



Software Product Management

Measurements and Analytics

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Introduction



Product teams use analytics to:

- Understand users & then target the right user segments
 - Understand customer behaviour and improve UX
 - Measure product adoption & increase value
 - Measure effectiveness of marketing campaigns
-

Types of analytics



- User behaviour analytics (click paths, engagement)
- Business analytics (active users, conversion rate, lifetime value, retention)
- Financial analytics (Average selling price, billings)
- Performance (load time, uptime)
- Operational costs (storage, hosting)
- Go-to-market costs (acquisition costs, cost of sales, programs)
- Sentiment (NPS, customer satisfaction, surveys)

Source: "Inspired" Chapter 54)

User behaviour analytics



- Which features are most popular & which are least
 - What friction points or issues users are running into
 - How engaged users are (How often & how long)
 - The type of users – heavy users, occasional users, freeloaders
 - What a user workflow looks like
-

Sample User journey metrics



Source: "Product Analytics for Dummies"

User behaviour analytics



How can we make use of these insights?

- Which features are most popular & which are least?
 - What friction points or issues users are running into?
 - How engaged users are (How often & how long)?
 - Who are our heavy users, occasional users, freeloaders?
 - What a user workflow looks like for a given task?
-

Experience sharing



How did you improve your product based on user behavior analytics?



Business analytics



Dave McClure's AARRR framework



Dave McClure's AARRR framework



- **Acquisition:** How many prospects (new visitors) are our visiting to our website – due to ads, due to Google search, others?
 - **Activation / Conversion:** What percentage of prospects that come to our website sign up as customers?
 - **Retention:** What percentage of our customers remain active over time?
 - **Revenue:** How much money does each customer generate?
 - **Referral:** How many customers refer our product to their friends?
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Dave McClure's AARRR framework



How does this data help us?

- **Acquisition:** How many prospects (new visitors) are our visiting to our website – due to ads, due to Google search, others?
 - **Activation / Conversion:** What percentage of prospects that come to our website sign up as customers?
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Order of optimization



Which metric should we try to improve first & why?

- Acquisition
- Conversion
- Retention
- Revenue
- Referral

Recommended Order of optimization

1. Retention
2. Conversion
3. Acquisition

Why?

- If we are unable to retain, it implies lack of value
-

Case study: Intuit

(Improving conversion)



- Launched a new web product,
- Wanted to track and improve the product and business
- Customers were coming but had a conversion problem: the percentage of prospects signing up was lower than we had expected it to be.

Source: Book: Lean Product Playbook

Case study: Intuit...



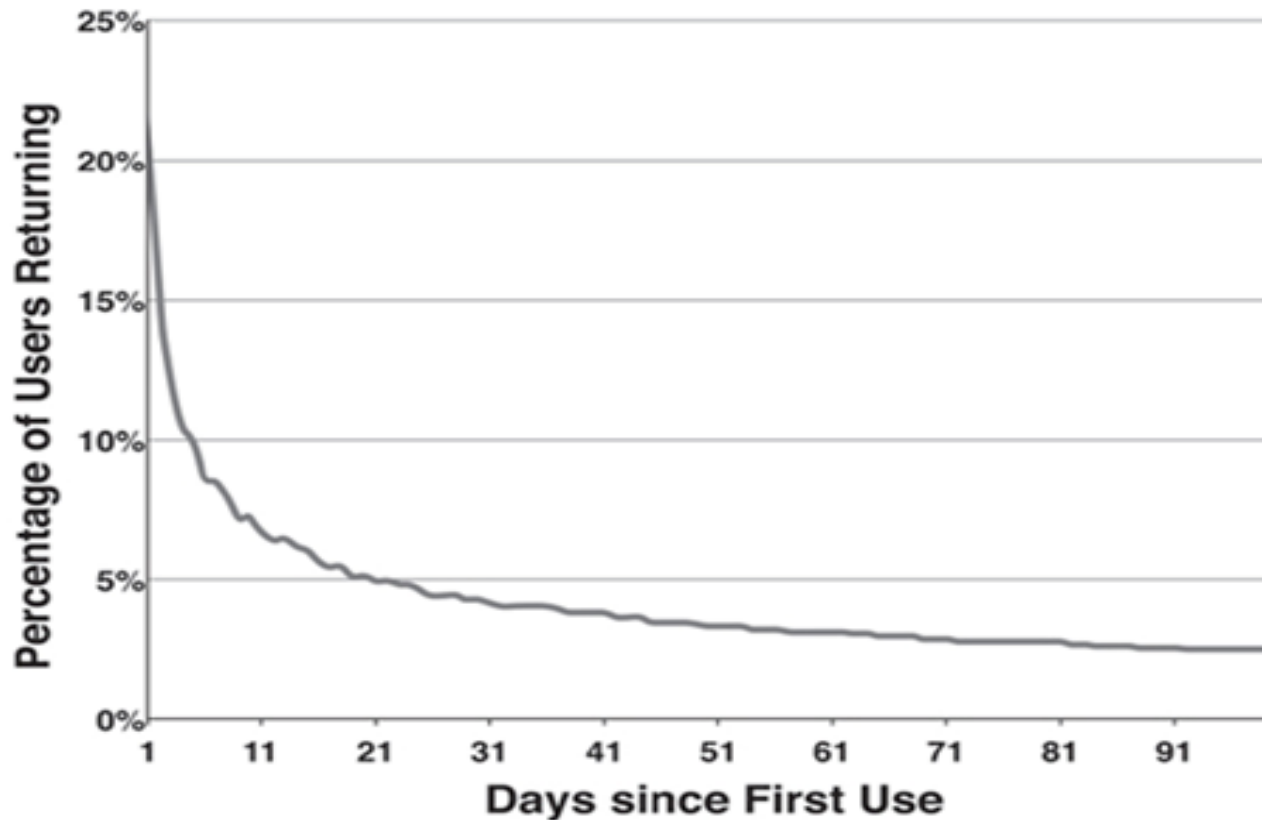
Did analysis & improvements:

- Sign-up process that long.
- Many prospects were dropping off at different points in the sign-up process.
- Conducted usability testing with users - Discovered several UX design issues.
- Quickly made UX design improvements.

Result: 40 percent improvement in our conversion rate

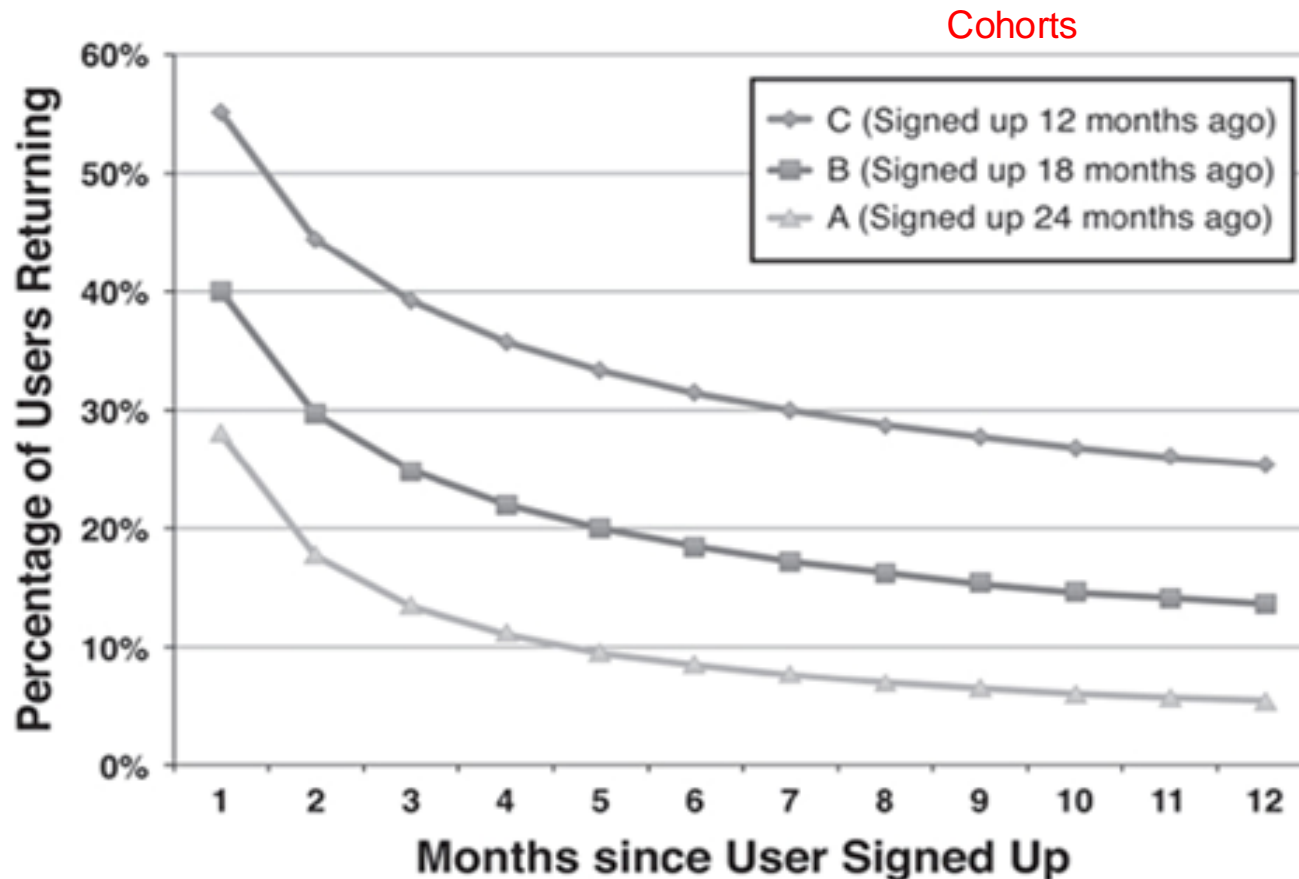
Source: Book: Lean Product Playbook

Measuring retention rate



Source: Book: Lean Product Playbook

Measuring improvement in retention rate



Retention rate of different cohorts, as the product-market fit is improved

Revenue related metrics



- Average revenue per user: ARPU
 - Example: Amazon, Ola, RazorPay, Slack, Zoom
- Customer Life Time Value = $\text{ARPU} * \text{Avg. Customer life time (in months or years)} * \text{Gross margin}$

How does this help us in pricing the product?

Sentiment analysis: Net Promoter Score (NPS)

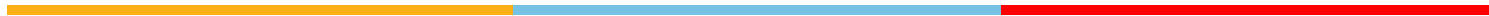


- “How likely are you to recommend the product to your friend?”
 - 9 or 10 are called promoters
 - 7 or 8 are called passives
 - 0 through 6 are called detractors
 - $NPS = \% \text{ of promoters} - \% \text{ of detractors}$
 - NPS should increase as you improve product-market fit.
 - Include in your survey an open-ended question asking customers *why* they gave the score they did
-

Experience sharing...



How did you improve your product based on NPS?



A/B testing



- Used when the fear of negative impact of the change is high
 - A/B testing can be used to test
 - A change in UI
 - A change in recommendation algorithm
 - New feature
 - Any other?
-

A/B Testing: Example



- Let us say you have a landing page.
 - You see from your analytics that your conversion rate is only 5 percent, much lower than you think it should or could be;
 - So you design a new, improved version of the landing page.
 - Now you allow a small % of users to see the new landing page and see if the conversion rate improves or not
-

Concept of statistical significance



- Let us say the conversion rate increased from 5% to 6%
- Is this finding reliable?
- If our sample size is small, it is not very reliable
- If our sample size is large, the finding is more reliable (statistically significant)
- There are tools & formulas to help us determine whether the change is significant or not.



A/B Testing in Netflix



Chief Product Officer Neil Hunt says “We use A/B testing for almost everything”

Examples

- Test out different user interface variations
- Test recommendation algorithms
- Test button placements and sizes

He says “**We realize that most of the time, we don't know up-front what customers want.** The feedback from testing quickly sets us straight, and helps make sure that our efforts are really focused at optimizing the things that make a difference in the customer experience.”

Experience sharing...



For what purpose did you use A/B testing in your product?

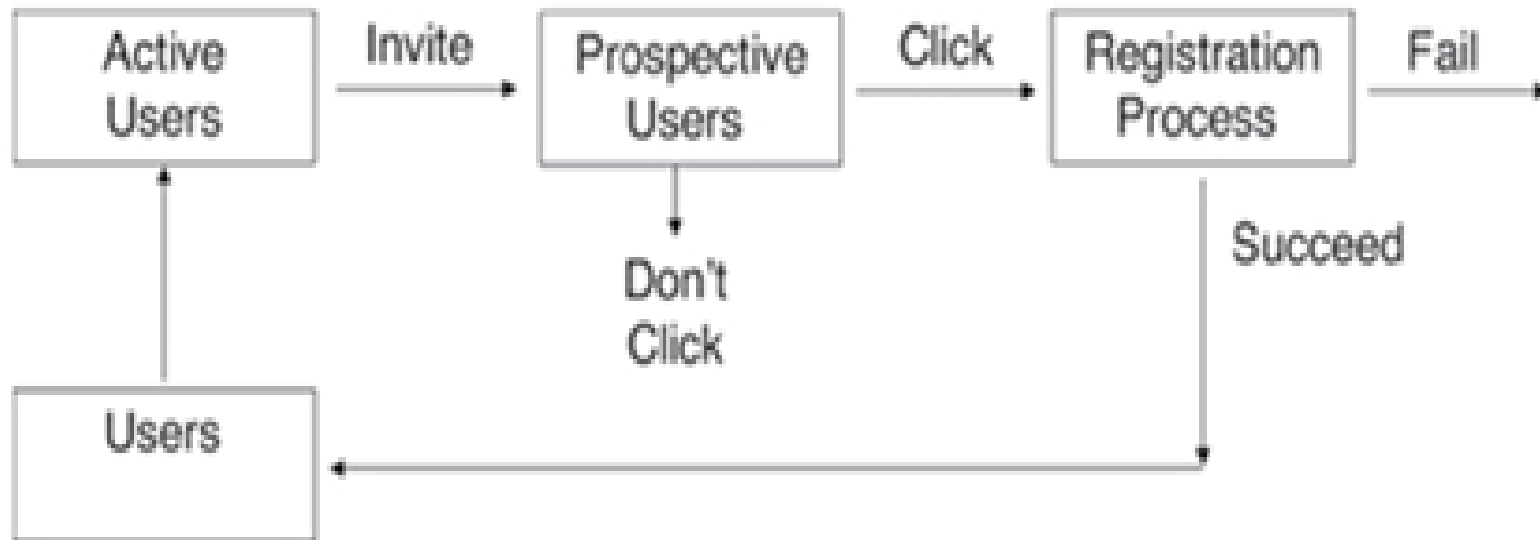


Case study: Friendster's viral loop

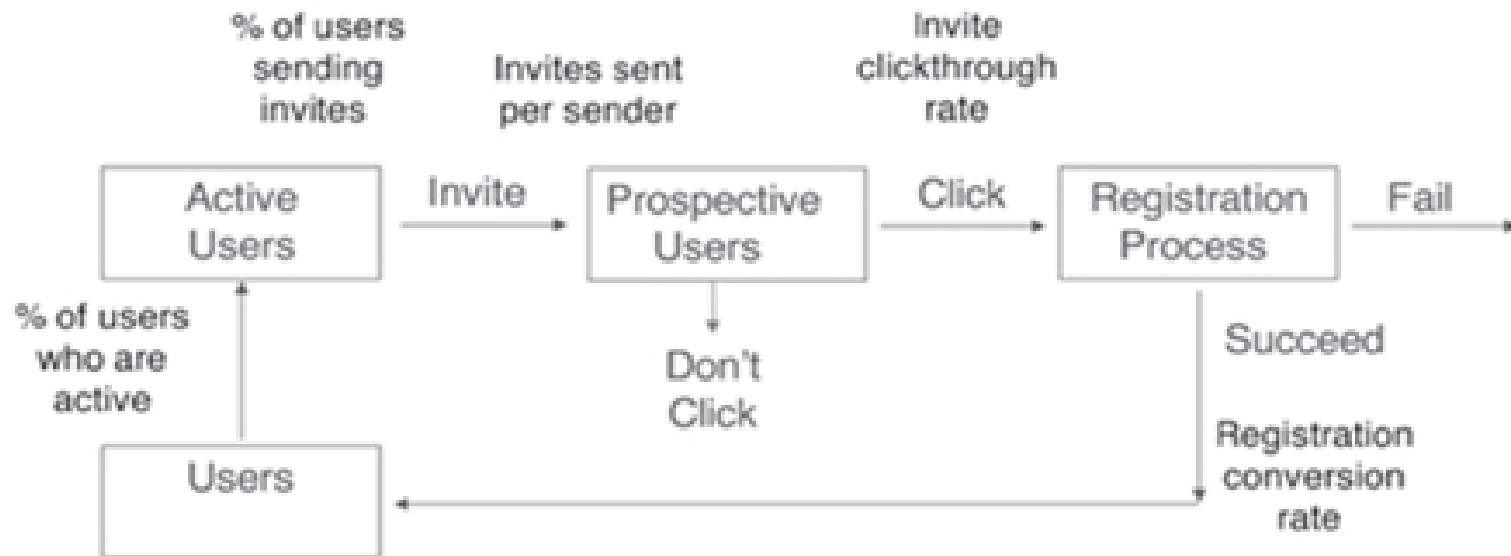
Improving revenue by choosing right metrics to improve



Friendster Viral Loop



Friendster Viral Loop Metrics



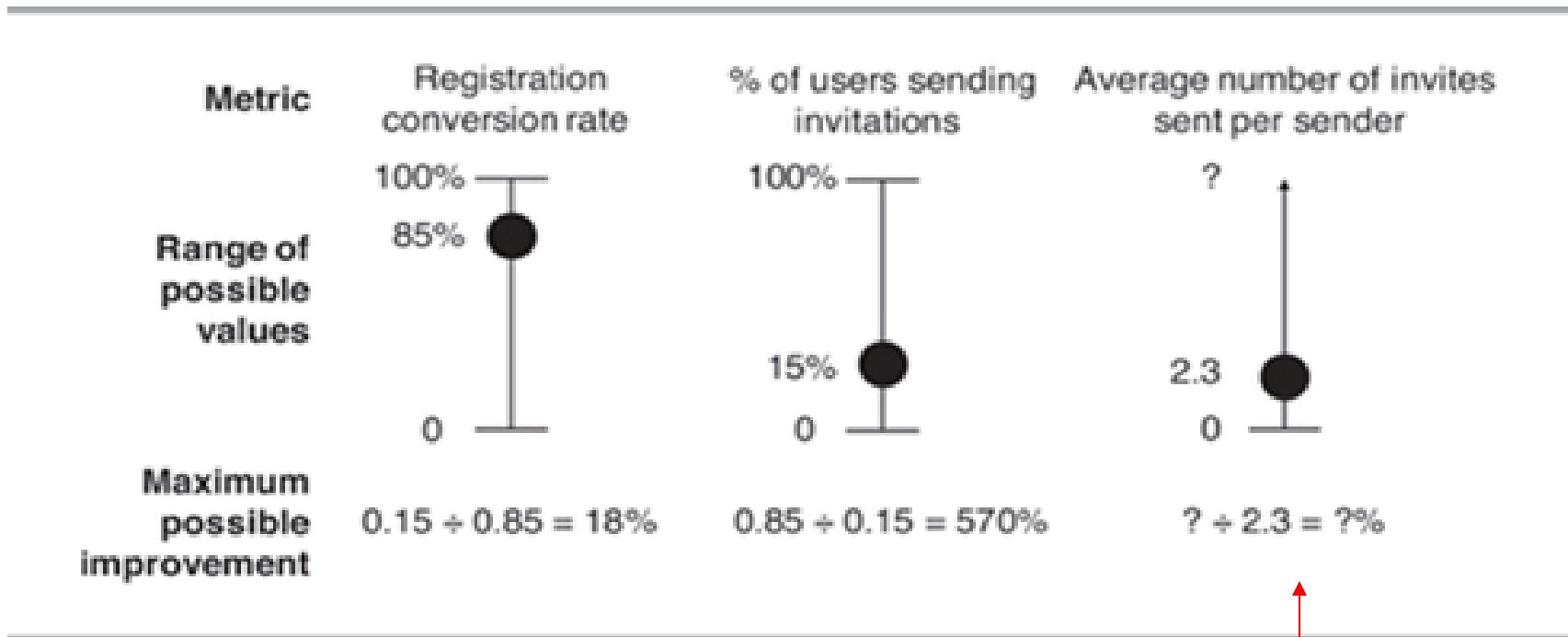
Baseline metrics



- Percentage of users sending invites = 15 percent
- Average number of invites sent per sender = 2.3
- Registration conversion rate = 85 percent

Which metric should we try to improve?

The Upside Potential of a Metric



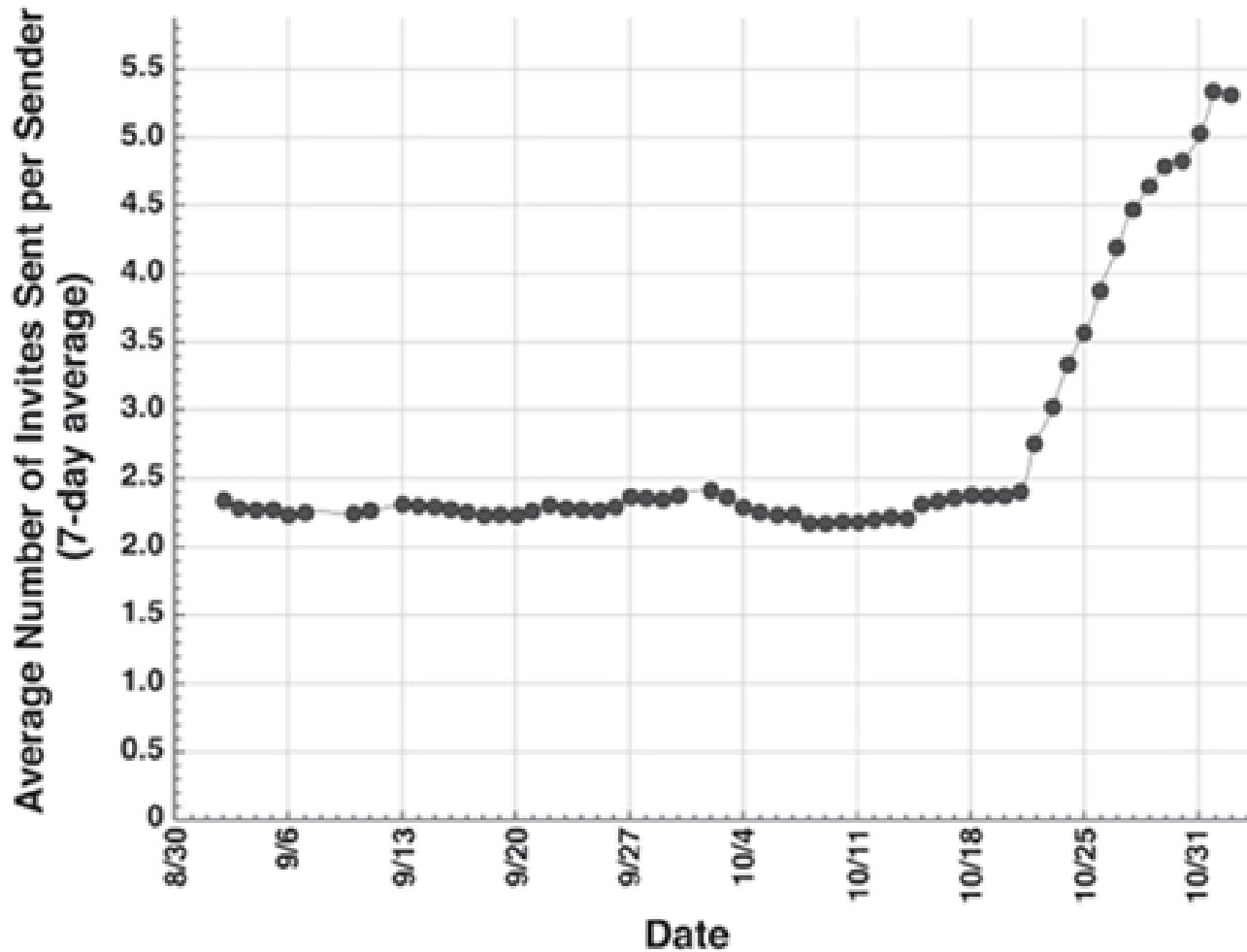
Has max upside potential

Action to improve



- Each user has on an average 100-200 friends. Going from 2.3 to 100 will be a significant improvement.
 - So we introduced a feature to import address book from Gmail or Yahoo mail and allow user to select the friends they want to send invite to
 - This changed the avg invites from 2.3 to 5
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Outcome



Exercise



Appendix

