MIT MANAGEMENT BUSINESS ANALYTICS

Manulife | John Hancock

AI SEARCH & MARKETING

Seeing What AI Says, Testing What Would Change It

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This capstone began with no data, but an open question: as search shifts to AI, how does John Hancock stay visible, and how do we know our efforts work?

There was no dataset to model and no baseline to beat. We designed the architecture and built two tools: one measures what four AI engines say about John Hancock; the other estimates what a content change would do, tested against downloaded pages instead of the live site.

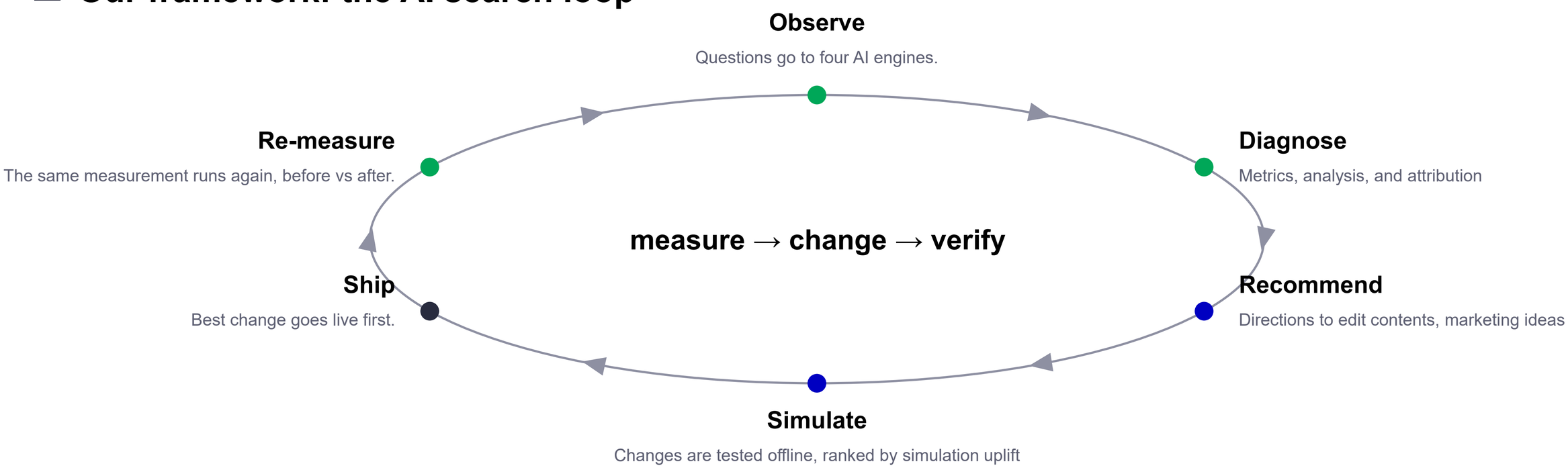
Data the project created for itself: a 299-question bank · 4 AI engines through their official interfaces · Multiple Runs · public data only

For the business, AI search comes down to two questions:

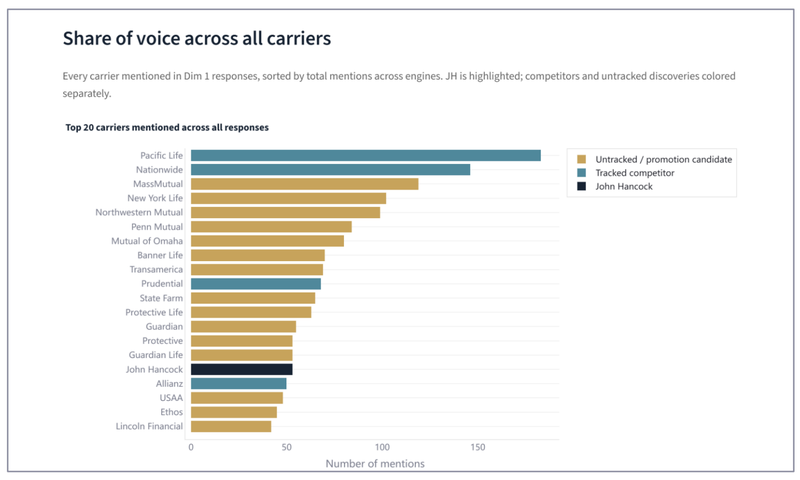
Growth
When AI recommends insurance, is John Hancock in the answer?

Risk
Is the story AI tells about John Hancock true?

Our framework: the AI search loop

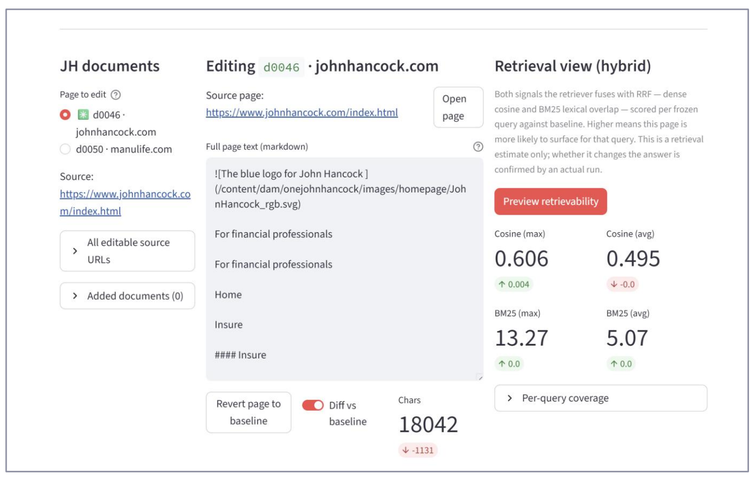


The tools we built



Measurement · visibility

Measurement · reputation



Simulation

Findings and capabilities

Visible for the brand narrative, not the facts

Of 293 answers to open-ended questions, the number naming each carrier:

A result of current business model, suggested to add more factual contents, and first change already deployed.

Misinformation radar and tracing

1 · Signal	the tool flagged John Hancock's trust scores as unusually low
2 · Quote	the phrase behind the score: "C rating from the BBB"
3 · Trace	one third-party website supplied that phrase to several engines
4 · Verify	the truth: A+, accredited for roughly 28 years

Escalated to PR with the source in hand; the tool keeps watching.

Website comparison and suggestions

16 pages compared side by side, ours and three competitors'. The suggestions, per page:

Claims overview	same information, half the length
Claims procedure	say what happens after a claim is filed
Care product	add one worked example with real numbers
Contact & support	list every contact channel where a reader looks

Delivered to the marketing team as inputs.

Simulation for content changes

The search database fixed; only JH content changes. Our simulation pipeline vs. real AI engines:

Question bank	the same 299 questions	same
Query loop	the model writes its own searches	approximated
Search index	retrieval over downloaded pages	swapped
Snippets & scoring	same format, same metrics	same

Results are uplift rankings; candidate changes are tested in minutes.

WHAT JOHN HANCOCK KEEPS

2 apps
measurement and simulation, handed over

1 fix deployed
on johnhancock.com since July 15

1 reputational risk found
and escalated, source in hand

Support that stays
Tong joins John Hancock in September

Two abilities the company did not have in March: to see what AI says about the brand, and to test a change before making it.

Company stakeholders: Jieyu Fan, Jeffrey Donahue, Alex Wang, Mackenzie Lees · MIT 15.089 Analytics Capstone, 2026