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Haystack US
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Selecting the RIGHT Measures for Your Search Product

Why are we here?

Haystack is the conference for improving search relevance. If you're like us, you work to understand the shiny new tools or dense academic papers out there that promise the moon. Then you puzzle how to apply those insights to your search problem, in your search stack. But the path isn't always easy, and the promised gains don't always materialize.

<https://haystackconf.com/>

“Haystack is the conference for **improving search relevance**”

So how do we improve search relevance?

Haystack US 2023

Talks from the Search & Relevance Community at the Haystack Conference!

The conference sessions are held at the [Violet Crown](#) movie theater in central Charlottesville and streamed live via Zoom. [Get your tickets to attend in-person or online here.](#)

This is our [Event Safety Guide and Code of Conduct](#).

Day 1, Tuesday, April 25th, 2023

Time	Track 1	Track 2
8:00-9:00am EDT	Registration Location: Entrance of the Violet Crown	
9:00-9:15am EDT	Welcome to Haystack! Charlie Hull Location: Theater 5	
9:15-10:00am EDT	Opening Keynote - Relevance in the Age of Generative Search The search relevance landscape is rapidly shifting. Due to the rise of Transformers and Large Language Models (LLMs) and the more recent emergent capabilities shown with Foundation Models, public search	

So how do we improve search relevance?

Improve our search tools!

Topics from
Haystack
US 2023
Agenda

Large Language Models

Generative search

Neural embeddings

LTR

NLP

Word-2-vec

BERT models

Deep learning

Semantic vectorization

Automatic classification

Citation networks

Tensorflow ranking

Ref2Vec

Knowledge graphs

Tools are necessary, but insufficient

Too often we geek out on tools at the expense of other fundamentals

Learning from experience

I have improved many search products in the last 20 years



...but improving search has **never been easy**: lots of mistakes made, lots of lessons learned

How to optimize a product, ANY product

Improving search products is not that different from other products



1. Prioritize an area to improve
2. Identify the right measures of success
3. Integrate a technology solution
4. Evaluate & test the solution
5. Promote, iterate or pivot based on results
6. Rinse & repeat

A woman with blonde hair tied back, wearing glasses, is focused on her work at a workbench. She is using a tool with a blue handle to work on a small object. The workbench is cluttered with various tools, including a soldering iron, a pair of pliers, and a container of screws. A white desk lamp is positioned to her left, illuminating her workspace. The background is slightly blurred, showing more of the workshop environment.

Search is special, or so we think

The complexity of our craft often insulates us from users and the business, which can lead to **four problems**

Problem #1: Misplaced focus

Wasted effort by optimizing the wrong things

PROBLEMS

Misplaced focus
Weak measurement
Wrong targets
Neglecting the business

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2. Identify the right measures of success
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Search systems are complex—the biggest optimization wins may not be algorithmic

Problem #2: Weak measurement

Optimizing things that have no measurable impact

PROBLEMS

Misplaced focus

Weak measurement

Wrong targets

Neglecting the
business

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2. **Identify the right measures of success**
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If you can't measure it you can't really improve it

Problem #3: Wrong targets

Optimizing the wrong measure—or only a single one

PROBLEMS

Misplaced focus
Weak measurement
Wrong targets
Neglecting the business

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- 2. Identify the right measures of success**
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Search needs & tasks are diverse—off the shelf measures may not work

Problem #4: Neglecting the business

Only focusing on user measures and not business measures

PROBLEMS

Misplaced focus

Weak measurement

Wrong targets

Neglecting the
business

- 1. Prioritize an area to improve**
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Improvements that don't tie to business outcomes are risky to the company (and you!)

Improve inputs to maximize output

Deepen your understanding of user and business needs

1. **Prioritize an area to improve**
2. **Identify the right measures of success**
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Apply insights to select the **RIGHT search measures** for your product

Understanding users

QUESTIONS

“Why do they use our product?”


“How do they use our product?”

“What challenges do they have?”

DATA SOURCES

 User research / surveys

 Analytics / log analysis

 Support tickets / social

“What drives user success with search?”

Selecting user measures

Select search measures that indicate user success with your product

Example Product	User search task	Success factor	Measure
Reservation app	Get a reservation at favorite spot	Speed	Time to task completion
Stock images app	Find images for my project	Engagement	Saves per search session
Music streaming app	Find a specific song or artist	Ease	Keystrokes to engage
Research database	Find best articles for my research	Relevance	DCG (engagement based)
Medical reference	Find all relevant content	Coverage	Recall (SME judged)

Understanding the business

QUESTIONS

“What are our business goals?”

“How do we generate revenue?”

“Why do they buy our product?”

DATA SOURCES



Company OKRs & KPIs



Financial reports / Finance



Marketing & Sales

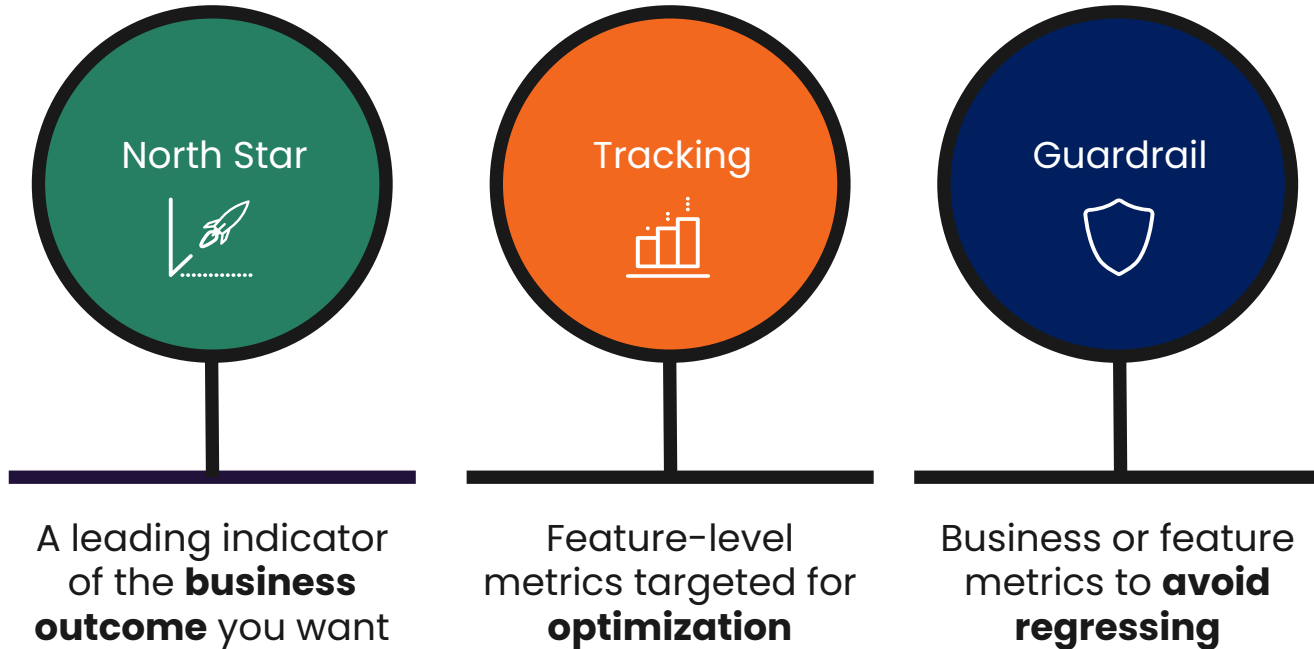
“How does improving search impact the business?”

Selecting business measures

Select search measures that drive desired business goals or outcomes

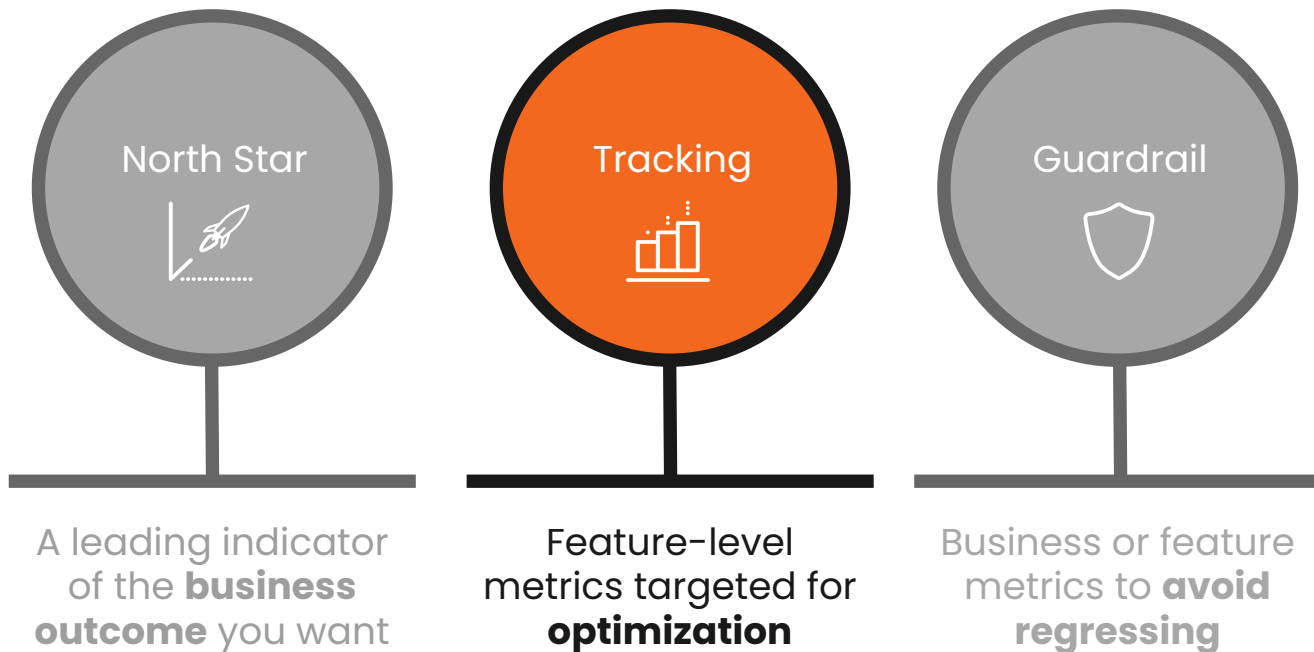
Example product	Business goal	Success factor	Measure
Reservation app	Increase reservation success	Conversion	SERP reservation CTR
Stock images app	Increase order size	Growth	Order size per search
Music streaming app	Increase time in app	Engagement	Listening time per search
Research database	Increase search usage	Retention	Weekly active search usage
Medical reference	Reduce subscription churn	Satisfaction	Search app NPS

Applying search measures

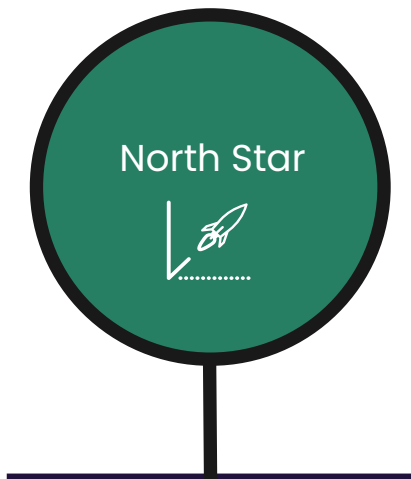


A robust search measurement program provides a holistic view of user & business impact

Measuring specific impact



Measuring broad impact



A leading indicator
of the **business**
outcome you want



Feature-level
metrics targeted for
optimization



Business or feature
metrics to **avoid**
regressing

Optimizing search impact

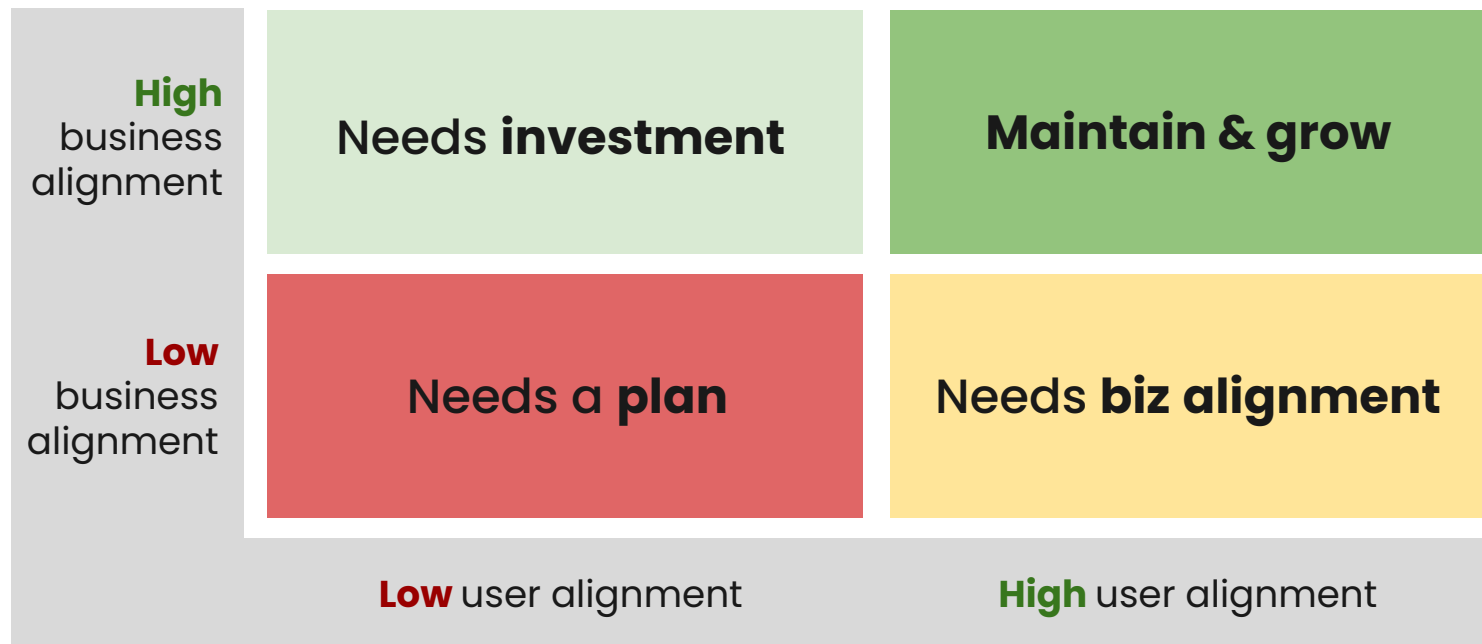
User Alignment **x** **Biz Alignment** **=** **Impact**

How search solves
problems for users

How search drives
business goals

The product of user and
business alignment

Optimizing search impact



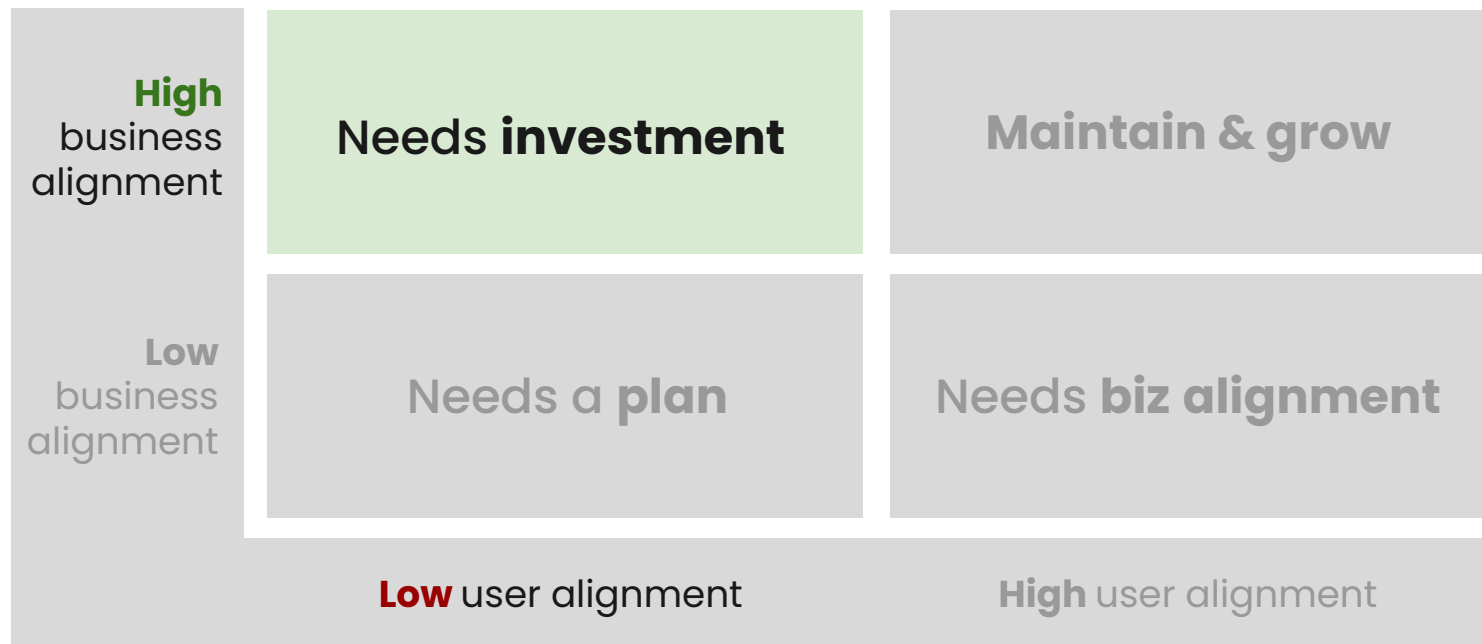
How optimized is your search product in terms of user and business needs?
Do you have the right measures in place to know?

User & business aligned search



Search products that drive user AND business value **grow the business**
To do: Always be experimenting, track your competitors, hire search specialists.

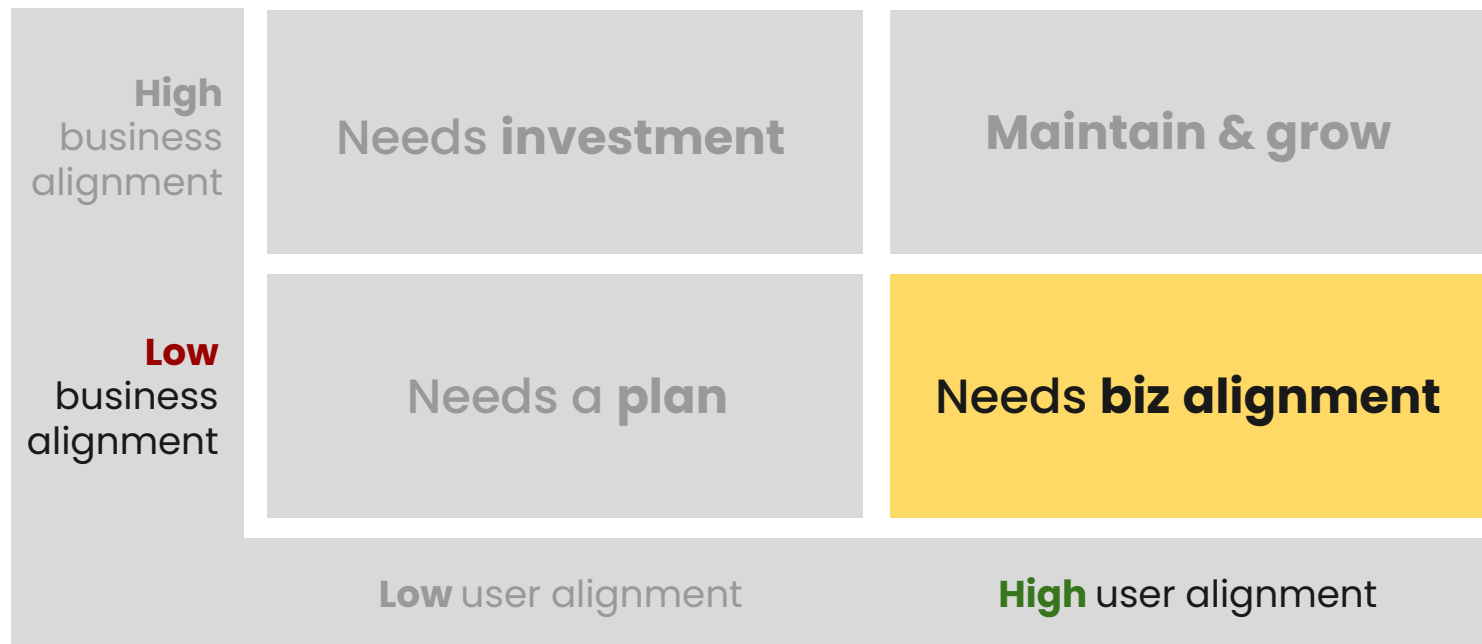
Business (but not user) aligned search



Search products with clear business goals but not user optimized are **poised for growth**

To do: Invest in user research, grow experimentation, hire search engineers

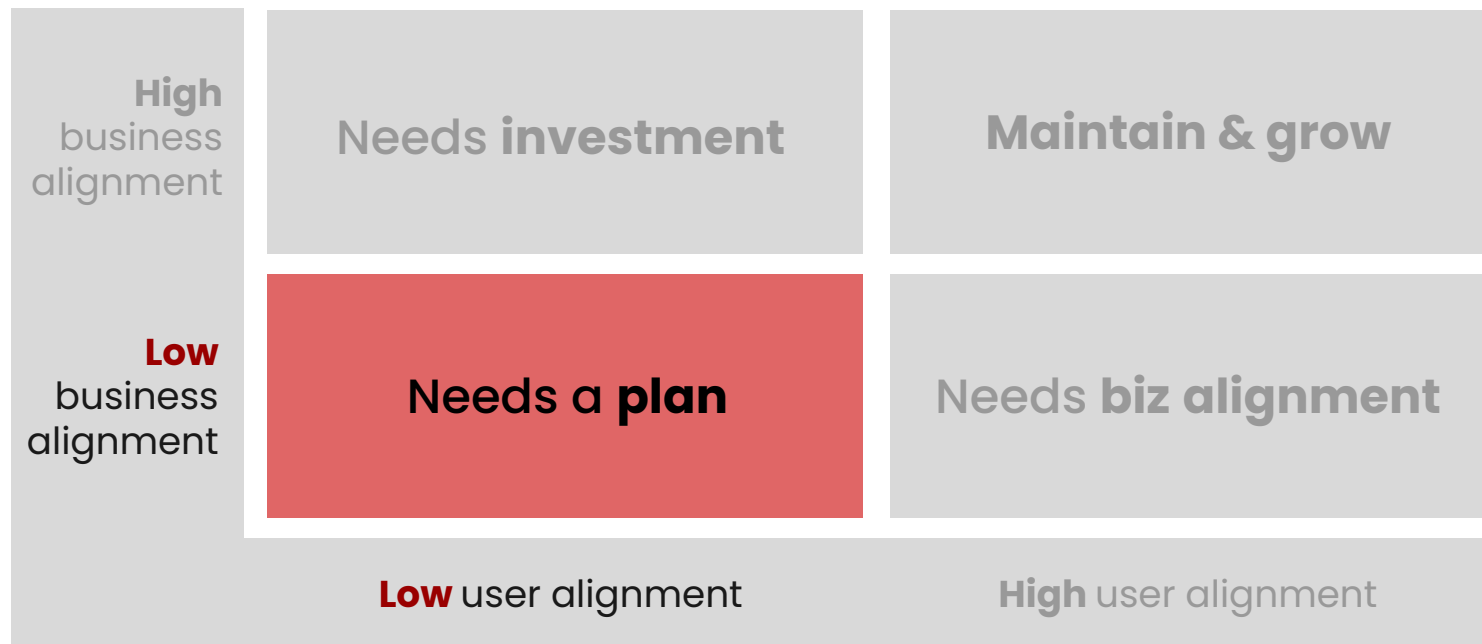
User (but not business) aligned search



Search products that focus on users but ignore the business **lack impact**

To do: Learn the business, make friends in Sales, hire search PMs and data scientists

No alignment 🤪



If your search product is not user optimized or business aligned, **lean into learning**
To do: Learn the business, learn your users, hire a search leader

Measurement to do list

- ❑ Inventory the search measures you currently track
- ❑ Identify gaps in user and/or business measures
- ❑ Learn more about users and the business
- ❑ Instrument additional measures as needed
- ❑ Select a North Star, Tracking & Guardrail metrics
- ❑ Re-evaluate periodically as your product evolves and business grows





Thank you!

Questions?