INTRODUCTION TO AI-BASED SEARCH ENGINE MODELING

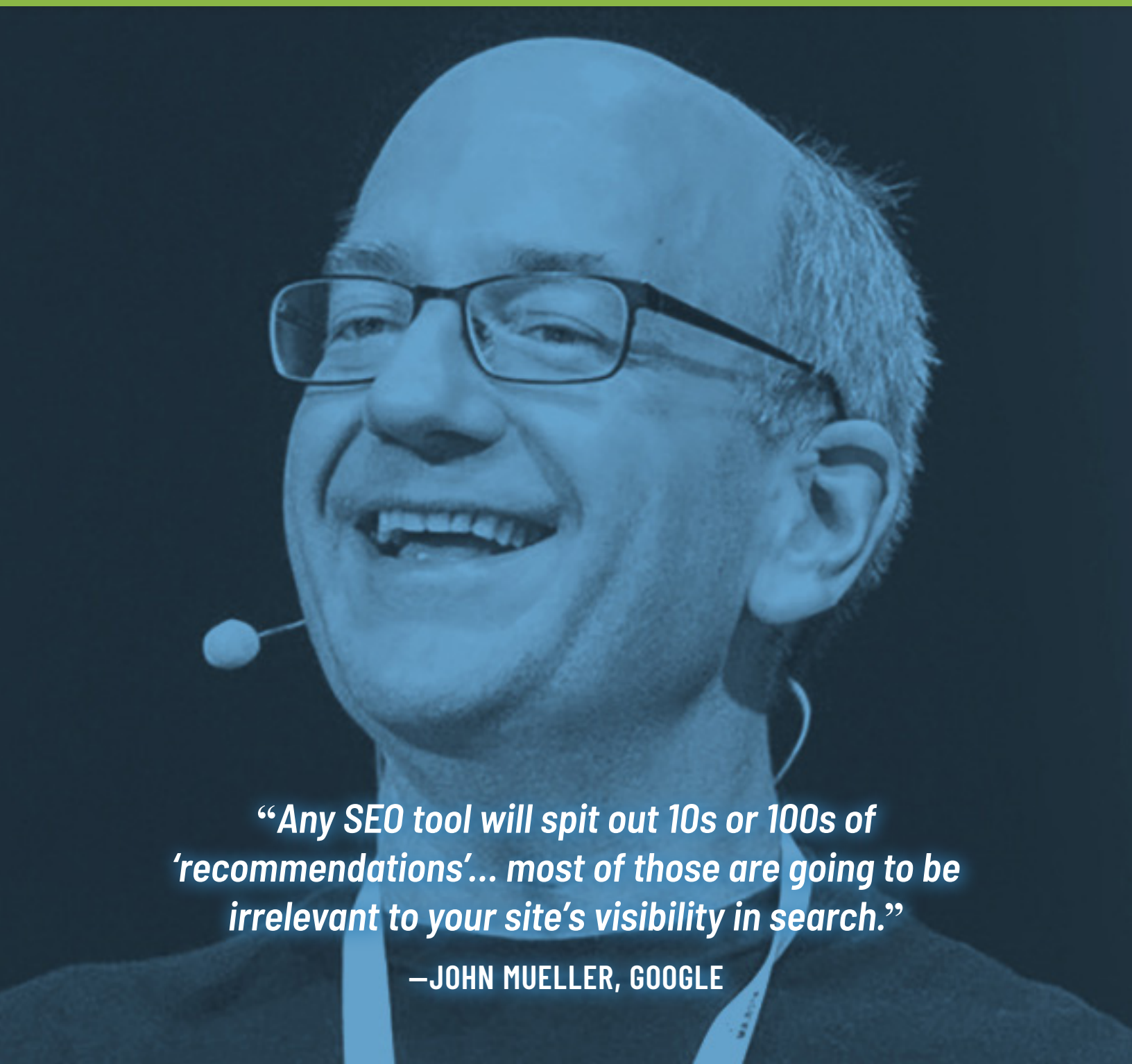
HOW AI HELPS YOU SHORTCUT YOUR WAY TO THE TOP OF YOUR SERPS

BREWco

CONTENTS

INTRODUCTION

THE CHALLENGES OF MODERN SEO



"Any SEO tool will spit out 10s or 100s of 'recommendations'... most of those are going to be irrelevant to your site's visibility in search."

—JOHN MUELLER, GOOGLE

IT'S HARD TO OUTTHINK A BLACK BOX

And the search engines like it that way

Search engines make money selling advertising. It's to their advantage to keep you in the dark about how they determine how sites are ranked.

In the face of this uncertainty, SEO teams have adopted standardized best practices that they apply to the pages they are working on.

But this approach has produced inconsistent results, sometimes working immediately, and other times taking a year or longer to show results.

Which is why some business stakeholders don't value SEO like they should.

Why don't these best practices deliver consistent and predictable results?

WHY "BEST PRACTICES" AREN'T BEST

In the abstract, most SEO best practices are good things to work on. But the reality is quite different. Here's why:

Every search is different

The relative importance of the various ranking factors differs for every keyword and geography.

Search engines are constantly shifting

What worked yesterday may not be what works today.

Many SEO fixes have no impact on rankings

These changes don't move the SERP needle and use up valuable time and energy.

It's hard to tell what's working

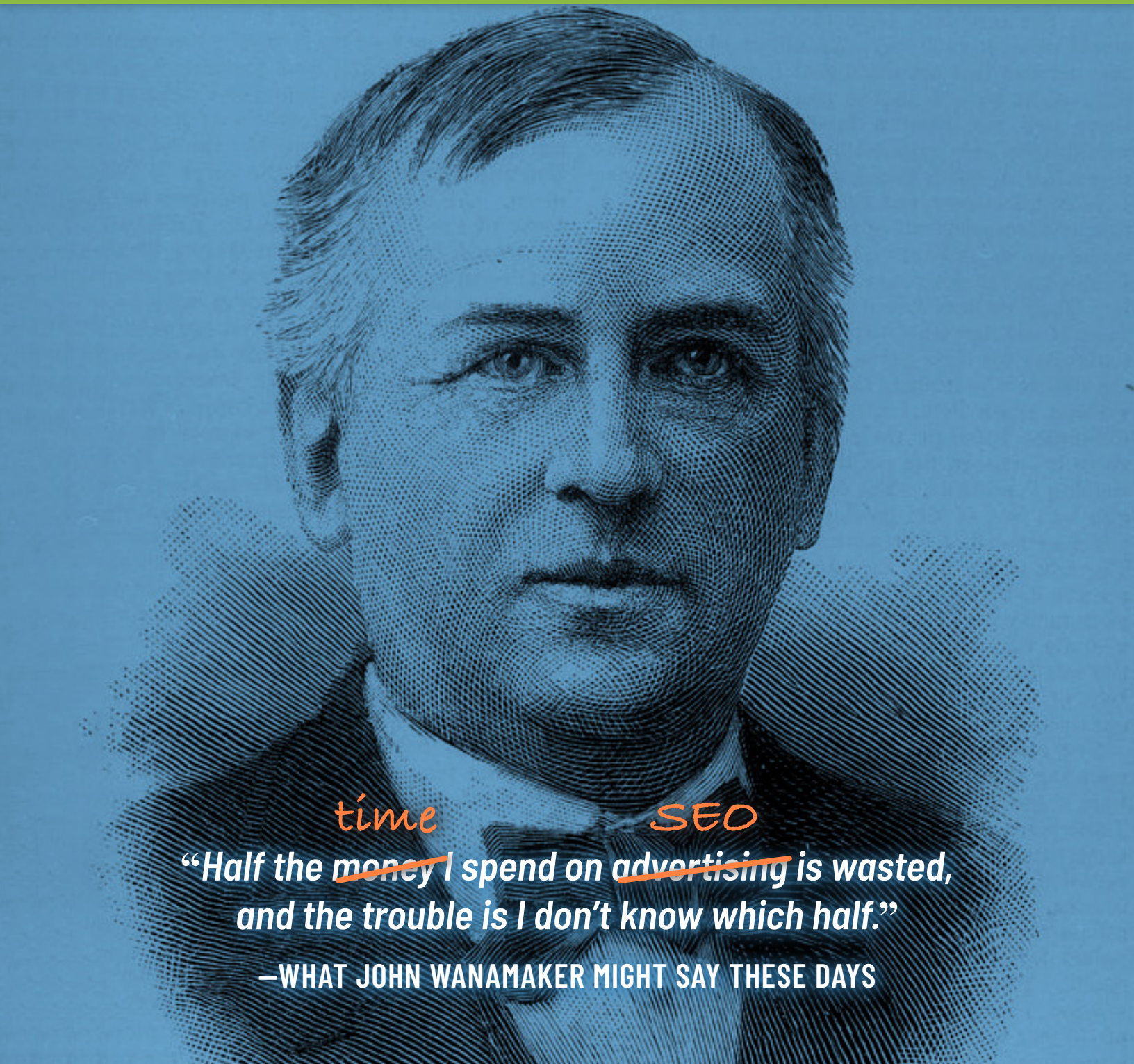
Since teams make multiple changes at a time, and search engines take up to 2 months to adjust rankings, it's hard to figure out which changes worked and which didn't.

What if you could understand what did matter for each keyword you're optimizing for?

CHAPTER 1

MODELING SEARCH ENGINES

HOW TO UNDERSTAND WHAT DRIVES THE SERP

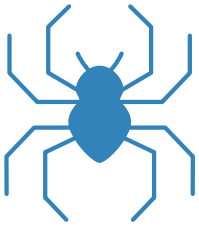


CREATING A SEARCH ENGINE MODEL: THE PLATFORM

The search engine companies aren't telling us how their systems determine rankings for any given search.

The only way we can better understand what's going on is to build a model of that search engine and how it weighs various factors for any keyword.

To do that, you first need to build a "generic" search engine that incorporates two main components:



A Crawler

Reads in the pages from a set of websites and collects all of the relevant information

A Back-End System

Analyzes the collected data through various algorithms and determines the rank of each page

CREATING A SEARCH ENGINE MODEL: THE ALGORITHMS

Once you've built the search engine framework, you'll need to develop a set of algorithms to analyze the crawler data.

You'll want to make the algorithms function as closely as possible to those used by the real-world search engines.

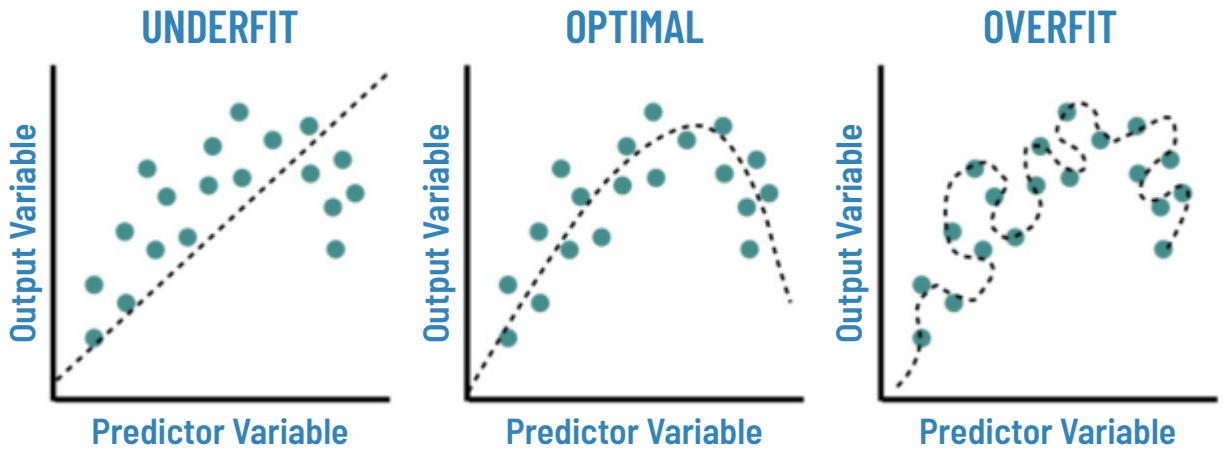
The Market Brew search engine looks at close to 200 different algorithms. These include, among others:

- Keyword-oriented semantic algorithms
- Topic cluster-oriented semantic algorithms
- Link flow and link quality algorithms
- Anti-spam penalty algorithms
- Expertise algorithms

We're always testing new algorithms to identify those that correlate most strongly with real-world SERP results.

CREATING A SEARCH ENGINE MODEL: MAKING IT RELIABLE

A reliable model is one that produces meaningful insights on a consistent basis. In order to achieve reliability, you need to avoid building models that are underfit or overfit.



Underfit models are too simplistic and don't deliver meaningful insights from the data used to train them. Overfit models work on the training data but fail when presented with real-world data.

Bounding your analysis will create an optimal predictive model.

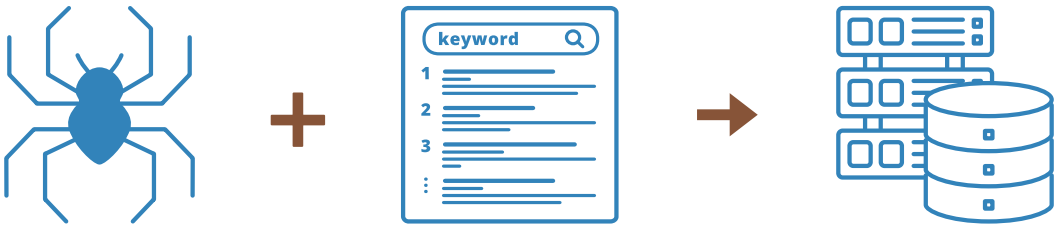
CREATING A SEARCH ENGINE MODEL: TRAINING DATA

To build a model, you need to train it.

Our approach has been to reverse the process used by the search engine that we're modeling.

Search engines evaluate page and site features against their algorithms and produce a SERP.

We flip this process. To train our search engine models, we train the model on the page and site features and the SERP in order to determine the weights of the algorithms.



HOW BIG SHOULD A SEARCH MODEL BE?

In order to train your model, you'll need to determine:

- What inputs to use
- How many variables to adjust
- A goal for your training (how you know when you're done)
- A method to figure out the settings of your variables

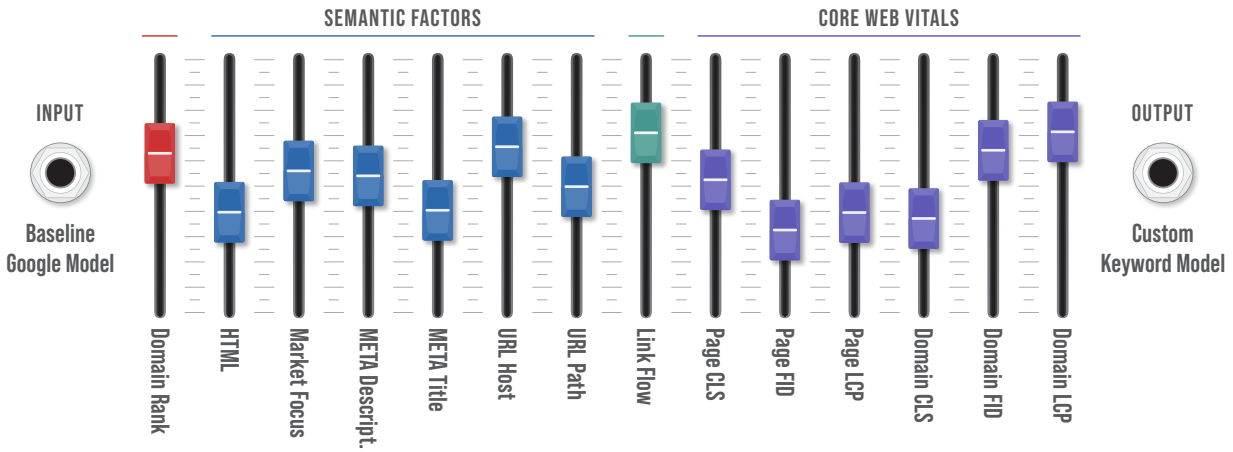
Trying to analyze too many sites on the real-world SERP will produce an overfit model. So will trying to adjust the weights of 200 different algorithms.

Our approach has been to select 3 to 8 sites from the SERP to model. And we have grouped our algorithms into a set of umbrella variables.

We know we're done when the SERP generated by our model matches the real-world SERP for the modeled sites.

DEFINING AND SOLVING THE ALGORITHMIC PILLARS

To build reliable and predictive (and not overfit) models our approach has been to create multiple "pillars" of related algorithms. The platform adjusts the weights of these pillars until our SERP matches the real world SERP (or is very close).



We start from a reference baseline model to make the computational load lighter.

We used to adjust these settings by hand. As search engines have gotten more complex, we now use a form of AI — particle swarm optimization — to solve the models.

PARTICLE SWARM OPTIMIZATION

Particle swarm optimization — the AI method used by Market Brew to determine model weights — was initially developed based on the flocking behavior of birds.

HOW CAN MODELS KEEP PACE WITH THE SEARCH ENGINES?

2021 was a big year for algorithm updates in our favorite search engines.

We're often asked how our modeling approach can keep up with the changes at the search engines.

We're able to do this because we've been building search engine models since 2006. As new algorithms are released, we're able to examine their incremental impact on rankings.

When the search engines release updates, we design new algorithms to capture these new inputs. We test them and optimize them to ensure they increase the fidelity of the models.

Once the new algorithms are validated, we add them to the modeling system, so that you can stay ahead of the ever-changing SEO landscape.

CHAPTER 2

FROM MODEL TO ACTION

"If it doesn't matter who wins or loses, then why keep score?"

—VINCE LOMBARDI

APPLYING THE MODEL TO YOUR SITE

The search engine model reveals the weights of the various on- and off-page factors that drive SERP rankings. The next step is scoring each page of each site on the various factors, adjusted by the model weights.

Market Brew evaluates each page through close to 200 different algorithms and aggregates these scores into an overall score for each umbrella factor. These, in turn, are aggregated into a raw query score, which correlates with the order of the pages on the real-world SERP.

QUERY SCORE BREAKDOWN	
SEMANTIC FACTORS	
Market Focus Basket	2.190784
+ HTML	115.13867
+ META Title	336.6925
+ META Description	5.3791556
+ URL Host	0
+ URL Path	6.8300004
= Total Semantic Score	466.2311
QUERY MULTIPLIERS	
x Cumulative Layout Shift Boost	1
x Domain 75% Cumulative Layout Shift Boost	1
x Domain 75% First Input Delay Boost	1
x Domain 75% Largest Contentful Paint Boost	0.85
x Domain Rank Boost	24.625105
x First Input Delay Boost	1
x Largest Contentful Paint Boost	1
x Link Flow Boost	6341.244
= Raw Query Score	**61,883,194**

GETTING A STATISTICAL VIEW OF THE SERP

By indexing each page's raw query score against the top ranking page, we gain a new, statistical view of the SERP.

1 **Dunlop Tyres**
Welcome to the Dunlop Tyres website - the home of one of the most iconic and recognisable tyre brands in the world. Request
https://www.dunloptyres.co.za/
Query Score: **100.00%** Market Focus: **brand news product**
Net Link Flow: **229.12** Domain Rank: **47.00** Link Flow Efficiency: **" F " (25.92%)**

2 **Tiger Wheel & Tyre**
Buy tyres, alloy wheels & car batteries from Tiger Wheel & Tyre South Africa online or locate your nearest fitment store. Price,
https://www.twt.co.za/
Query Score: **58.29%** Market Focus: **tiger wheel tyre**
Net Link Flow: **19.03** Domain Rank: **38.00** Link Flow Efficiency : **" D " (62.61%)**

3 **TYRES & MORE® South Africa | Buy Tyres, Shocks, Bra...**
TYRES & MORE®. Buy tyres, car batteries & alloy wheels online! We stock shocks, brakes & wiper blades. Locate your nearest
https://www.tyresandmore.com/
Query Score: **52.76%** Market Focus: **products tyres fresh**
Net Link Flow: **23.12** Domain Rank: **26.00** Link Flow Efficiency: **" F " (47.71%)**

4 **TyreSurance® Terms and Conditions | Hi-Q**
--NO DESCRIPTION PROVIDED--
https://hiq.co.za/tyresurance/terms-and-conditions/
Query Score: **50.91%** Market Focus: **tyresurance terms conditions**
Net Link Flow: **54.84** Domain Rank: **29.00** Link Flow Efficiency: **" D " (50.75%)**

You know your current SERP position. What this view shows you is how close or far away you are from the sites around you on the SERP.

Knowing whether you're close (like sites #3 and #4 above), or far away (like #1 and #2), shows you how hard it will be to move up a spot, and whether or not you're at risk from those below — crucial info for keyword strategy.

PRIORITIZING YOUR EFFORTS

One of the biggest challenges in SEO has been prioritization: which fixes to make in which order. Search engine modeling solves this challenge.

Working on fixing items which don't significantly impact your overall query score — or where you already outscore your competitors — will have negligible impact on the SERP.

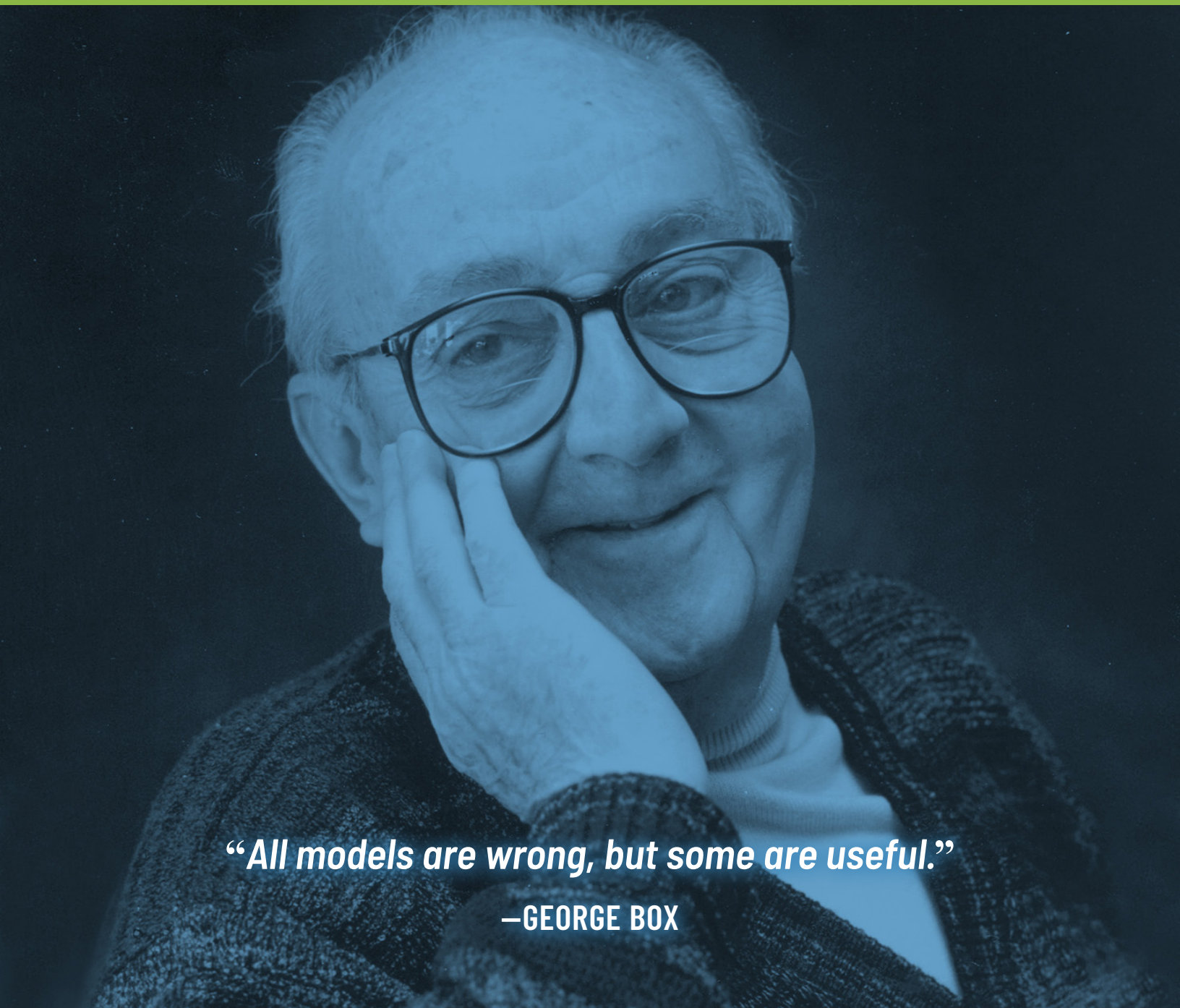
	FACTOR WEIGHT	
SITE SCORE	Factor **is not** weighted heavily in model	Factor **is** weighted heavily in model
Scores **lower** than one or more competitors	Low priority item	Most important for improving SERP position
Scores **higher** than all competitors	Do not bother	Low priority item; defensive only

Market Brew quantifies the scoring impact of each fix so you can sensibly prioritize your efforts based on the effort vs. the upside.

This means you can start making rank-influencing optimizations on day one, not day 100.

CHAPTER 3

THE ADVANTAGES OF SEARCH ENGINE MODELING FOR SEO



"All models are wrong, but some are useful."

—GEORGE BOX

WHY BUILD SEARCH ENGINE MODELS?

You might have been surprised by the quotation on the previous page. Why would we feature someone saying all models are wrong?

We can model search engines, but never replicate them. In that sense these models are "wrong."

But we don't need a replica. Our search engine models are highly useful, and provide the following advantages to your SEO program:

- Easier prioritization
- Less effort for better results
- Greater efficiency
- Faster time to results
- True testability and predictability
- Priceless risk mitigation
- Competitive awareness

WORK ONLY ON WHAT MATTERS

Your time is valuable. Invest it where it counts.

AI PRIORITIZATION + AI AUTOMATION = FASTER RESULTS + LESS EFFORT

Search engine models show us what determines the pages on the SERP for any keyword. And the same analysis that goes into model building automates critical analysis tasks for SEO teams, including:

- Measurement of link flow per page
- Identification of best internal links
- Identification of problematic links
- Identification of duplicate content
- Determination of key content clusters
- Semantic analyses of page content and metadata

When you work on only what matters, you get to improved results faster. And when the AI platform automates time-burning analysis, you'll spend less time getting to the top.

TEST AND PREDICT THE RESULTS OF YOUR SEO WORK

Predict the future. Avoid risk. Outflank your competition.

What if you could predict the impact your SEO efforts will have on the SERP? With search engine models you can.

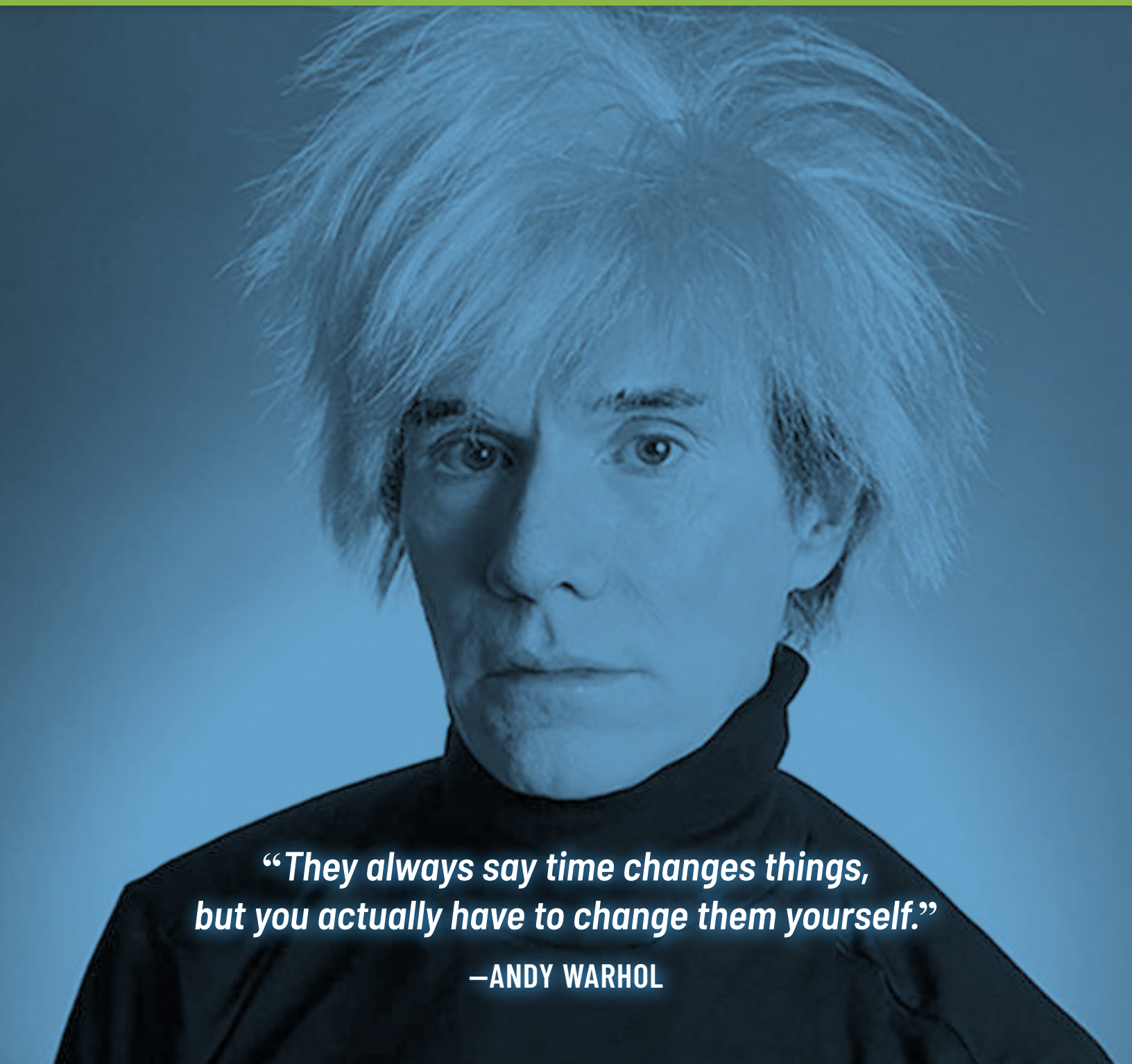
When you've made changes — whether as small as a title tag change, or as large as a full site redesign — you can test the new site, even before bringing it live, to get a highly accurate prediction of their impact.

You can validate your changes and track your progress. And you can mitigate the risk of the SERP drops that commonly occur with website migrations.

You'll also get a prediction of the impact any changes your competitors have made, so you can take countermeasures months before you normally would.

CONCLUSION

CHANGE THE WAY YOU SEO



THERE'S A BETTER, FASTER WAY TO WIN AT SEO

Market Brew's search engine models show you the way

Market Brew has been building search engine models for more than 15 years. Our patents have been cited by leading technology companies around the world.

No other SEO platform can offer the customized keyword models that Market Brew builds for you. Attempts to build an "average" model for a search engine, as some have tried, will generate inaccurate results at best.

After years of working quietly with some of the biggest online businesses, Brewco is making Market Brew accessible to all that are seeking a more rapid and reliable path to better SERP positions.

Intrigued? The best way to experience Market Brew is to see it in action.

REQUEST YOUR DEMO TODAY!

AI FOR SEO: SEE IT IN ACTION

In just 30 minutes Brewco can show you an entirely new way to optimize your sites that produces better SEO results in less time.

I WANT A DEMO!

ABOUT BREWCO

Brewco is putting AI to work to give SEO teams the knowledge and power to beat their competitors. The company's Market Brew platform is the only SEO platform with a search engine inside, that it configures using AI to build an accurate model search engines rank pages for any keyword. These models show teams what specific actions to take to improve their rankings most quickly and efficiently.

Brewco, a joint venture between the Market Brew developers and a seasoned executive team with deep experience in SEO and martech AI, is the exclusive global reseller of the Market Brew platform. The company is advised by some of the most knowledgeable experts in the world of SEO. For more information, visit www.brewco.ai.

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