



Scaling fast-growing tech companies with e-commerce metrics

Viet Nguyen
Director of Engineering at Tiki

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10+ years in Software Development

Responsible for growing Tiki's engineering team and architecting Tiki's infrastructure also product that yields better, faster, and smooth customers' shopping experience on Tiki

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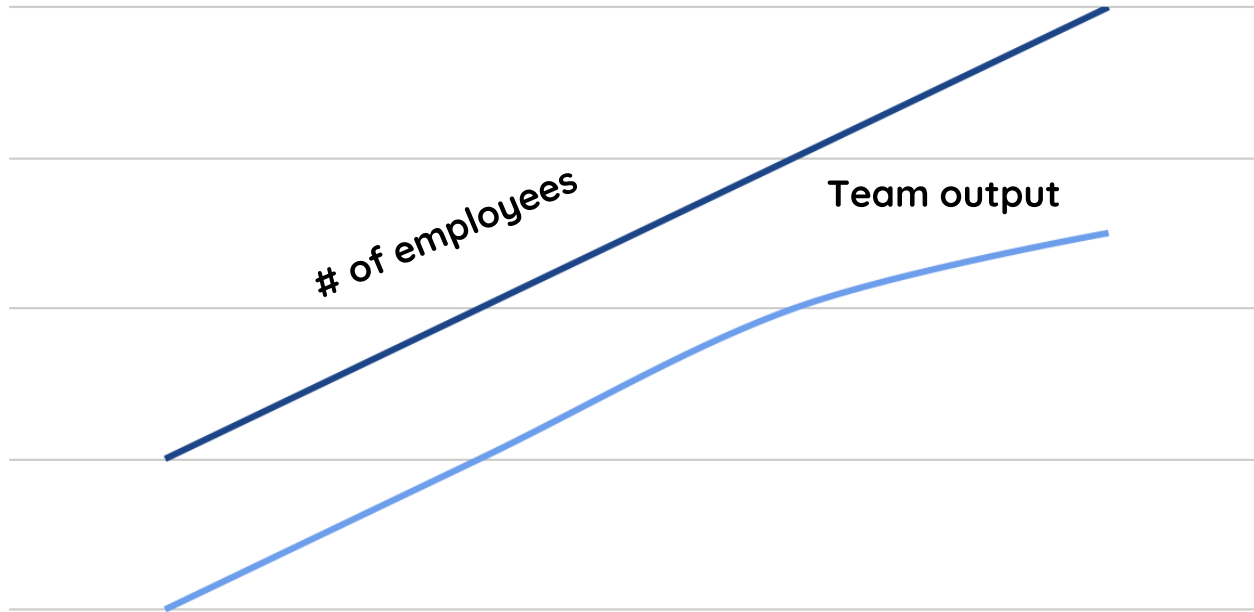
- 2+ millions of unique customers
- 1+ million of authentic products
- Fastest Click-To-Delivery Nationwide in Vietnam (< 1.7 days)
- First e-commerce offer 2h delivery at scale
- Incredibly complex business rules
- Vietnamese product on par with big foreigner names

**We have to scale
our engineering team
Bigger and Faster**

- 20+ teams
- 100+ engineering employees
- 1 development office in HCM + 1 coming soon in Hanoi

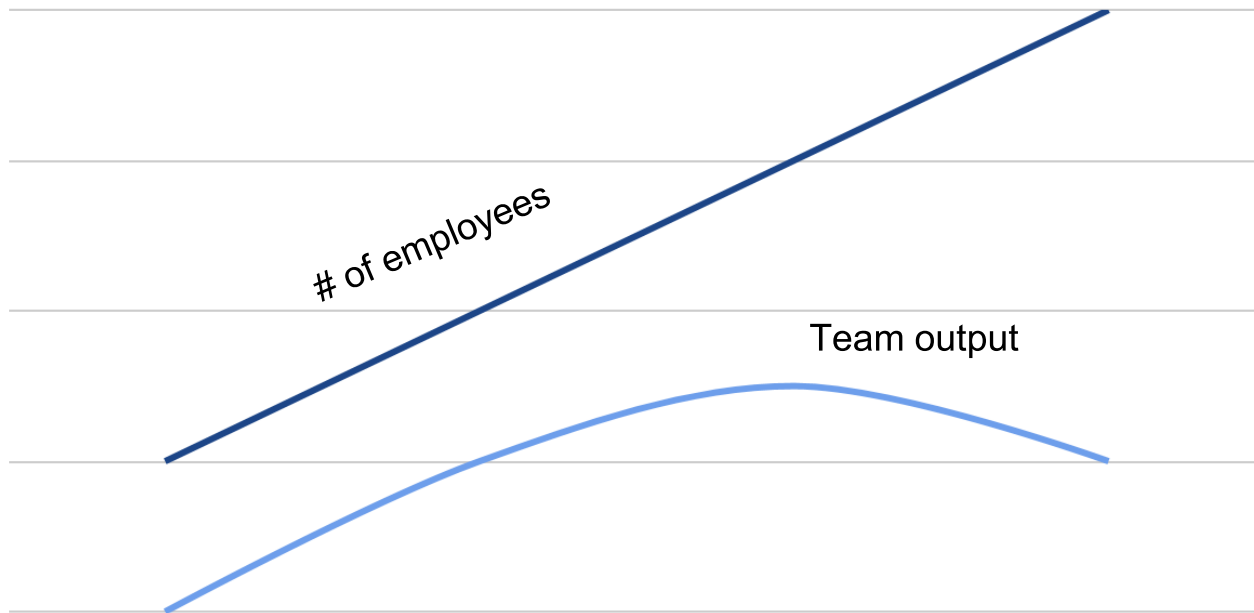


What should happen?





What could happen?



- We have to spend a lot of time on alignment
- We don't know what technologies we should invest on
- We don't hire the right people

- Invest more in hiring and onboarding process - not covered here
- More autonomy with cross-functional teams - not covered here
- High alignment with approach to metrics



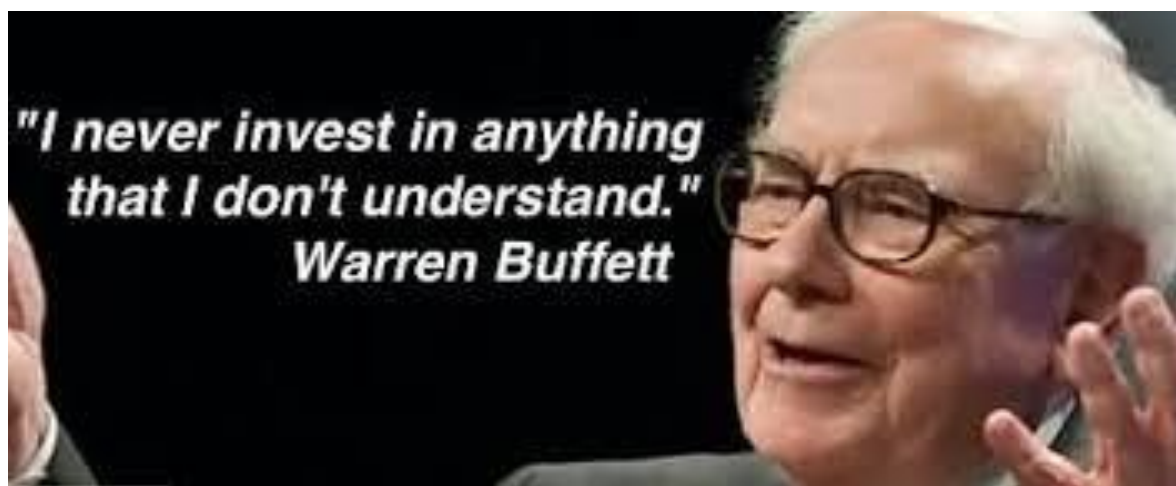
Approach to metrics

Why and How ?

Time = \$\$\$

Engineering Leaders happen become
Problem investors

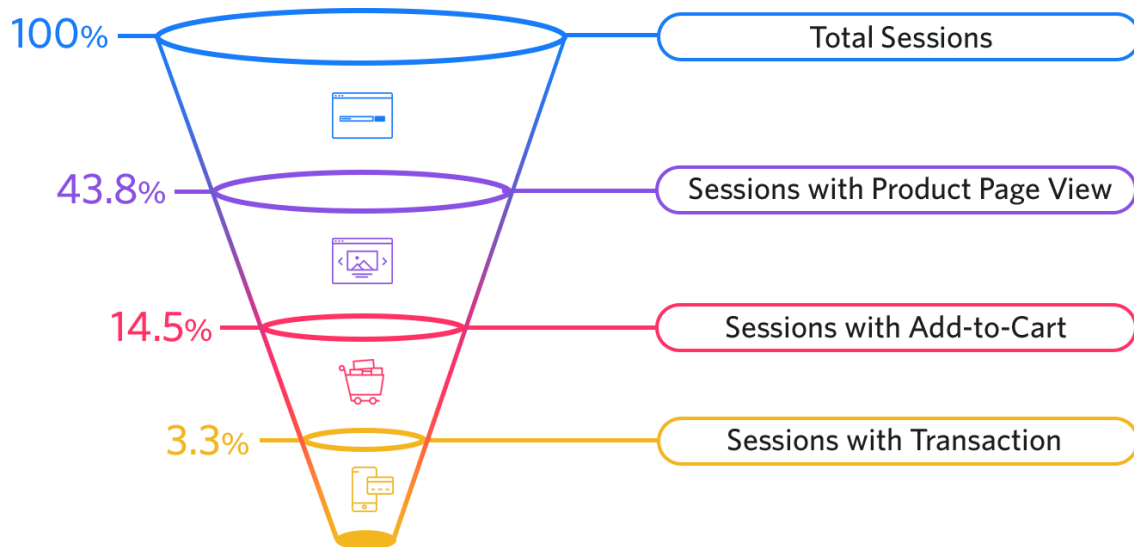
**A common goal:
Deliver more business value**



*"I never invest in anything
that I don't understand."
Warren Buffett*

- We need maximum metrics, because we just don't know what we don't know
- We need minimum metrics, because they just don't add value

- Goal: to create a better online shopping experience for customers

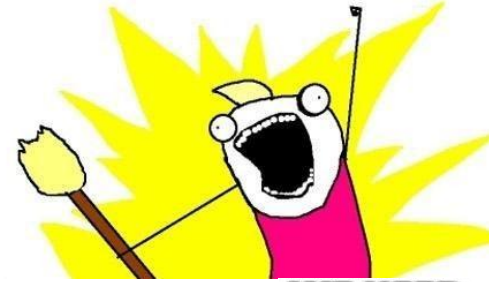


Metrics:

- Cart-to-Detail Rate
- Buy-to-Detail Rate
- Ecommerce Conversion Rate

How do we improve these metrics ?

WE NEED NEW UI/UX



WE NEED MICROSERVICES

WE NEED ... TECHNOLOGIES



- We're not sure, but we know that we have spent a lot of time.
- Or... think we saved the world, but the world saved itself

Solution:
**Focus on the controllable input
metrics**

The Amazon philosophy

*Senior leaders that are new to Amazon are often surprised by **how little time we spend discussing actual financial results** or debating projected financial outputs. To be clear, we take these financial outputs seriously, but we believe that **focusing our energy on the controllable inputs to our business** is the most effective way to maximize financial outputs over time.*

Extract from Jeff Bezos, Amazon CEO,
Letter to shareholders 2010

1. Identify the right goals for a team

S.M.A.R.T Objectives

Specific

Measurable

Achievable

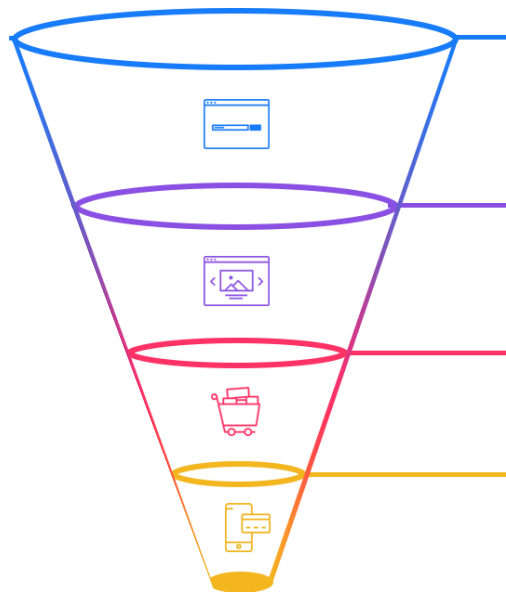
Relevant

Time-bound

Ex: Improve Tiki's customer retention to 40% by increasing TikiNOW subscribers to 50K in Q2 2019

2. Ask the right questions & identify measures and metrics that can answer questions

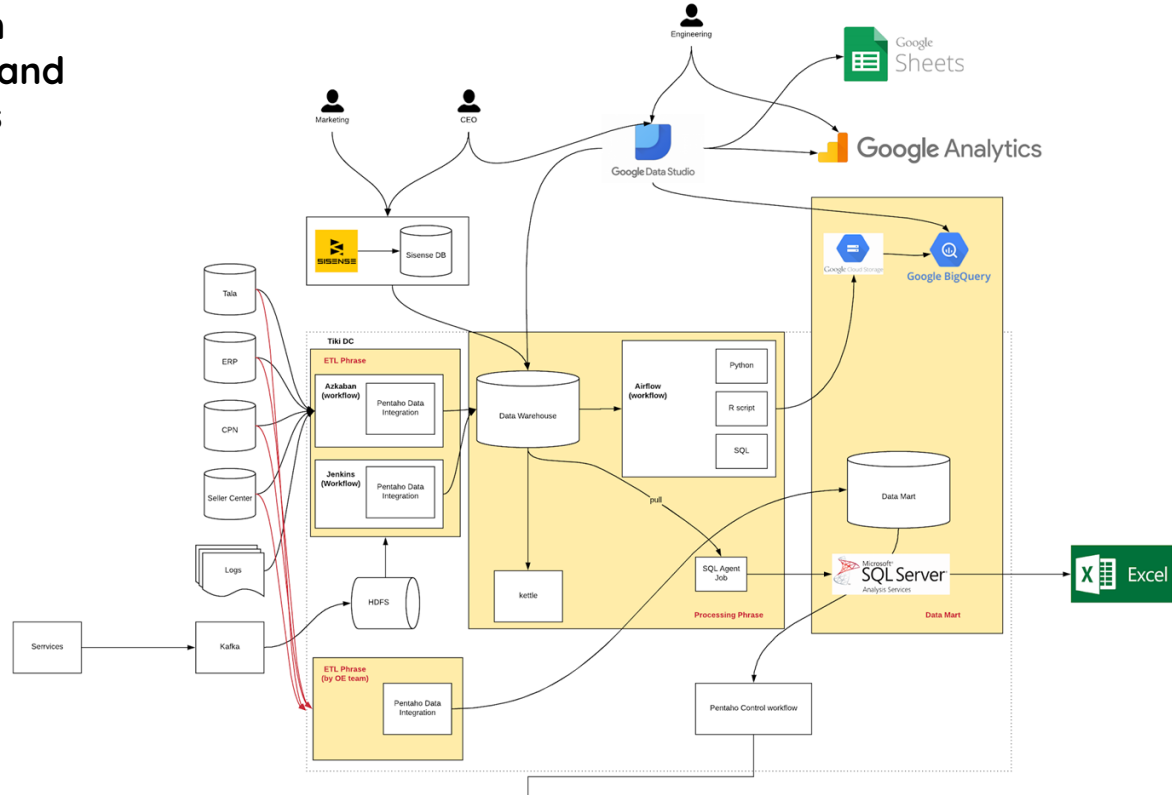
Eg. Questions & Metrics for better CR



Customer Experience	Questions ?	Metrics
Landing Experience	Are landing pages aligned with marketing message/ SEM query ?	Bounce Rate Site Speed
Navigation	Can customer find categories ?	Search / Browse ratio Exit Rate
Search / Browse	Can customer find products ?	Zero result rate Search with low conversion CTR from search
PDP	Do customer add to cart ?	Add to cart rate Price competities OOS Rate
Cart	Do customers abandon cart ?	Abandon Rate
Delivery methods	Do customers find needed delivery options ?	2h impression but not eligible in checkout
Payment methods	Are payment methods easy to use for customers ?	Exit Rate Failed Orders

3. Find ways to collect the necessary data

We have invested a lot in data warehouse system and collect every data points

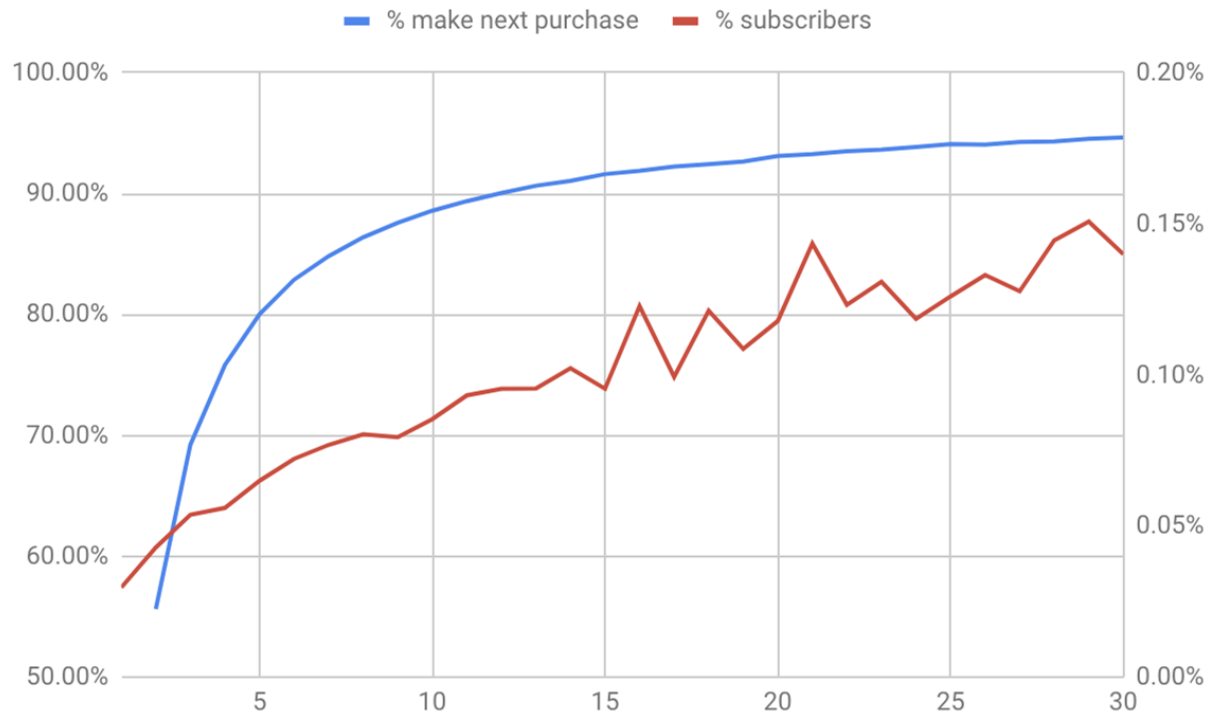


4. Analyze the data to have controllable input metrics

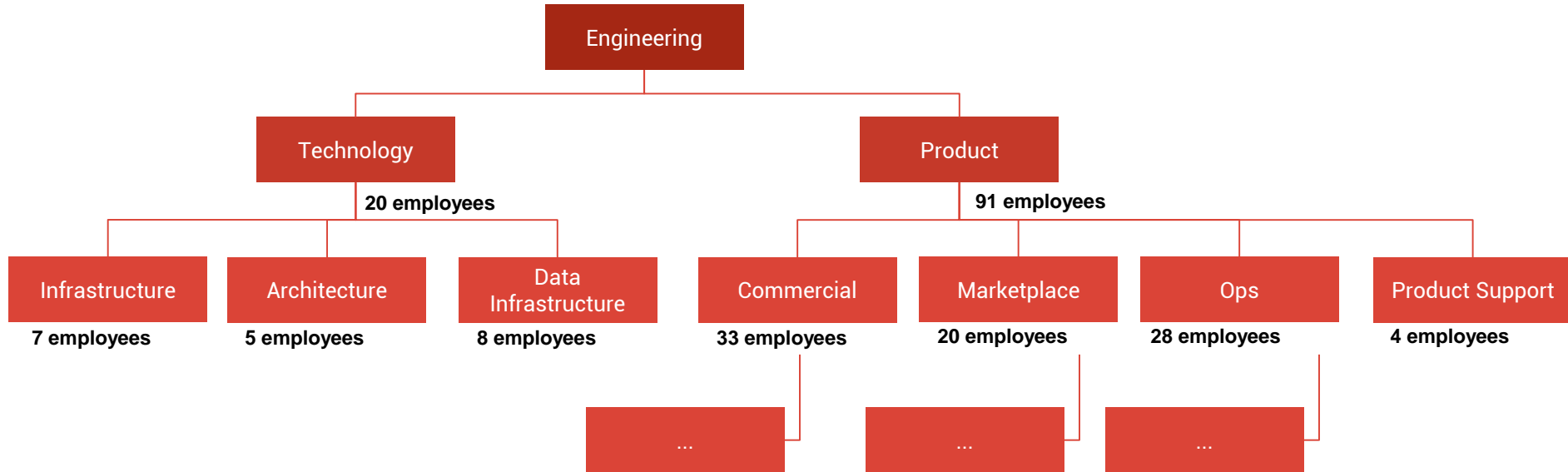
Eg. we found that if a customer makes the 5th purchase, they will become a loyal at Tiki.

→ Metrics :

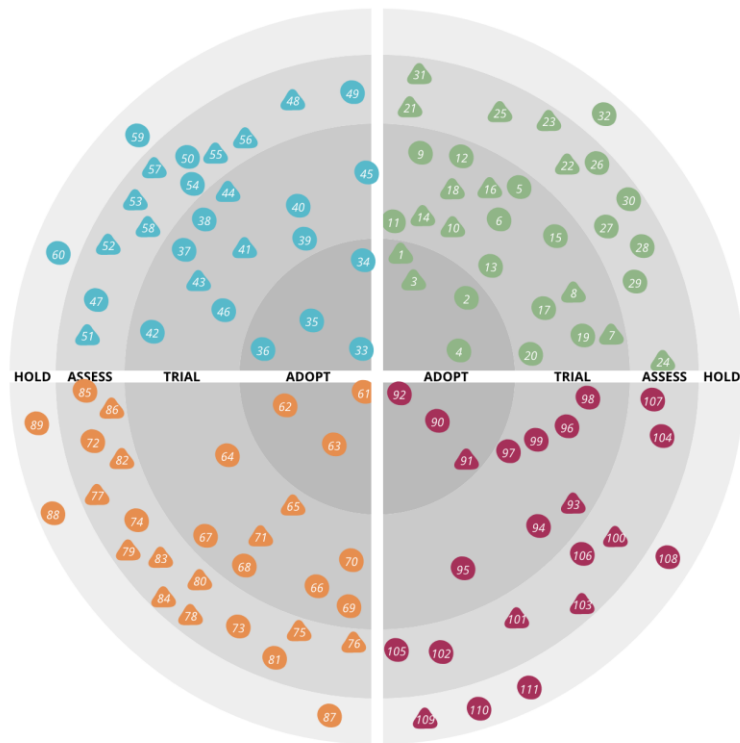
- 1st to 2nd rate
- 2nd to 5th rate



5. Invest teams and technologies into that



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Technology Radar

Adopt:

- Microservices
- Apache Kafka
- React.js
- Redux
- ReactNative
- Kubernetes
- Prometheus
- MySQL
- Redis
- Bigquery
- ...

Trial:

- Chao Engineering
- Hybrid infra
- Apache Beam
- ... (+ 100 more)

Hold:

- Cryptocurrency :)

6. Use what we discover to improve goals, questions and metrics and... back to step 1

Ex: subscribe diagnosis

	Typical issues
1st -> 2nd subscription rate	<ul style="list-style-type: none">● Customers have less than 3 orders / month● Poor experience<ul style="list-style-type: none">○ 2h Ontime○ Eligible 2h area○ Selection
2nd -> 3rd, 4th subscription rate	<ul style="list-style-type: none">● Selection
4th -> 5th subscription rate	<ul style="list-style-type: none">● Selection
New subscriber acquisition	<ul style="list-style-type: none">● Uncertainty on investing (they don't think they will buy more than 3 orders / month)

How does that work at scale ?

Quarterly Check-In & Review

Quarterly Check-in / Q1 2017 / Discovery

Created by Viet. Nguyen Hoang, last modified by Khai. Huynh Minh on May 09, 2017

Tiki have a wealth of products that is not easily discoverable by our customers. The Discovery squad's mission is to make it disc

Team information and KPIs

Team Size	3
Augmented clickthroughs	Start of Q1 2017: 40%
Zero results rate	Start of Q1 2017: 42% (warning: could be wrong)
Load time	Start of Q1 2017: 500 (ms)
Service Usage (rpm)	Start of Q1 2017: ~3000 (rpm)
Index time	Start of Q1 2017: 0.5 hours
Cost	Start of Q1 2017: 6k\$ / month

How do we make the products discoverable?

- **Search relevance improvements:** help users find what they're looking for
- **Search interface improvements:** rich interface to showcase our search results

Goals

Goal: Improve the search relevance	
Objective ?	What impact / deliverables are you expecting?
Upgrade ES to 5.0	<ul style="list-style-type: none">• Improve search algorithm (Documents not found from 57,7 => 16,0%, Average rank from 2,44 => 2,07)
A/B test	<ul style="list-style-type: none">• Gather requirement and solution roadmap
Non-product index	<ul style="list-style-type: none">• Show results that is not product in search

Goal: Improve speed

1. Identify the right goals
2. Ask the right questions & identify measures and metrics that can answer questions
3. Find ways to collect the necessary data
4. Analyze the data to have controllable input metrics
5. Invest teams and technologies into that



Want to make impact a for fast-growing company? Join Tiki NOW !

- Search & Discovery
- Real-time automated pricing
- Big data analytics (+B row data)
- Fraud detection

Looking for:

- Head of Search & Discovery
- Data Analysts
- Data Scientists
- Software Engineers
- Product Managers



Thank you

Viet Nguyen
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