growth

Damon Civin

What I’ve heard this week

“**People will spend a lot of time** on Facebook and Instagram and I’m ok with that because it funds the building of digital infrastructure” - *Neil Lawrence*

“We **didn’t have enough data** to make the map, there are only 500 Boda Bodas, but maybe **over time we can**” - *Martin Mubangizi*

“60% of Ashesi students **go into industry**” - *David Ebo Adjepon-Yamoah*

“**80% of the problems** you see can be solved with linear regression” - *Moustapha Cisse*

“These guys turned my **50 page statistics paper into 1 equation** and a 3D pie chart” - *Katie P Bernhard*

End-to-end data science

The goal of Data Science Africa is to create a network of data science practitioners, trainers & students in “end-to-end” data science.

1. Data collection
2. Data analysis
3. Communication & visualization
4. Building ML-powered products, services & policy recommendations
5. Growing impact through marketing & entrepreneurship

End-to-end data science

The goal of Data Science Africa is to create a network of data science practitioners, trainers & students in “end-to-end” data science.

1. Data collection
2. Data analysis
3. Communication & visualization
4. Building ML-powered products, services & policy recommendations
5. Growing impact through marketing & entrepreneurship

End-to-end data science

The goal of Data Science Africa is to create a network of data science practitioners, trainers & students in “end-to-end” data science.

1. Data collection
2. Data analysis
3. Communication & visualization

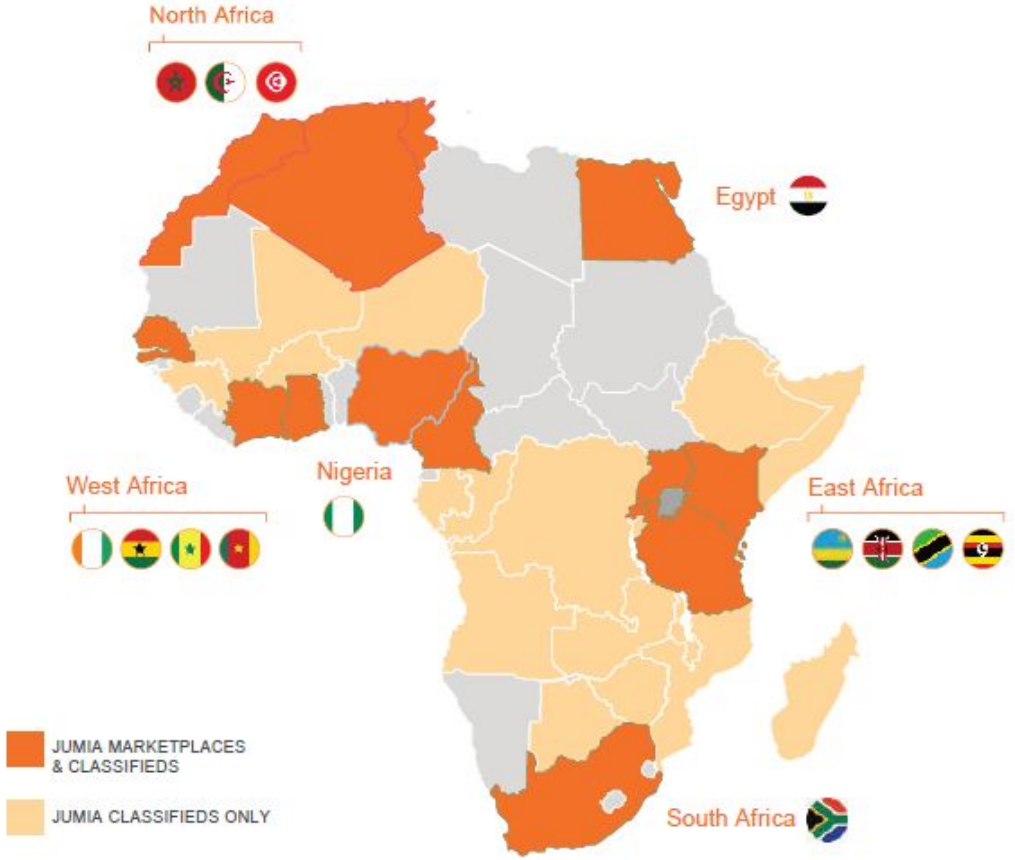
Morine, Elaine, Katie, Ernest, Ciira, Eric, Neil, Karl, Seth, Billy

4. Building ML-powered products, services & policy recommendations
5. Growing impact through marketing & entrepreneurship

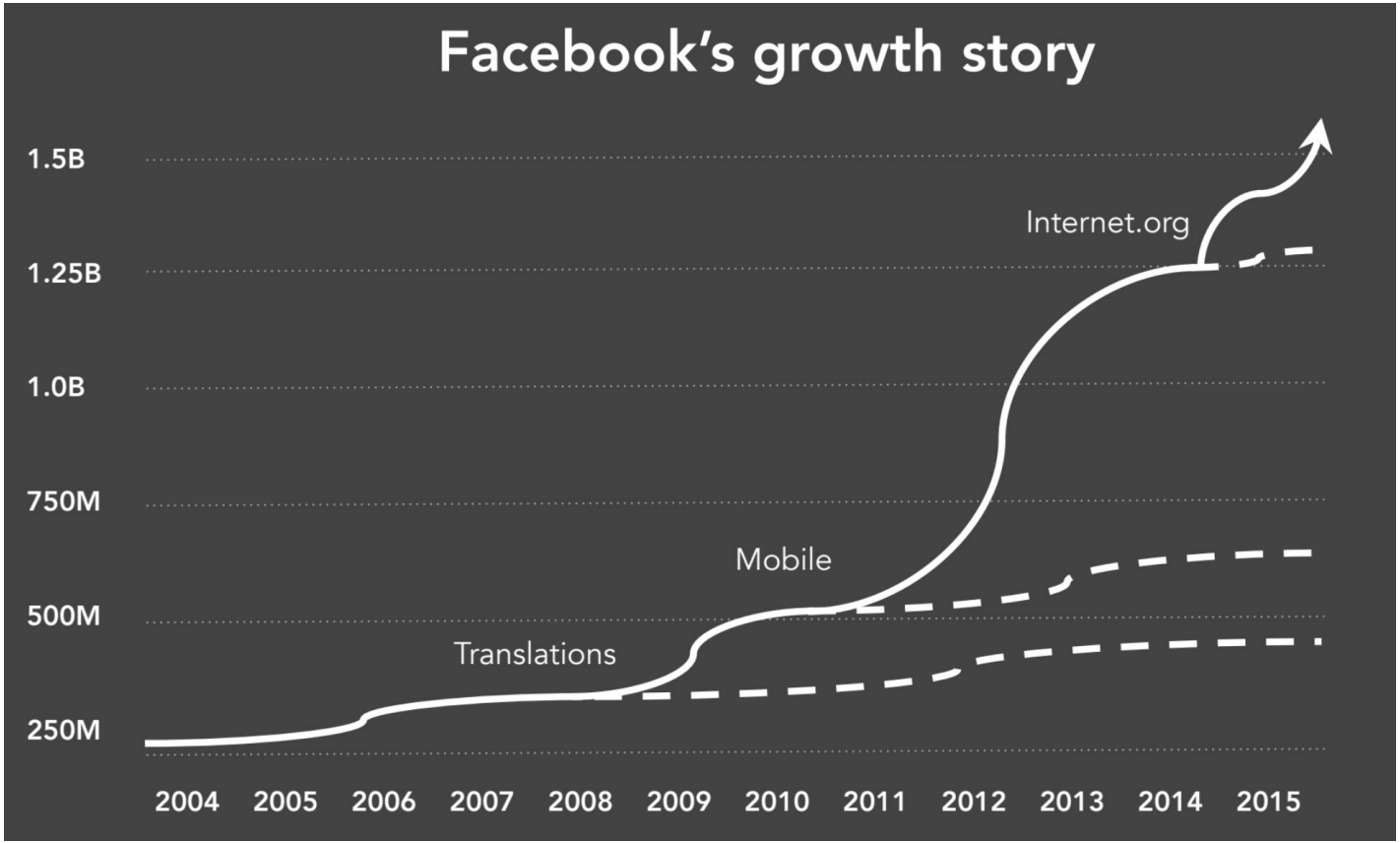
0. What is growth?

What is growth?

JUMIA

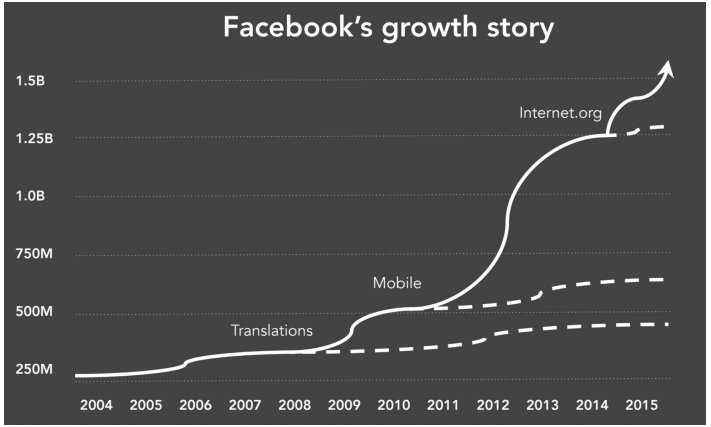


What is growth?



What is growth data science?

1. Pick a metric, measure it & align teams to it
2. Experiment & data-driven decisions
3. Marketing
4. **Watch the graph go up & to the right :)**



1. Metrics

Retention: Have you built something people want?

Measuring product market fit

Company	Metric that represent value	Ideal frequency
Airbnb	Bookings / Stays	Annual
Facebook	Active users	Daily/Monthly
Gusto	Running employee payroll	By-weekly/Monthly
Lyft	Rides	Weekly/Monhtly
Checkr	Background checks	Daily/Houly
Stripe	Transactions	Daily/Hourly

Metrics = value your users get from your product

Measure their repeat usage of those metrics

Log everything about usage (responsibly)

Retention: Have you built something people want?

Measuring product market fit

Company	Metric that represent value	Ideal frequency
Airbnb	Bookings / Stays	Annual
Facebook	Active users	Daily/Monthly
Gusto	Running employee payroll	By-weekly/Monthly
Lyft	Rides	Weekly/Monhtly
Checkr	Background checks	Daily/Houly
Stripe	Transactions	Daily/Hourly

Metrics = value your users get from your product

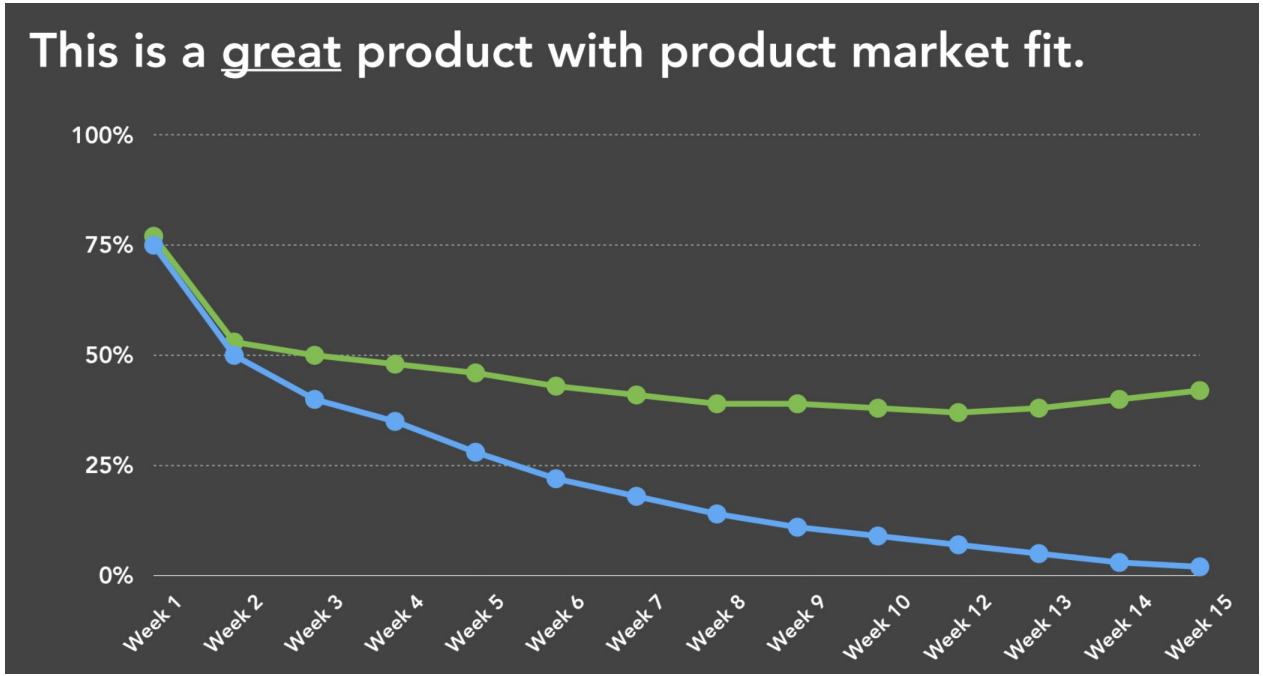
Measure their repeat usage of those metrics

Log everything about usage (responsibly)

Growth accounting

Type	Week 1	Week 2
+ New users	N/A	Active (sign up)
- Churn	Active	Inactive
+ Resurrection	Inactive	Active
+ Retention	Active	Active
Total active users	**N**	**N++**

Retention: Have you built something people want?



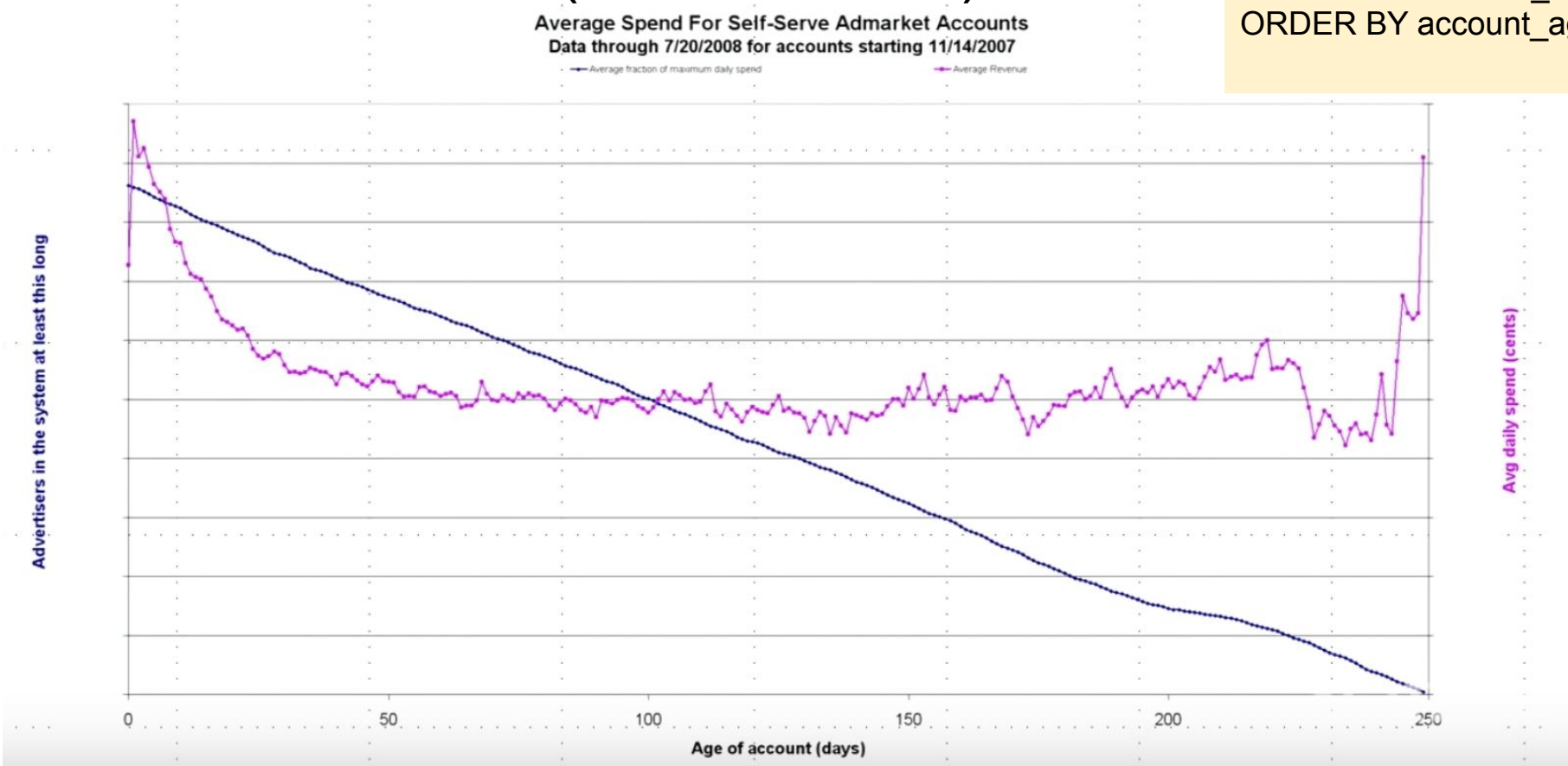
Metrics = value your users get from your product

Measure their repeat usage of those metrics

Log everything about usage (responsibly)

THIS IS SIMPLE (even at scale)

```
SELECT
    account_age,
    active_users/total_users
GROUP BY account_age
ORDER BY account_age
```



2. Experimentation

Why do experiments?

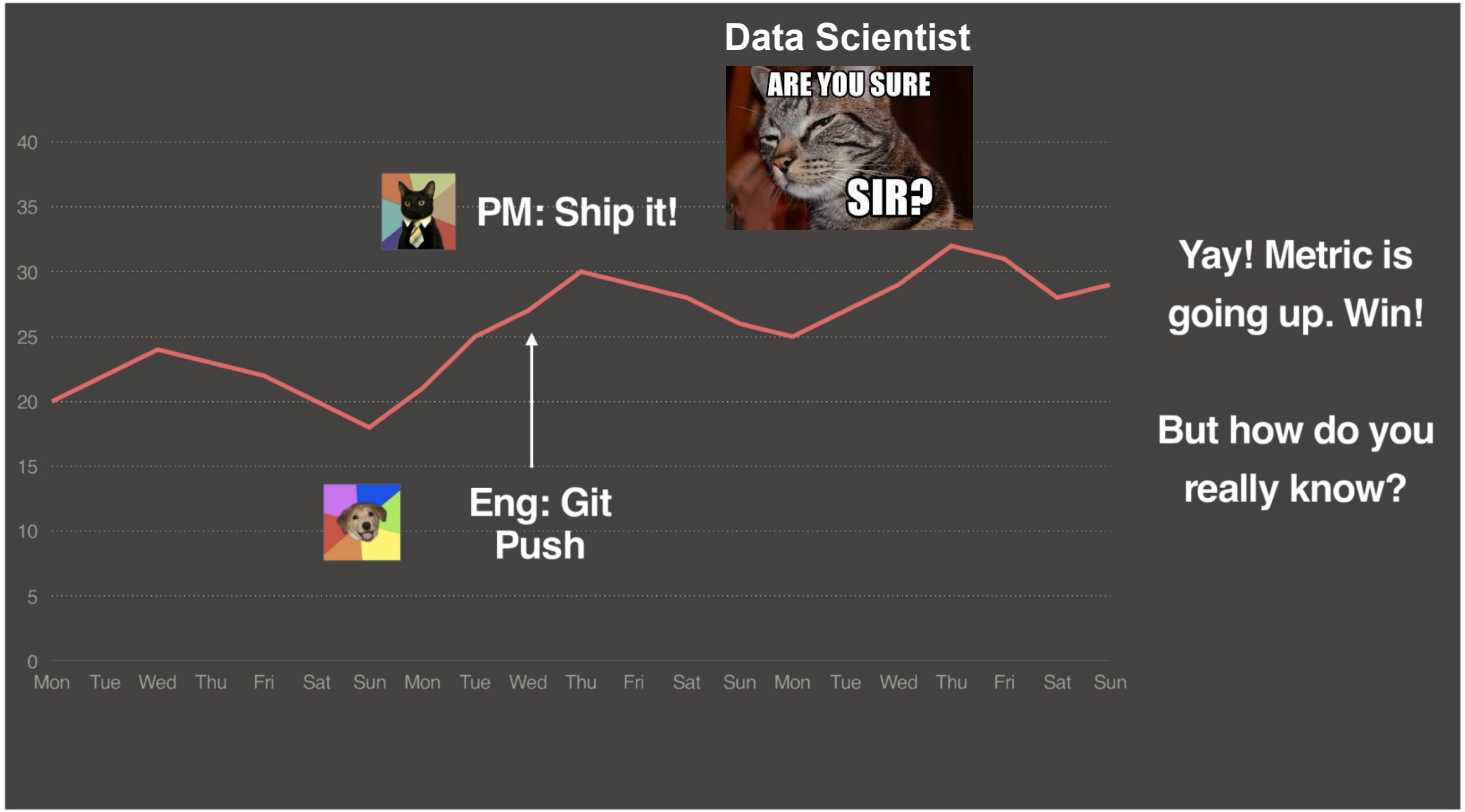
1. Empathy - you learn what are people **actually** doing, not what **you think** they are doing
2. **“The future is here, but it is not evenly distributed”**

- If I signed them all up, how much revenue would I get?
- Look at who you signed up today, tell you how much revenue they would contribute a hundred days out

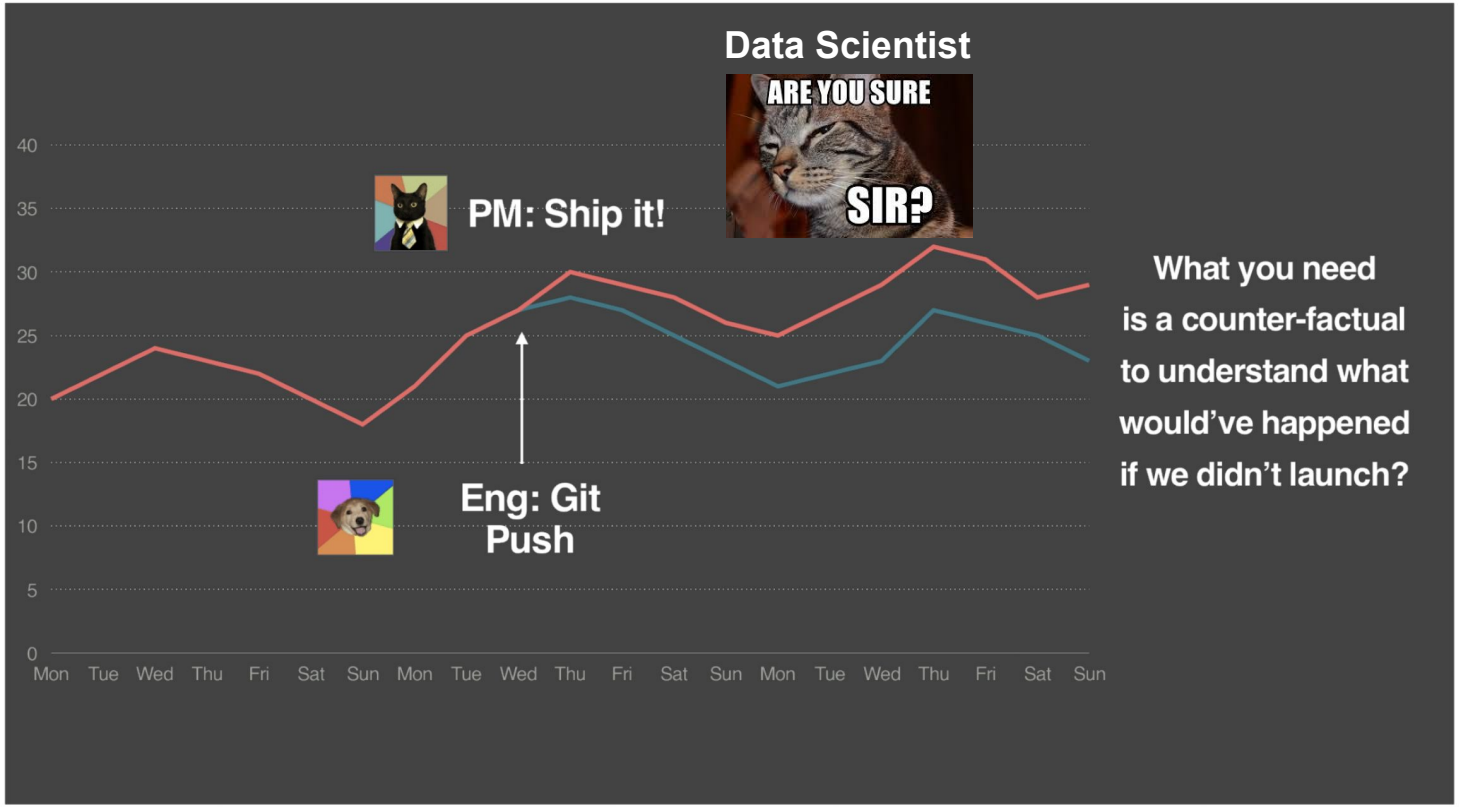
3. **Make decisions faster**

- (by not having conversations where you guess instead of know)

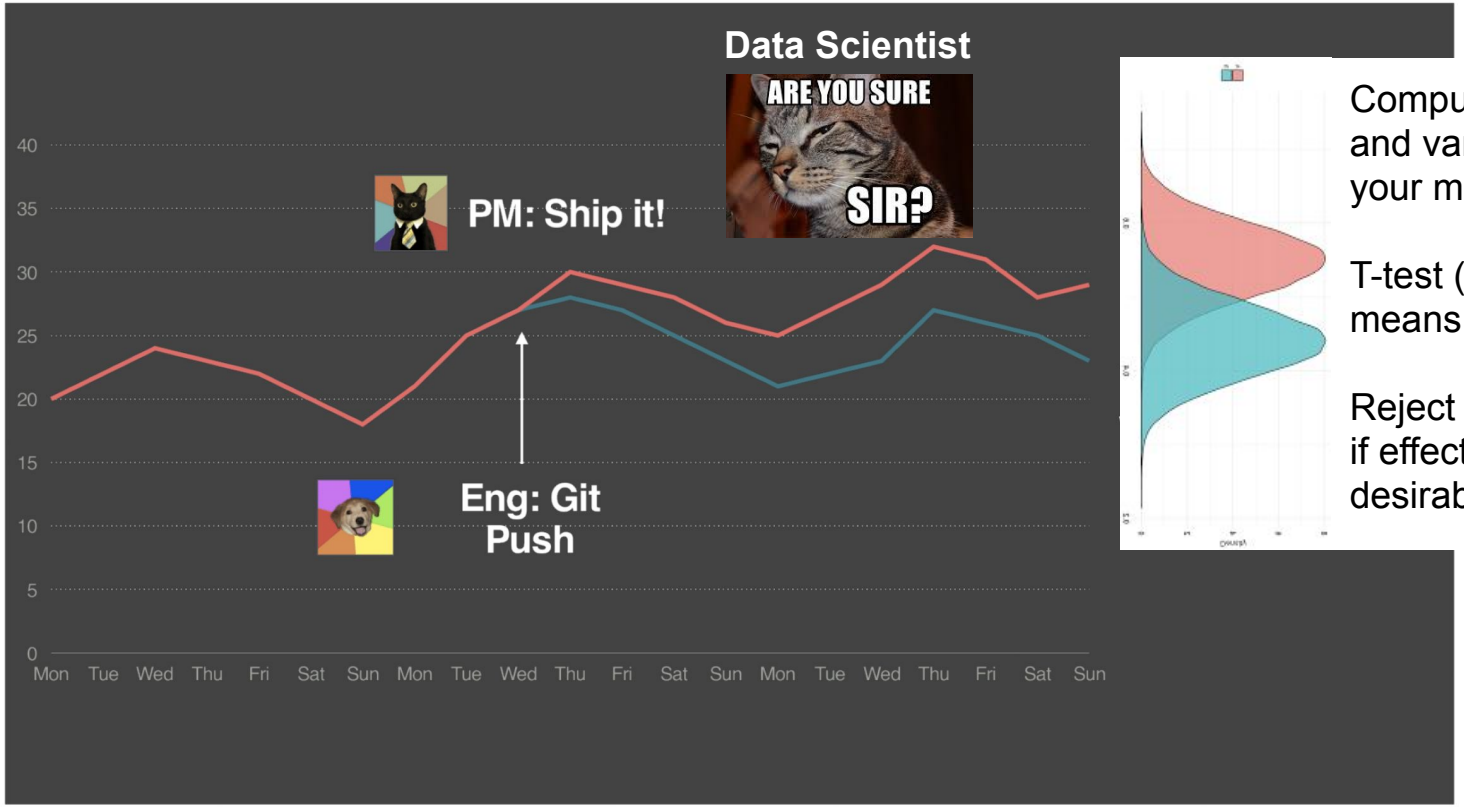
A/B testing


Data Scientist
ARE YOU SURE
SIR?
PM: Ship it!
Eng: Git Push
Yay! Metric is going up. Win!
But how do you really know?
40
35
30
25
20
15
10
5
0
Mon Tue Wed Thu Fri Sat Sun Mon Tue Wed Thu Fri Sat Sun Mon Tue Wed Thu Fri Sat Sun

A/B testing


Data Scientist
ARE YOU SURE
SIR?
PM: Ship it!
Eng: Git Push
What you need is a counter-factual to understand what would've happened if we didn't launch?
40
35
30
25
20
15
10
5
0
Mon Tue Wed Thu Fri Sat Sun Mon Tue Wed Thu Fri Sat Sun Mon Tue Wed Thu Fri Sat Sun

A/B testing -THIS IS SIMPLE (even at scale)



Compute mean and variance of your metrics

T-test (usually) on means

Reject the change if effect isn't desirable

3. Marketing

Marketing - it’s a big deal

In order to reach an audience, they need to know about you

1. Channels

- Search engines
- Social media - pages, groups,
- Email, websites

2. Behavioral triggers

- what is the “magic moment” for your product?
- How does it lead to more users? E.g. Friending.

3. Creative - beautiful products sometimes beat better products

Takeaways

End-to-end data science

The goal of Data Science Africa is to create a network of data science practitioners, trainers & students in “end-to-end” data science.

1. Data collection
2. Data analysis
3. Communication & visualization
4. Building ML-powered products, services & policy recommendations
5. Growing impact through marketing & entrepreneurship

End-to-end data science: Growth is ENGINEERED!

5. Growing impact through marketing & entrepreneurship

1. **1 key metric** for everyone in org
2. Growth = new users + resurrections + retention - churn
3. **Retention is key** to growth and SIMPLE to track
4. **Experimentation** gives you superpowers and is SIMPLE.
5. **Growth Data Science is End-to-end:**

   Goals → Metrics -->Logging → Storage → Queries → Decisions → Tests

We are writing DSA’s growth story right now

References

Gustaf Alstromer on Growth

Alex Schultz on Growth

A/B testing summary by Kelly Peng (notebook by Tammy Rotem)