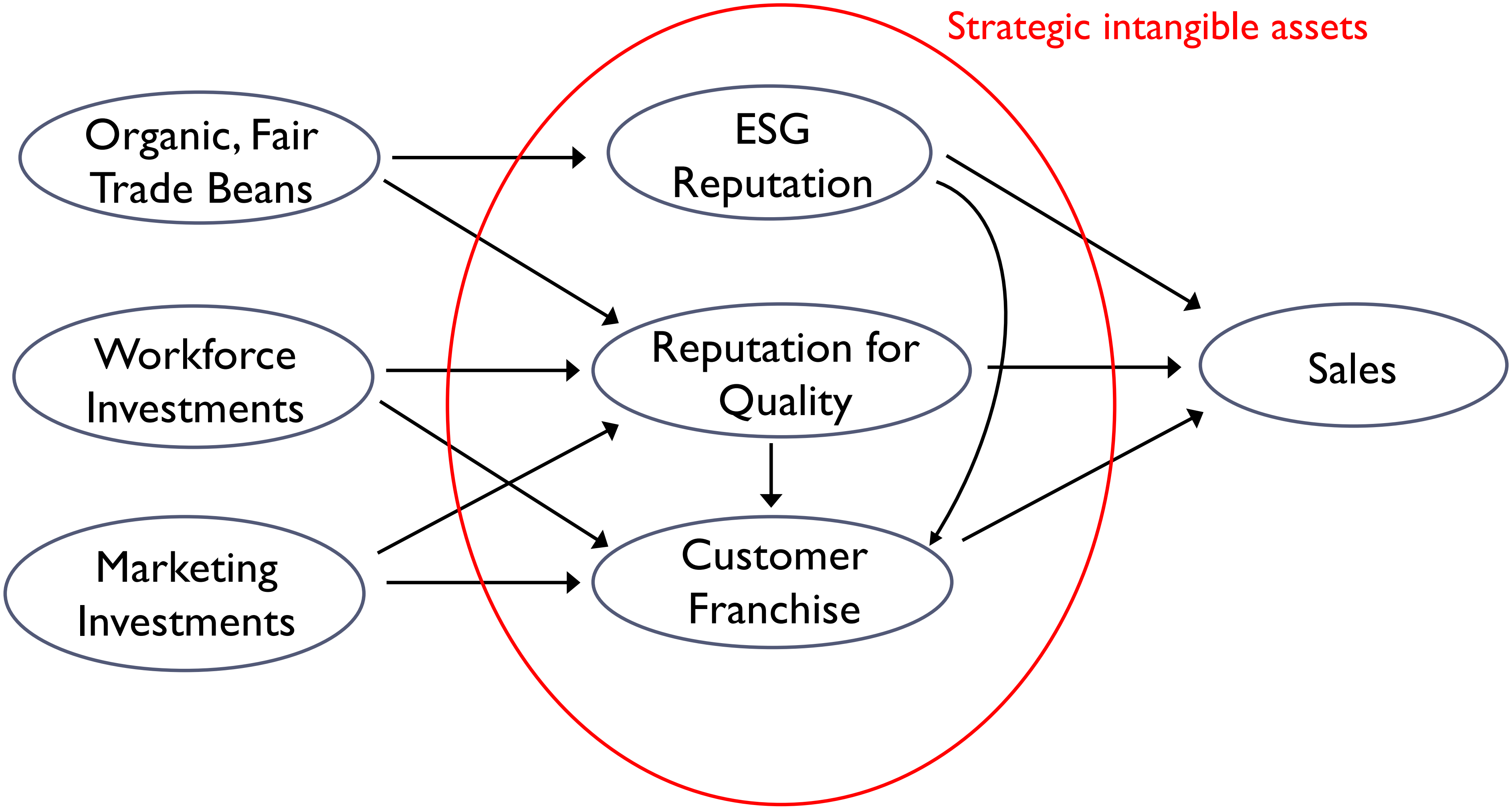
A Method for Valuing Intangibles

- Identify *strategic* intangible assets for your company
- Model causal relations in business model → focus on *value creation*
  - e.g., <IR>, Value Reporting Foundation, CICA's *Total Value Creation*
- Conceptualize each intangible asset individually
- Develop measurement plan for each intangible
- Gather, prepare, and manipulate data
  - Capture *dynamically*
- Implement and communicate
  - e.g., with a *dashboard*
- Because of the dynamic and unstructured nature of the data, this is much harder than with tangible assets and requires different skills

Key Skill: Modeling Cause-and-Effect Relationships for Your Intangibles


EXTERNAL ENVIRONMENT
PURPOSE, MISSION, VISION
GOVERNANCE
RISKS AND OPPORTUNITIES
STRATEGY AND RESOURCE ALLOCATION
BUSINESS MODEL
FINANCIAL
MANUFACTURED
INTELLECTUAL
HUMAN
SOCIAL AND RELATIONSHIP
NATURAL
INPUTS
BUSINESS ACTIVITIES
OUTPUTS
OUTCOMES (POSITIVE AND NEGATIVE OVER THE SHORT, MEDIUM AND LONG TERM)
FINANCIAL
MANUFACTURED
INTELLECTUAL
HUMAN
SOCIAL AND RELATIONSHIP
NATURAL
PERFORMANCE
OUTLOOK
VALUE CREATION, PRESERVATION OR EROSION OVER TIME

Example: Coffee Shop



Strategic intangible assets

Organic, Fair Trade Beans

Workforce Investments

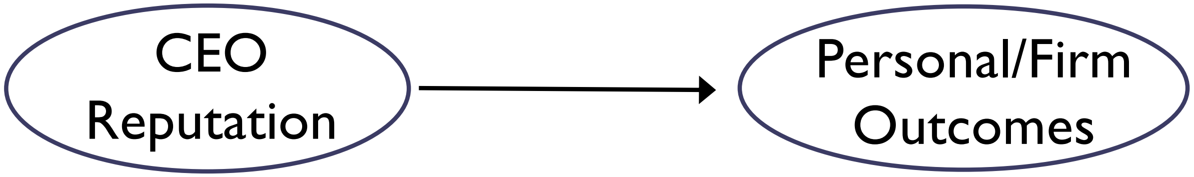
Marketing Investments

ESG Reputation

Reputation for Quality

Customer Franchise

Sales

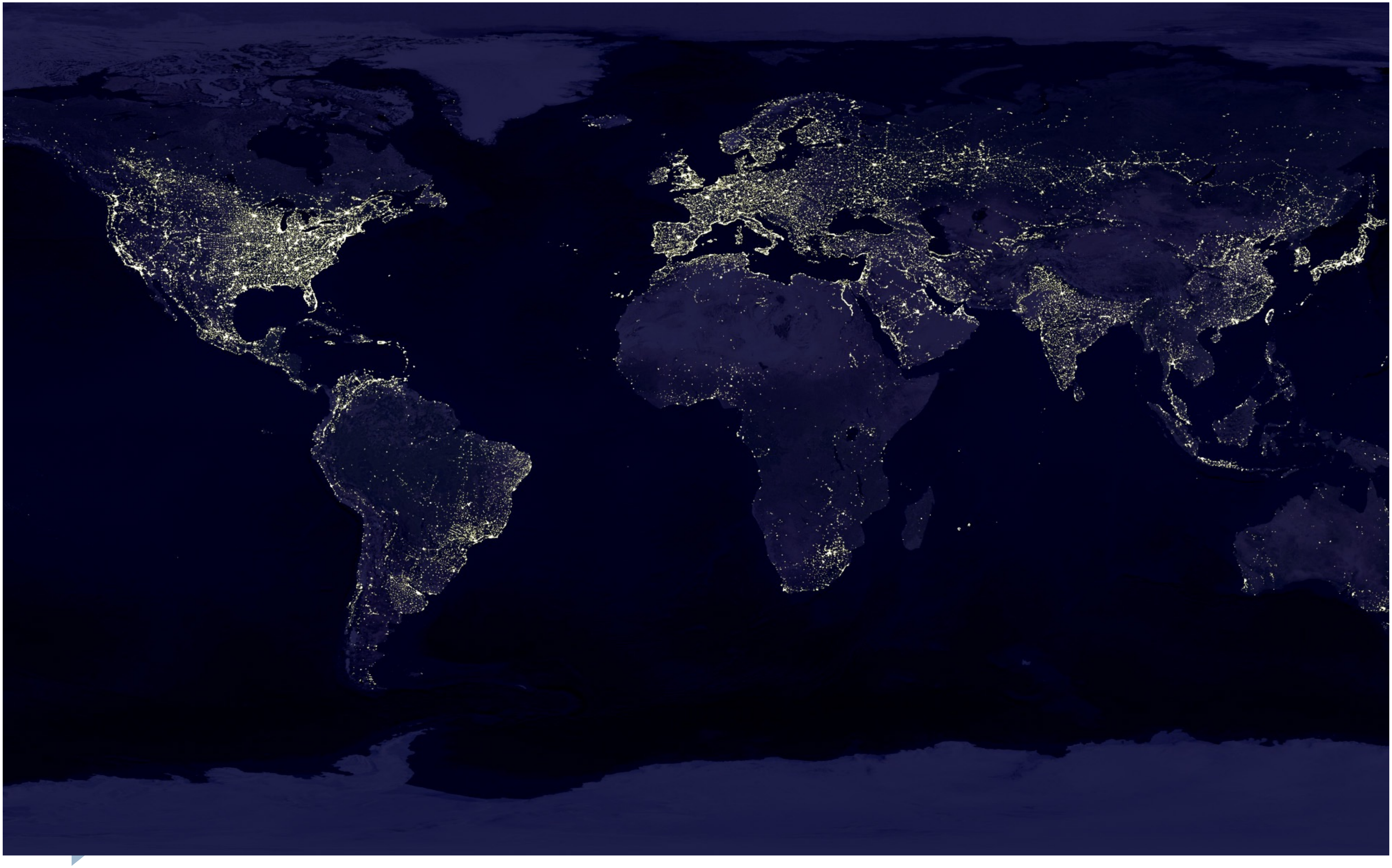

CEO Reputation
Personal/Firm Outcomes

Conceptual

Observational

This is a simplified conceptual model – now we have to develop *measures* (based on what we can *observe*)

What is this a Measure of?



You Tube
Y!
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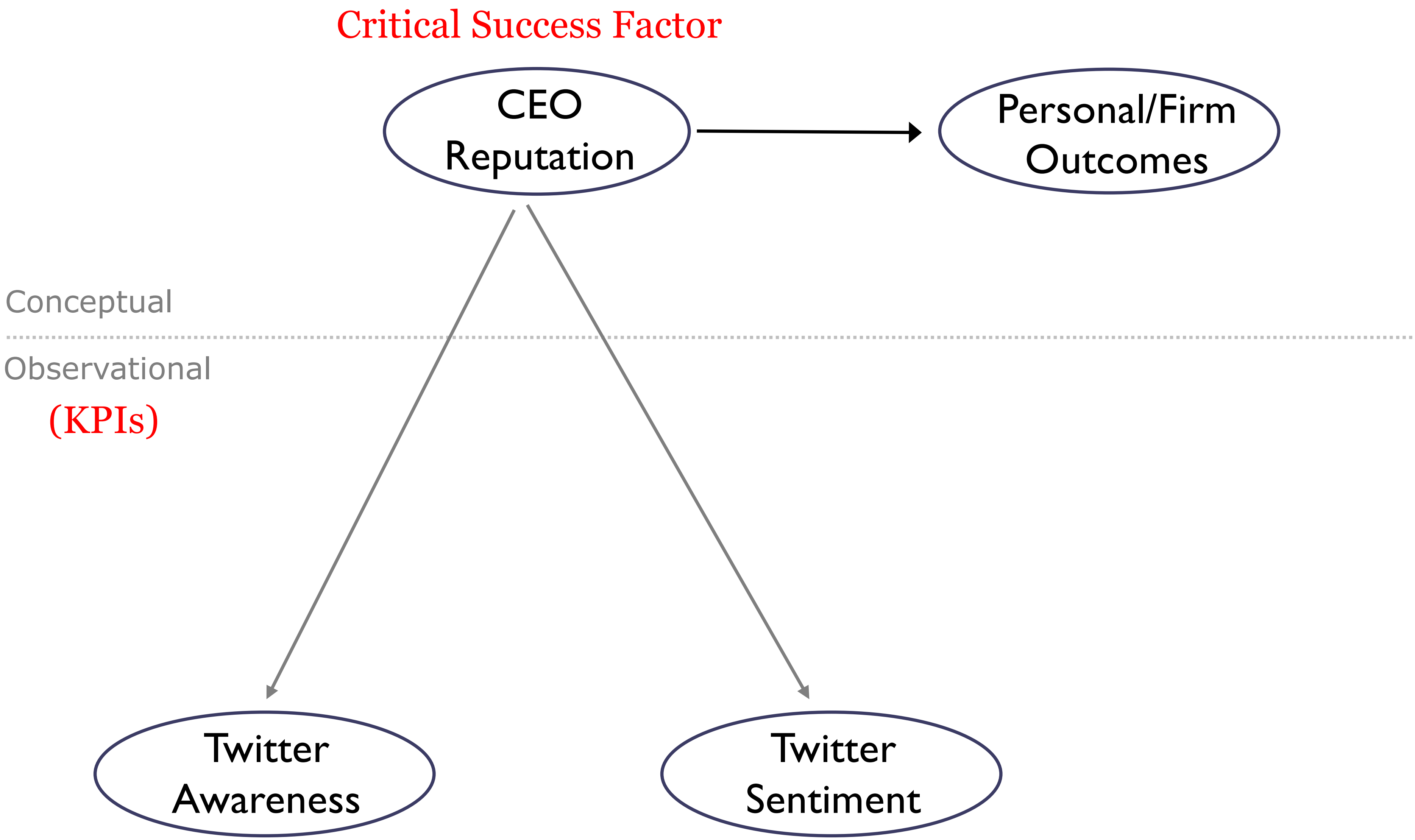
g+



Critical Success Factor

CEO Reputation

Personal/Firm Outcomes

Conceptual

Observational

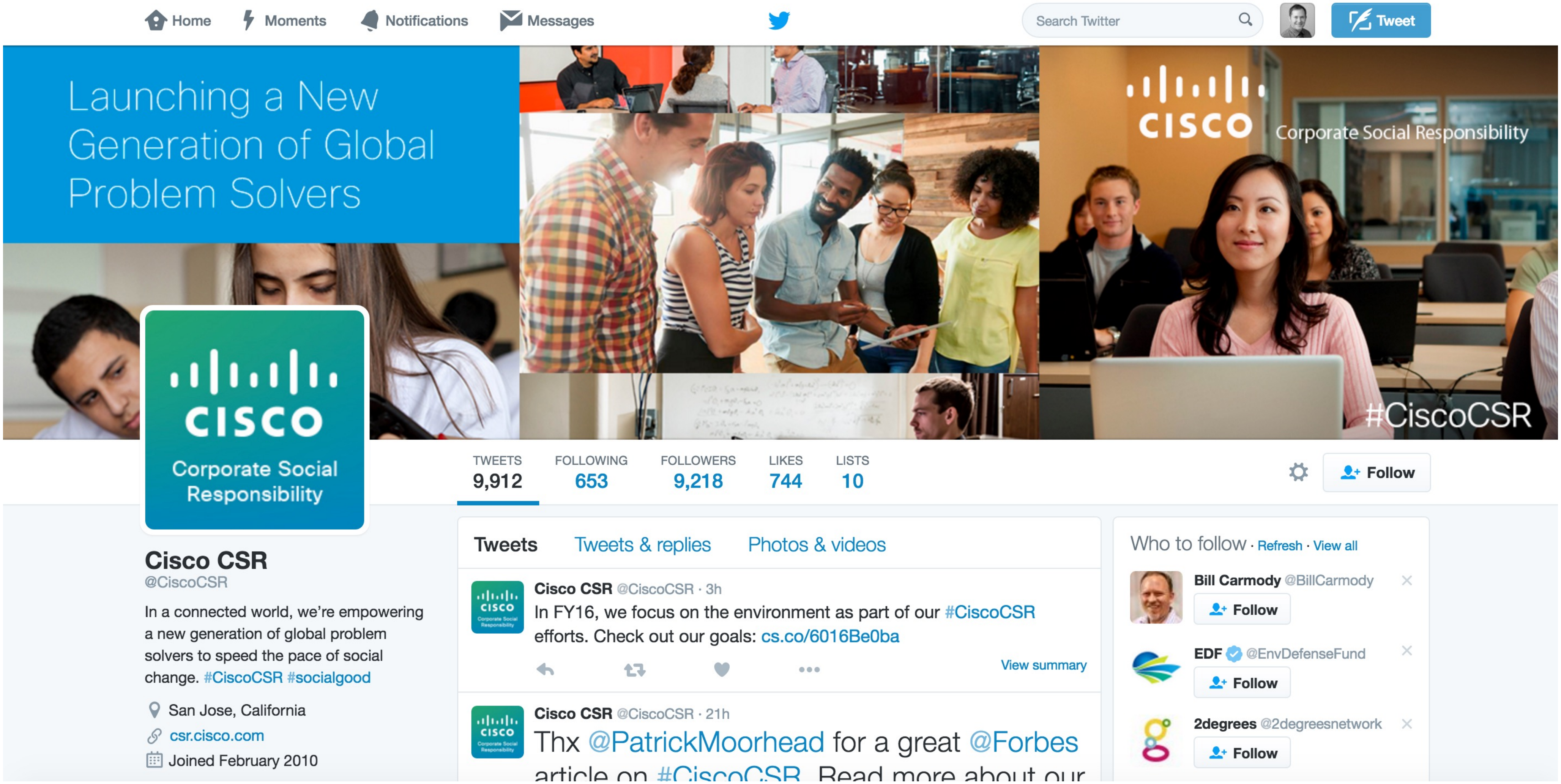
(KPIs)

Twitter Awareness

Twitter Sentiment

Application Programming Interfaces

Accessing Social Media Data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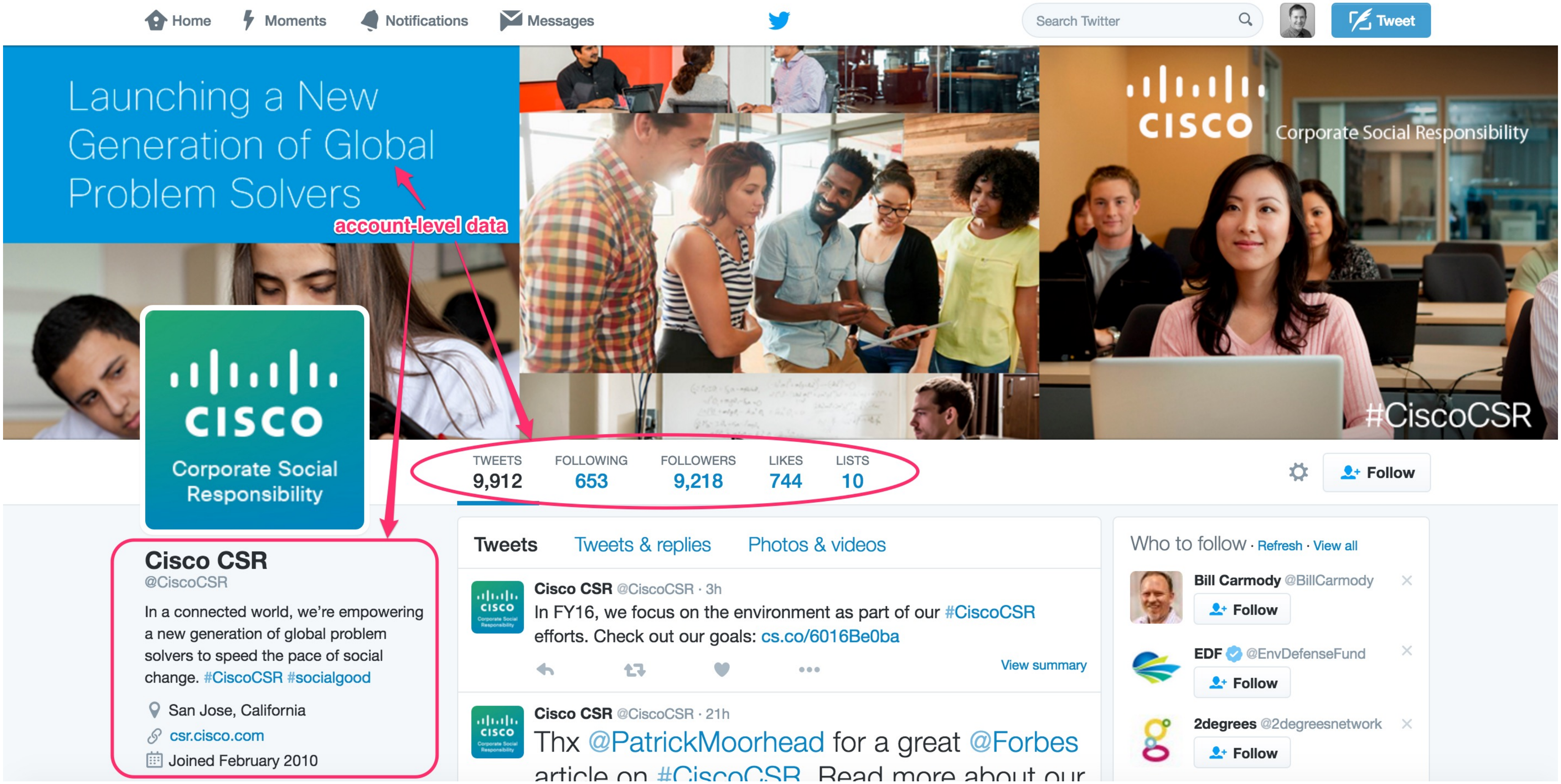

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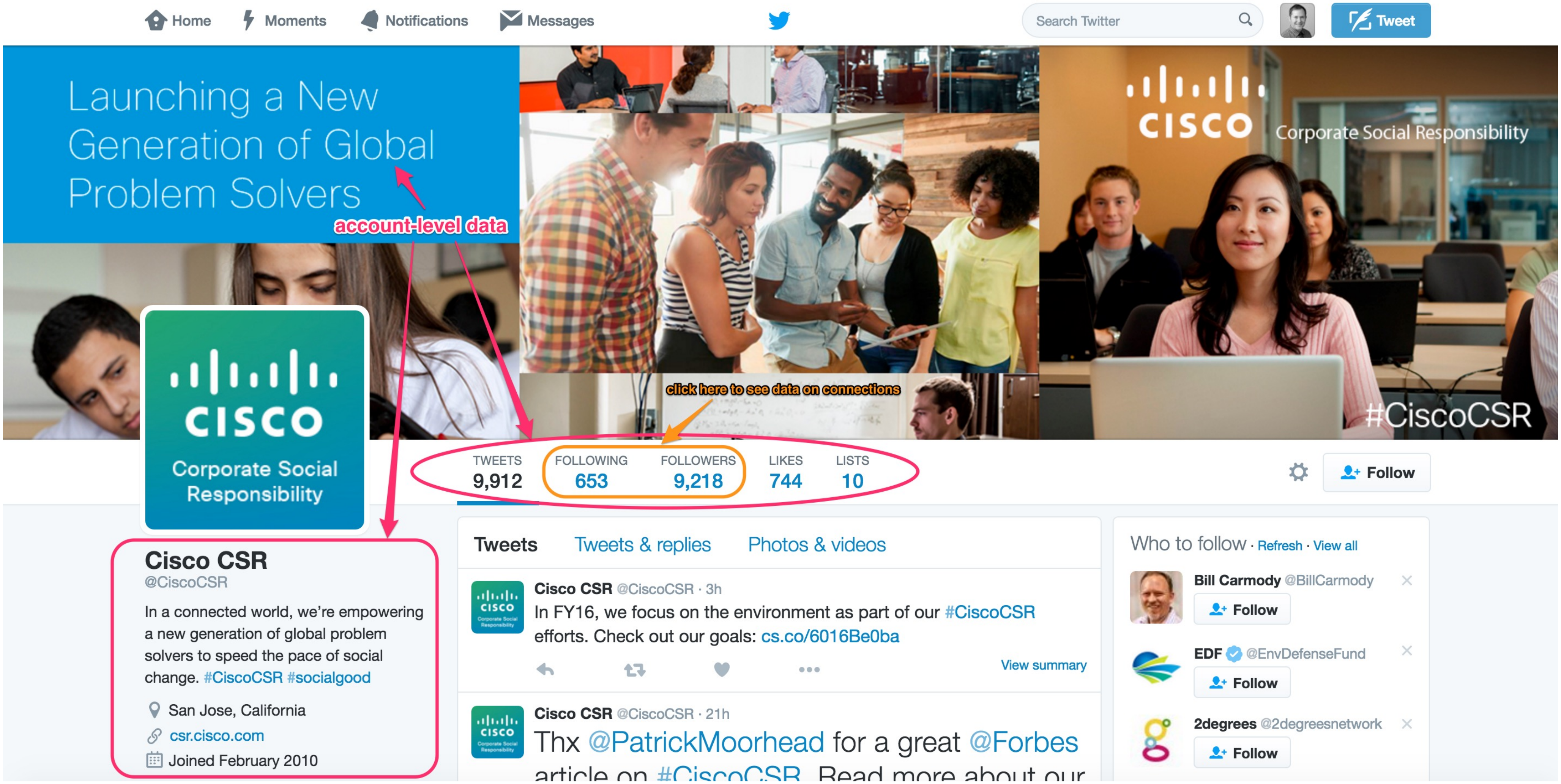
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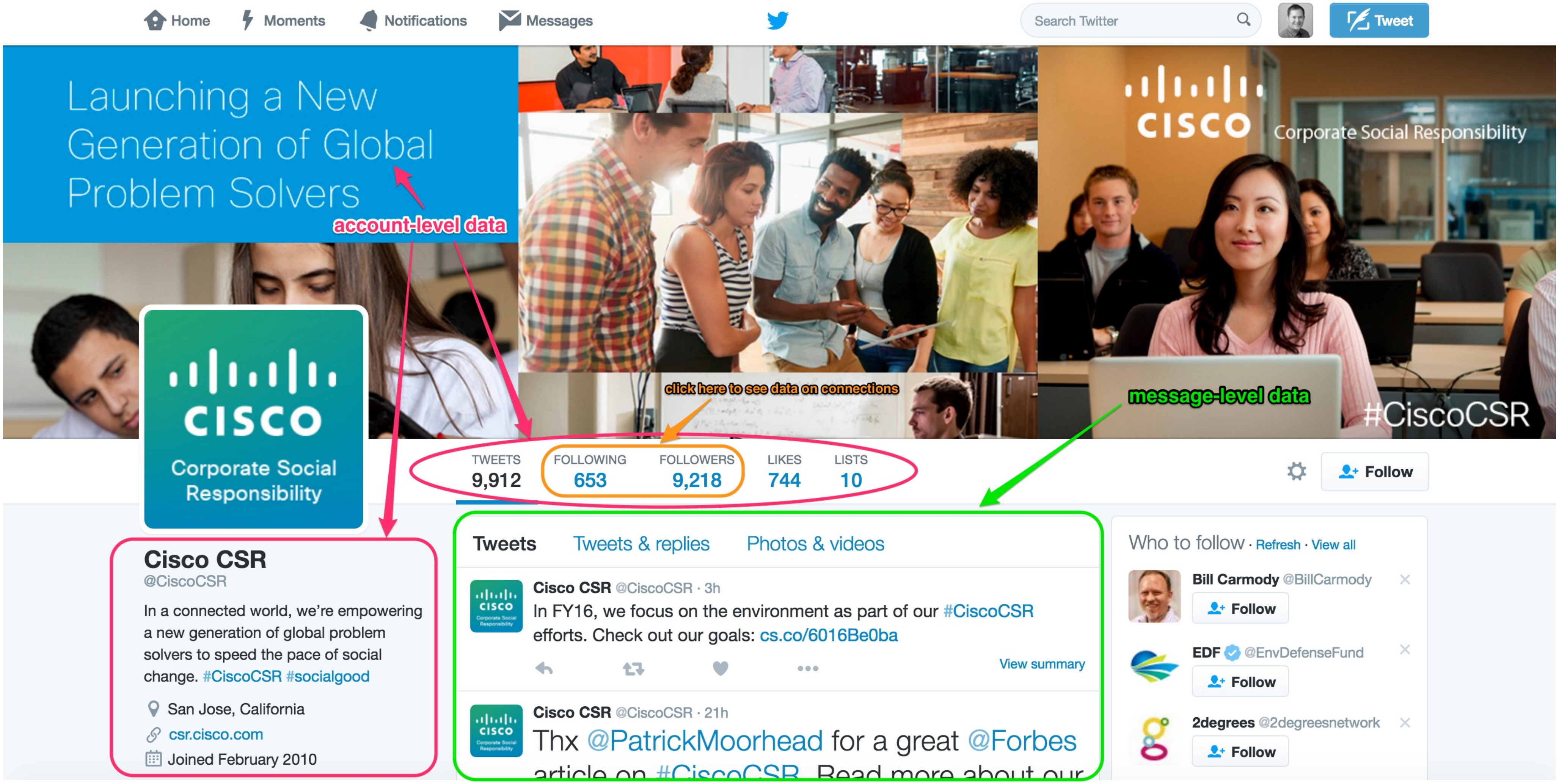
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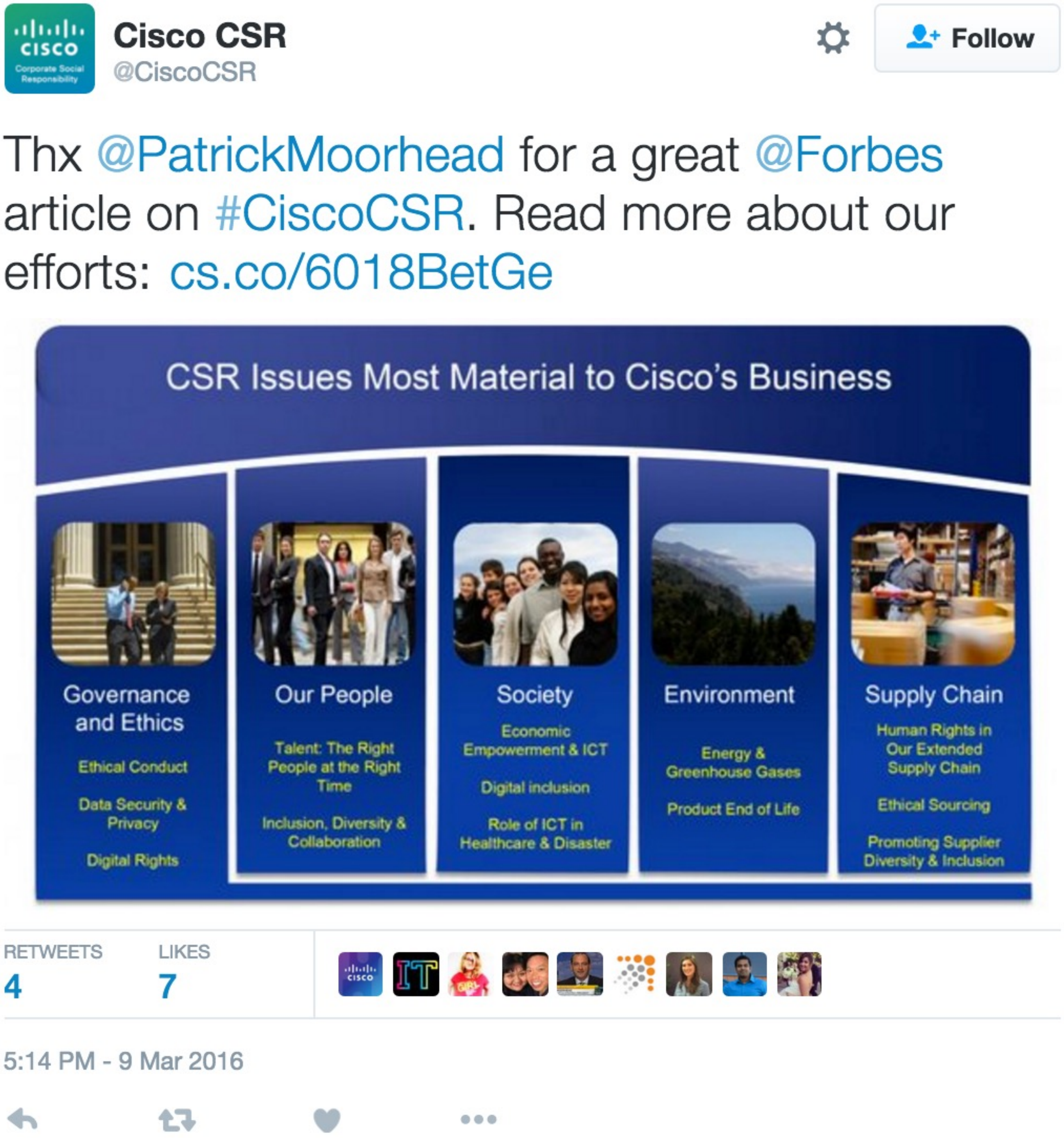

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- Data Security & Privacy
- Digital Rights

Our People
- Talent: The Right People at the Right Time
- Inclusion, Diversity & Collaboration

Society
- Economic Empowerment & ICT
- Digital inclusion
- Role of ICT in Healthcare & Disaster

Environment
- Energy & Greenhouse Gases
- Product End of Life

Supply Chain
- Human Rights in Our Extended Supply Chain
- Ethical Sourcing
- Promoting Supplier Diversity & Inclusion

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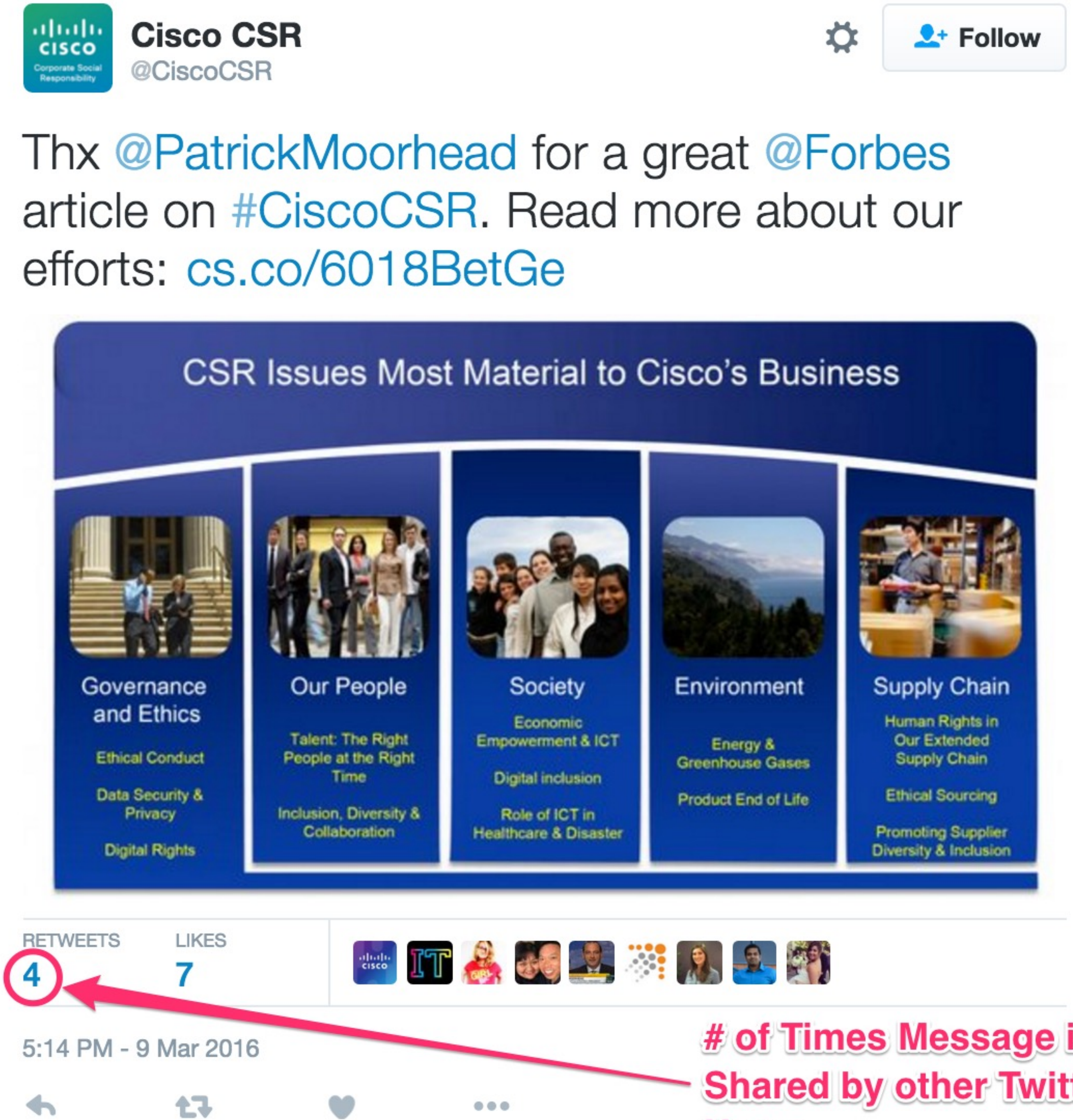

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Ethical Conduct Data Security & Privacy Digital Rights	Talent: The Right People at the Right Time Inclusion, Diversity & Collaboration	Economic Empowerment & ICT Digital inclusion Role of ICT in Healthcare & Disaster	Energy & Greenhouse Gases Product End of Life	Human Rights in Our Extended Supply Chain Ethical Sourcing Promoting Supplier Diversity & Inclusion

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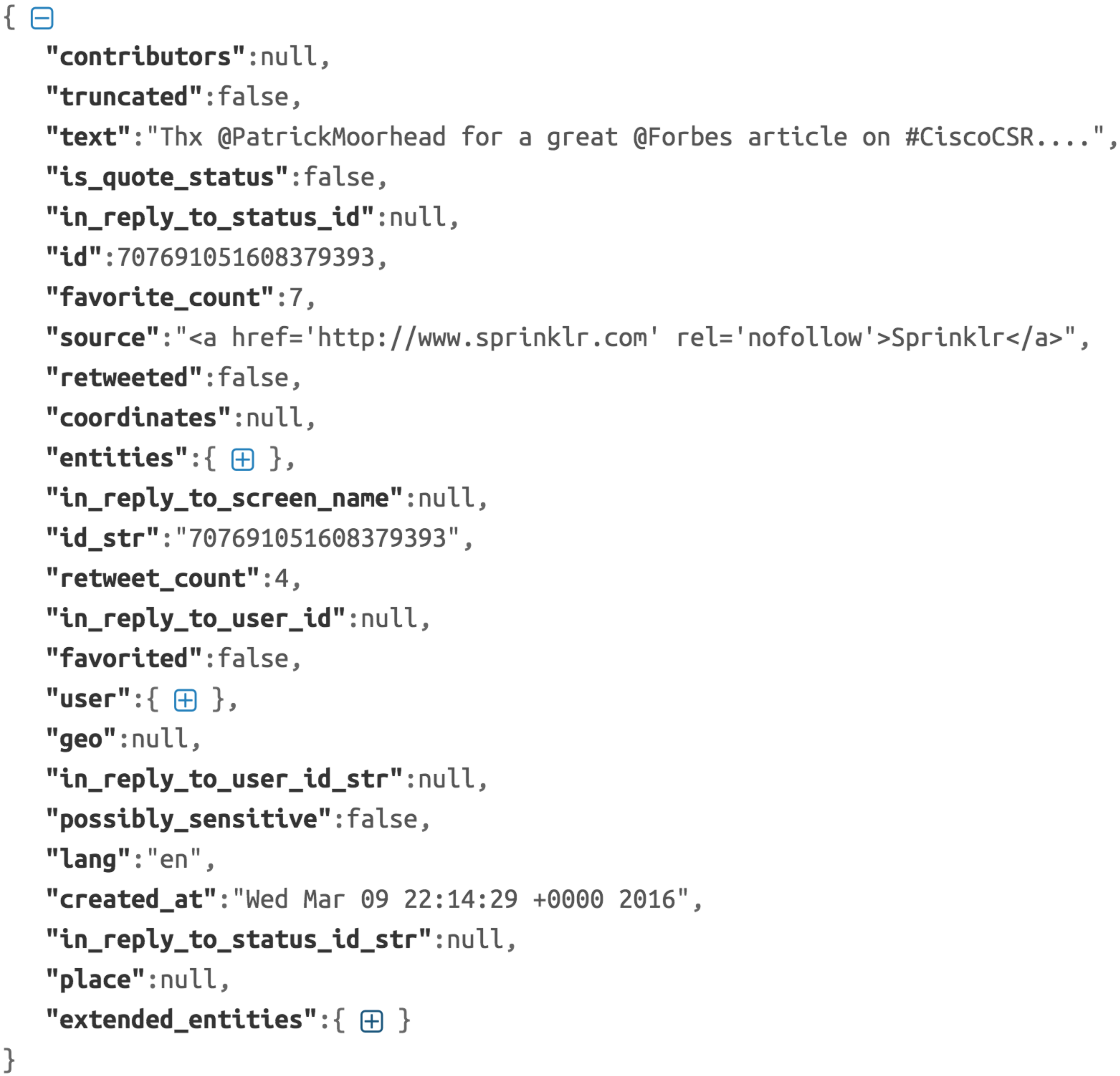

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}
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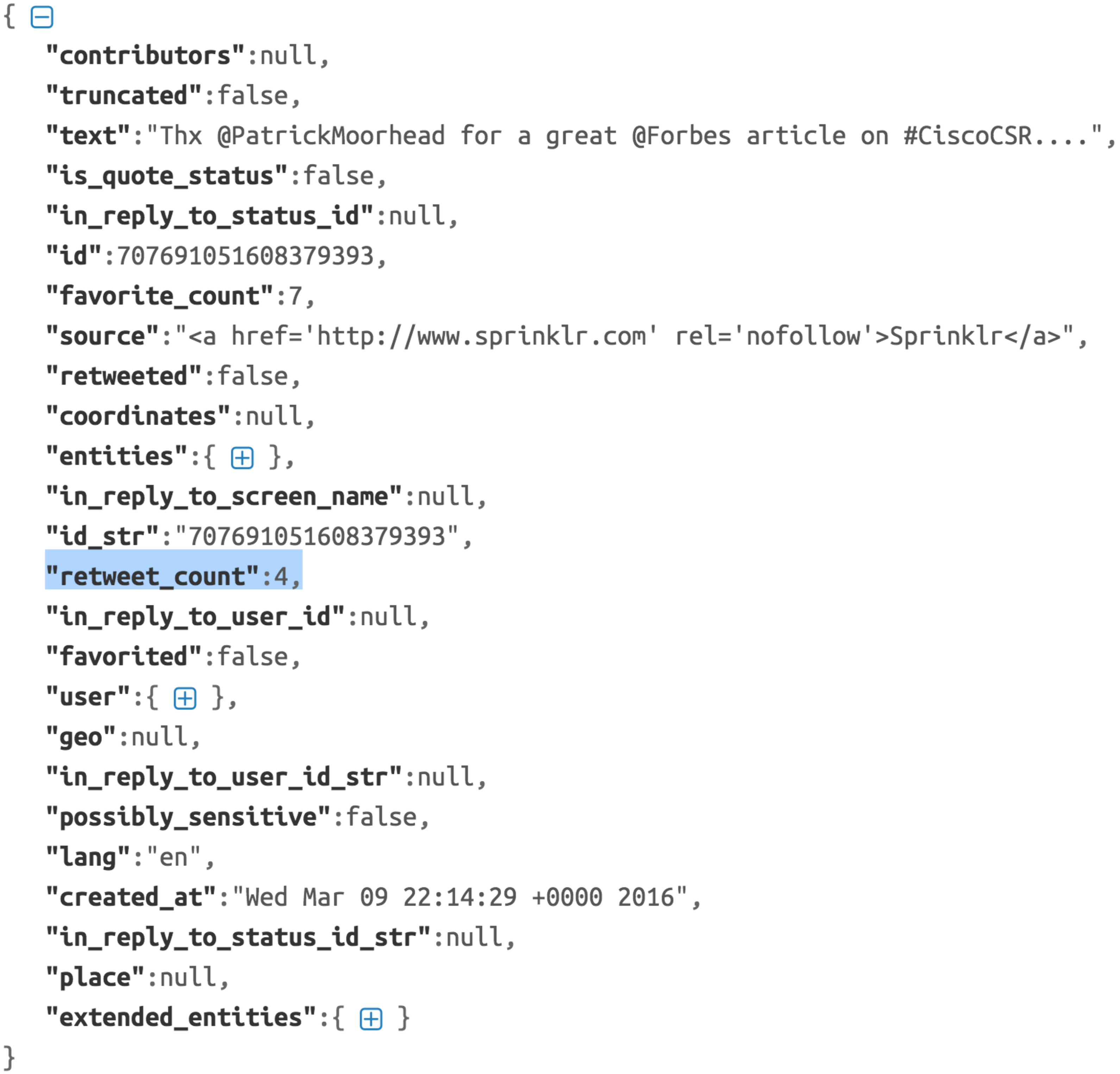

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{ ⊟
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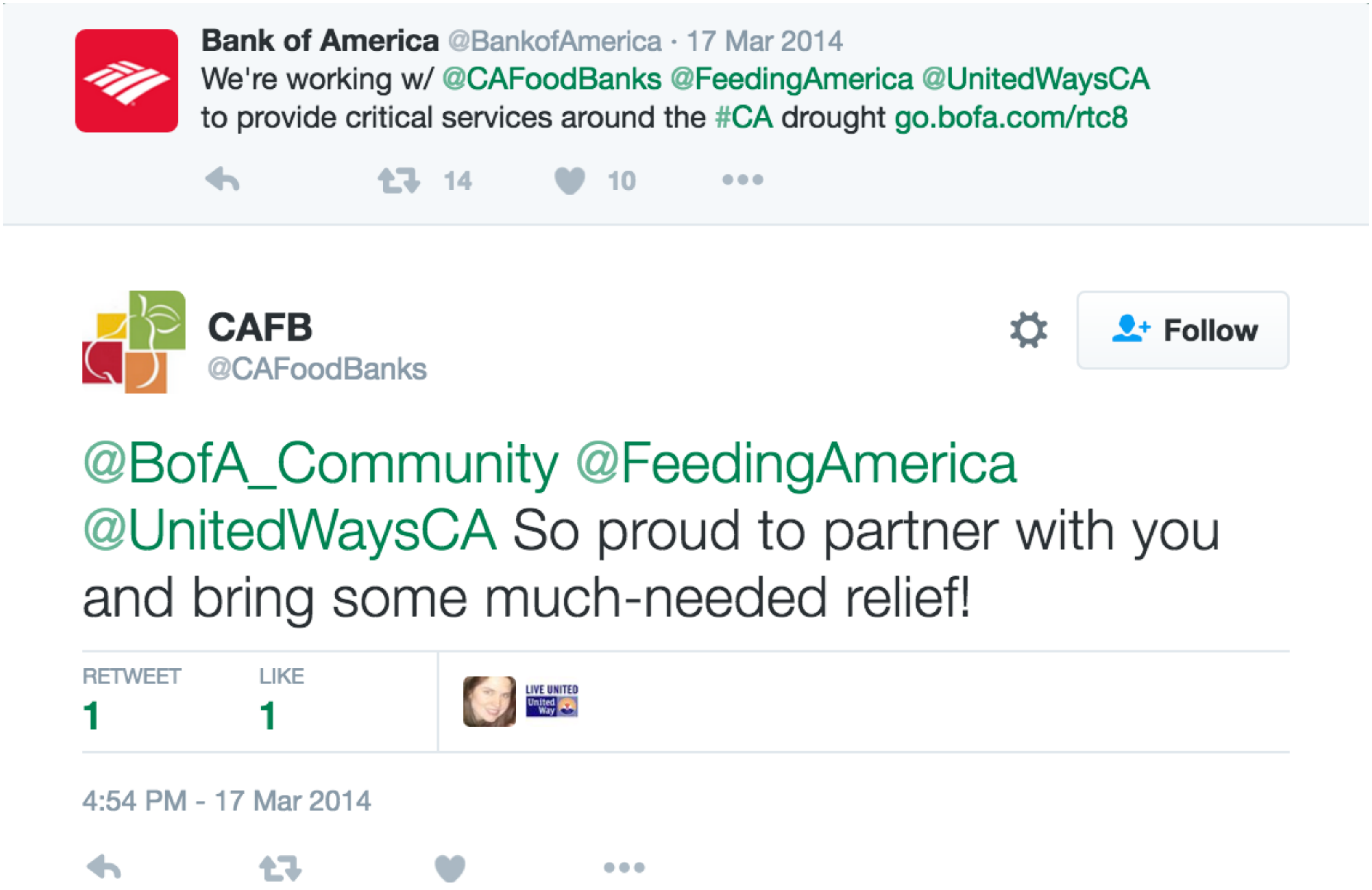
}
```

Sentiment in Public Replies

- Human coding combined with supervised machine learning
    - Support Vector Machine (SVM) algorithm

Positive Reply



Bank of America @BankofAmerica · 17 Mar 2014
We're working w/ @CAFoodBanks @FeedingAmerica @UnitedWaysCA to provide critical services around the #CA drought go.bofa.com/rtc8

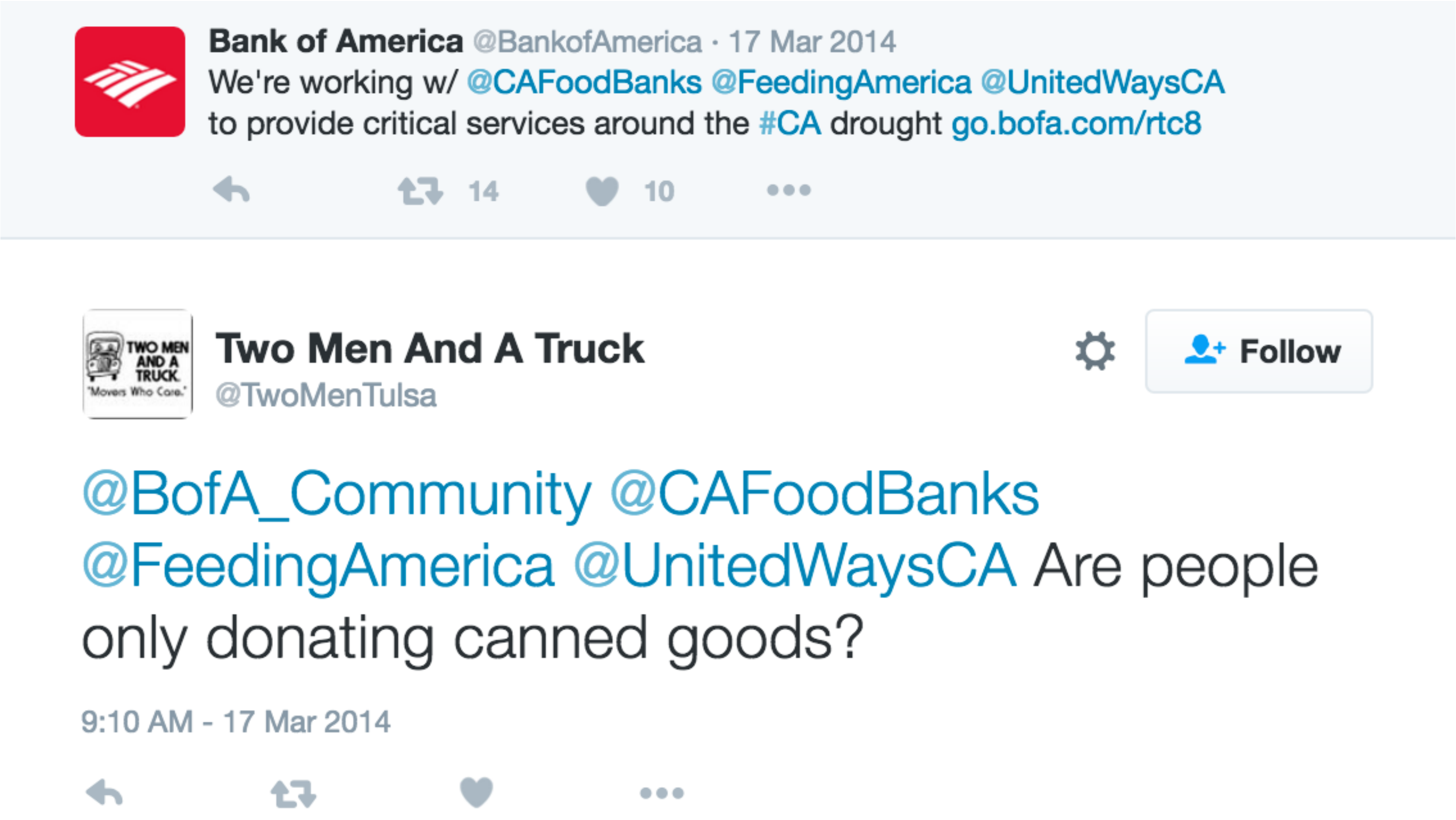
CAFB
@CAFoodBanks

@BofA_Community @FeedingAmerica @UnitedWaysCA So proud to partner with you and bring some much-needed relief!

RETWEET 1
LIKE 1

4:54 PM - 17 Mar 2014

Neutral Reply



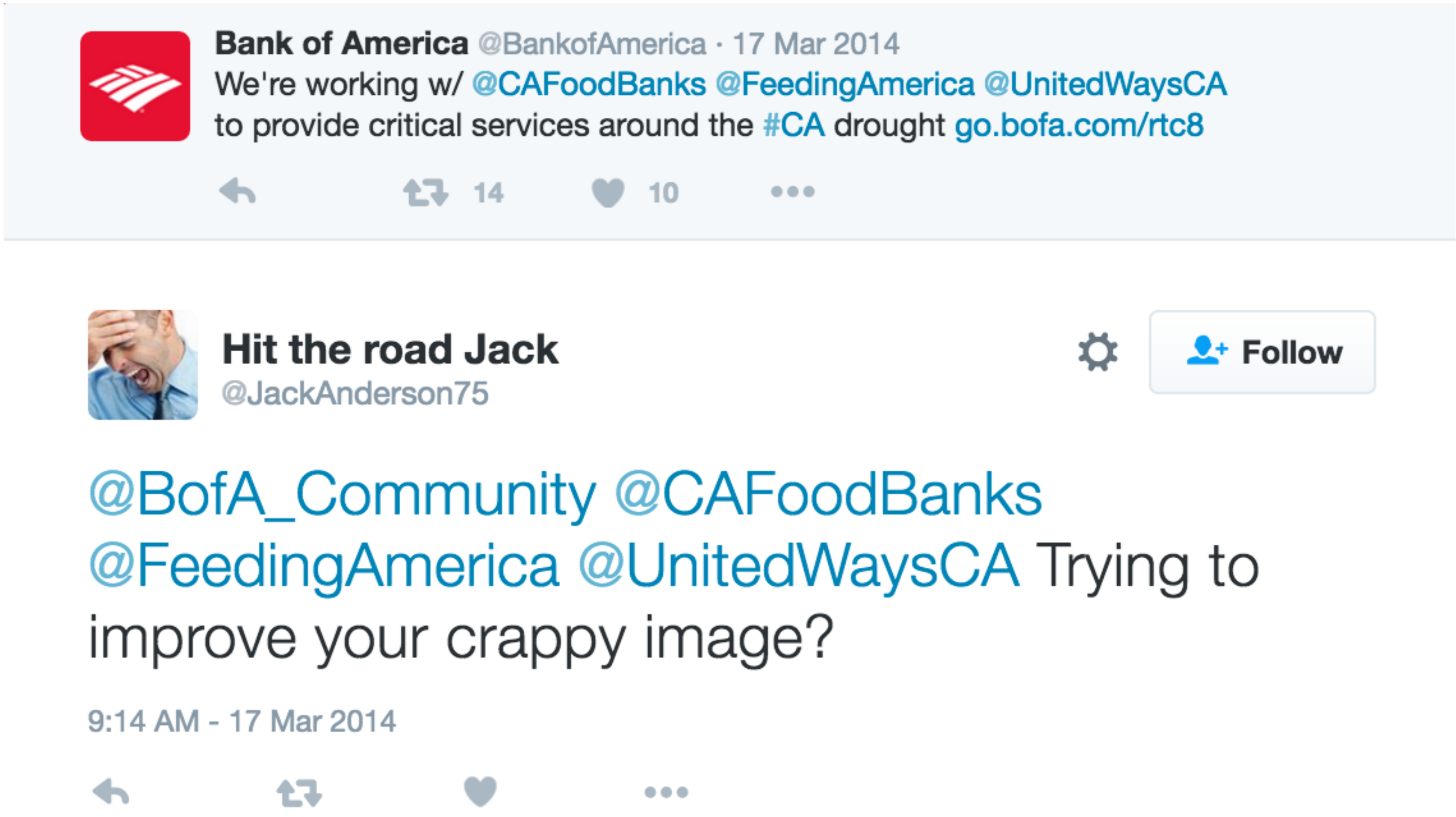
Bank of America @BankofAmerica · 17 Mar 2014
We're working w/ @CAFoodBanks @FeedingAmerica @UnitedWaysCA to provide critical services around the #CA drought go.bofa.com/rtc8

Two Men And A Truck
@TwoMenTulsa

@BofA_Community @CAFoodBanks @FeedingAmerica @UnitedWaysCA Are people only donating canned goods?

9:10 AM - 17 Mar 2014

Negative Reply



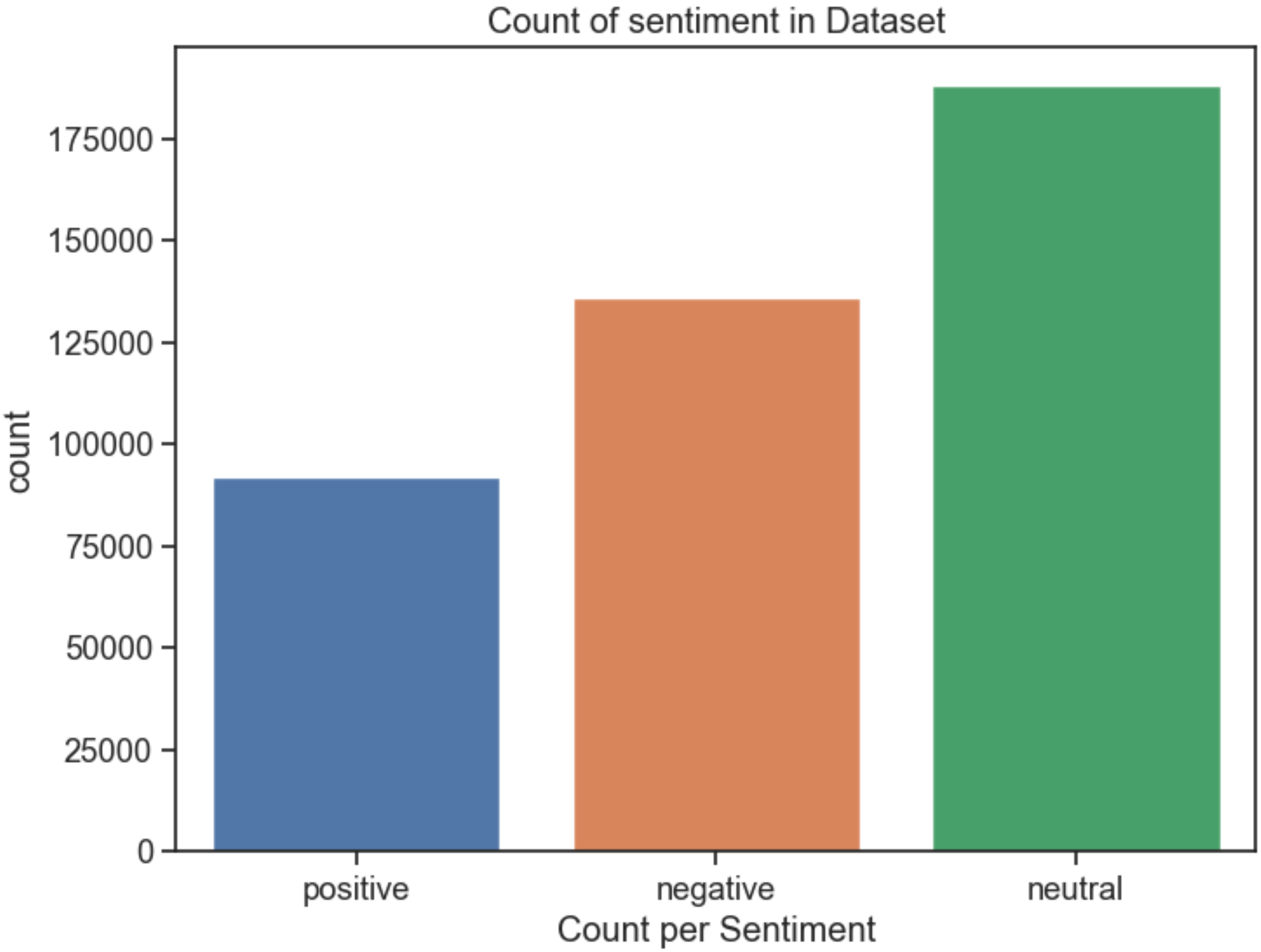
Bank of America @BankofAmerica · 17 Mar 2014

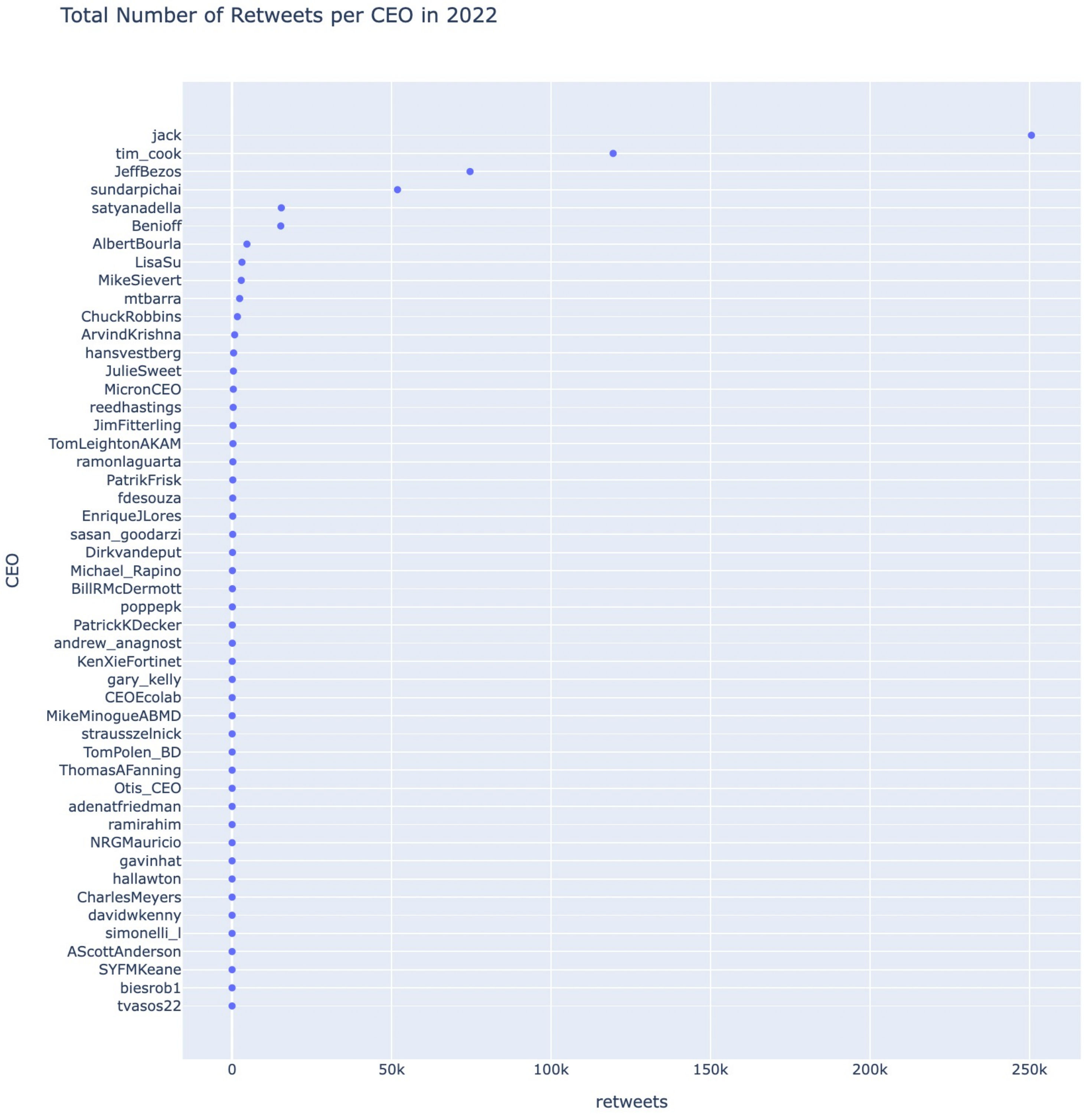
We're working w/ @CAFoodBanks @FeedingAmerica @UnitedWaysCA to provide critical services around the #CA drought go.bofa.com/rtc8

Hit the road Jack
@JackAnderson75

@BofA_Community @CAFoodBanks @FeedingAmerica @UnitedWaysCA Trying to improve your crappy image?

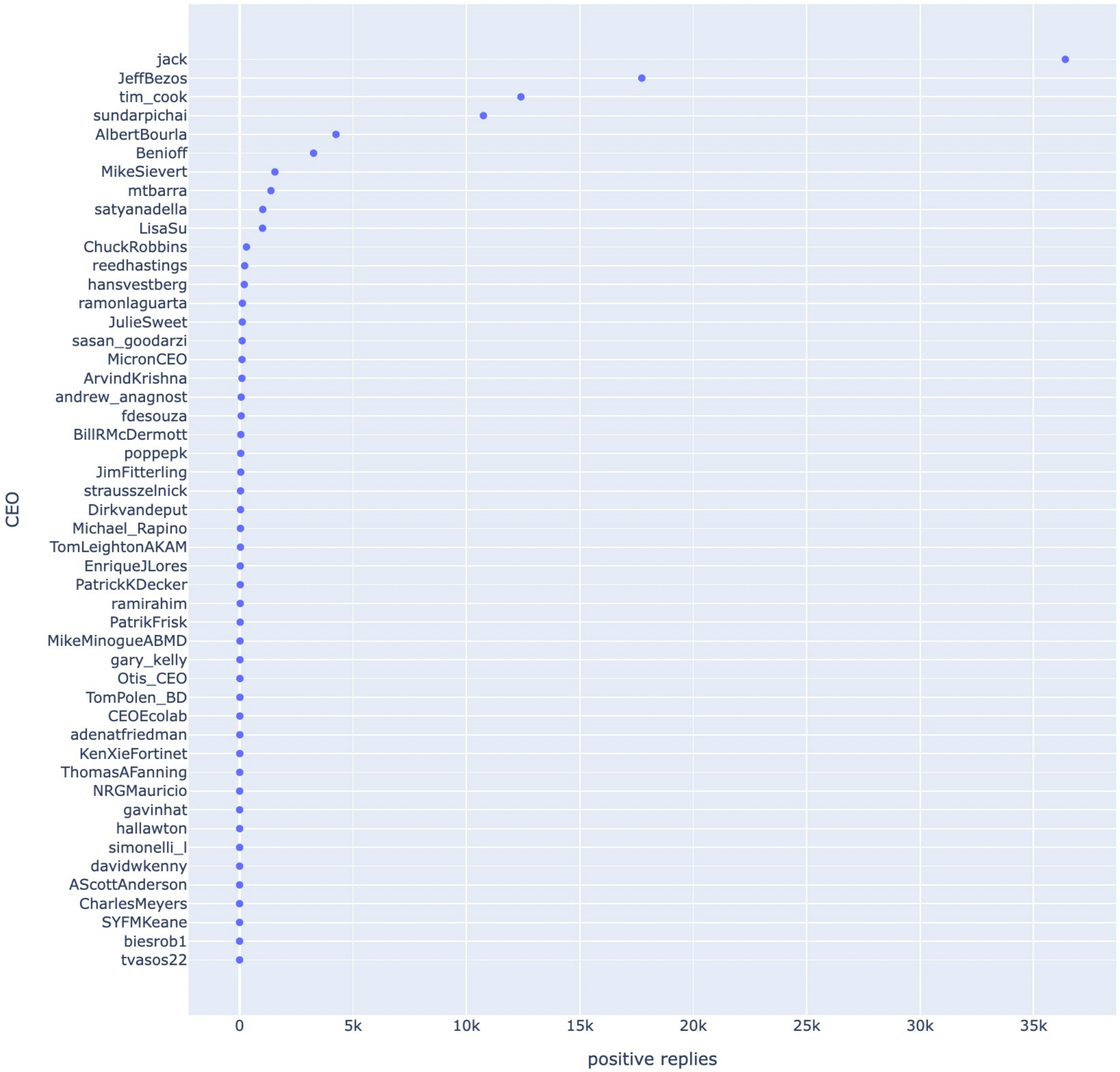
9:14 AM - 17 Mar 2014

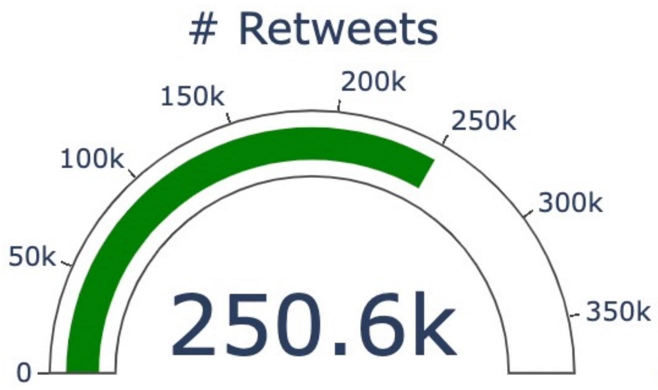

Count of sentiment in Dataset
count
175000
150000
125000
100000
75000
50000
25000
0
positive
negative
neutral
Count per Sentiment

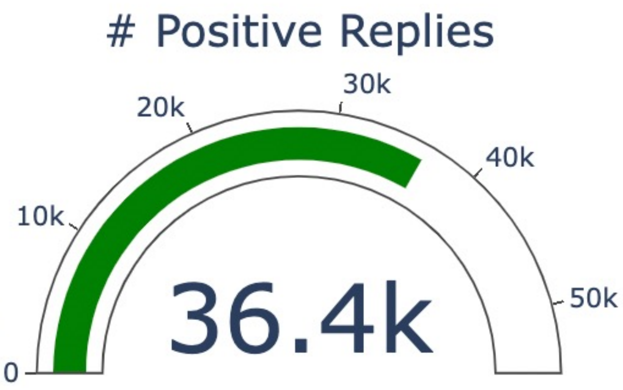


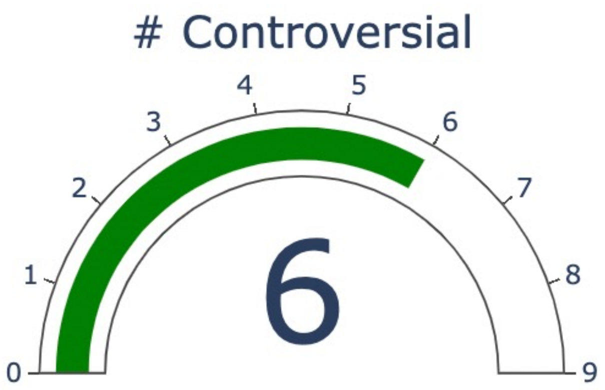
Total Number of Retweets per CEO in 2022

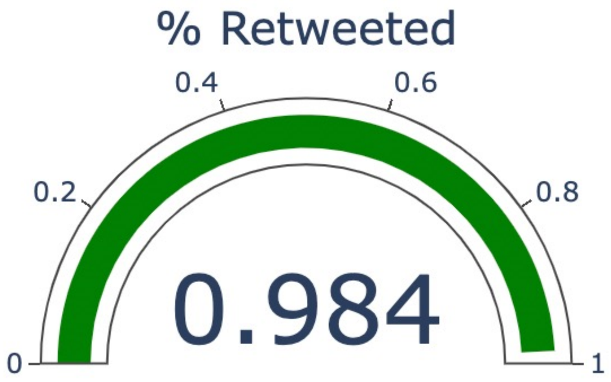
Total Number of Positive Replies per CEO in 2022

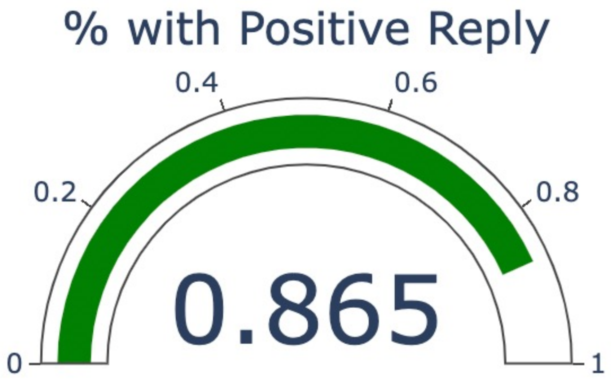


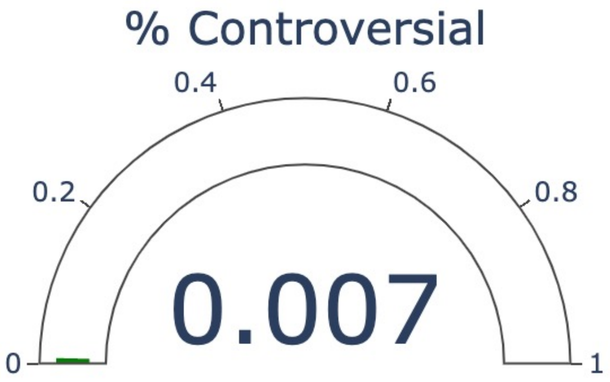

# Retweets
0
50k
100k
150k
200k
250k
300k
350k
250.6k


# Positive Replies
0
10k
20k
30k
40k
50k
36.4k


# Controversial
0
1
2
3
4
5
6
7
8
9
6


% Retweeted
0
0.2
0.4
0.6
0.8
1
0.984


% with Positive Reply
0
0.2
0.4
0.6
0.8
1
0.865


% Controversial
0
0.2
0.4
0.6
0.8
1
0.007

Now let's move to the code!

(open up the Google Colab notebook)