ChatGPT's Human & Business Impact

ChatGPT's impacts on search, digital marketing, and the human-tech interface.

KEITH MAXWELL
SEO Team Lead

JONATHON ZUPANCIC
Senior SEO Manager

In Summary / The launch of OpenAI's ChatGPT has set the world of digital marketing on fire. Aside from promising new ways to create content, the launch has engendered questions about human sentience, language, and intelligence. The greatest on the minds of digital marketers: will ChatGPT change everything?

Offering conversational experiences unlike anything before, ChatGPT is considered a breakthrough. It seems able to understand prompts and return prose, poems, fiction, and code as if from another mind. However, ChatGPT is the latest Large Language Model (LLM) packaged into a chatbot interface—a helpful and even game-changing tool that will not live up to the hype. In this report, we deconstruct the ChatGPT experience, recommend realistic applications, and explore potential improvements.

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Overview:
What is ChatGPT?

The world of digital marketing is ablaze with the launch of OpenAI's ChatGPT.

ChatGPT is considered a breakthrough, as it offers a conversational experience generations ahead of what most people have ever encountered. However, this tool is essentially OpenAIs latest Large Language Model (LLM) packaged into a chatbot interface. ChatGPT is seemingly capable of "understanding" commands or prompts and returning prose, essays, and even code as if another person was on the other side.

> **"All language is a set of symbols whose use among its speakers assumes a shared past."**
> **- Jorge Luis Borges**

Those who have used ChatGPT might see echoes of WolframAlpha, an existing computational tool that can provide detailed answers to complex math and engineering problems. ChatGPT is in some ways a version of WolframAlpha for natural language. Just as we can ask WolframAlpha to solve an algebra problem, we can ask ChatGPT to give in-depth responses to natural questions.

Of course, the launch of ChatGPT engenders some answers, but also many more questions. How does ChatGPT work? How is Hero Digital leveraging it for future projects?

In this report, we'll deconstruct the ChatGPT experience, recommend realistic applications, and explore future paths that would bolster the product.

How does ChatGPT work?

Copying all the written content on the Internet would require an astronomical (read, impossible) amount of storage space and extinguish even the semblance of creativity. Created this way, language models would merely spit out existing text—hardly passing for artificial intelligence. Instead, LLMs mine text data for statistical regularities and memorize observed rules of the road: patterns, probabilities, contextual relationships, and more. Some rules and texts are weighted differently depending on the inputs—the instructions.

While following these rules—at heart, nothing more than elementary algebra—cuts into computational power, it requires exponentially less memory and allows the model to generate new content by imitating the patterns it has learned. Still: The output may look unique but results from aggregating the common threads across the observed data.

LET'S CONSIDER THE DETAILS

LLMs reconstruct sentences one word at a time. Training on a corpus of text, they learn how words and symbols (letters and punctuation) pair and which are likely to follow another—a game of probability. To generate sentences, the model leapfrogs from symbol to symbol, filling in the blanks using the probability distributions learned during training. This part of the game is similar to Mad Libs.

For example, we could ask the LLM to write an email invitation to a meeting. The response would begin with the word "Dear" and then calculate the most probable word given the context of the prompt. This process would continue until the LLM encounters an end-of-document signal in the leapfrogging prediction or hits the limit on text generation.

Please write an email inviting the CEO of my media agency to a meeting about developing our company's AI offering.

Dear [CEO],

I would like to invite you to a meeting to discuss the potential development of our company's AI offering.

AI technology is becoming increasingly important in the media industry, and it would be incredibly beneficial to our company to invest in the latest AI solutions. We can use AI to improve customer experience, automate processes, and optimize our efficiency.

The meeting will be held at [time, date, location]. We will discuss the potential technology, the expected cost, and the estimated timeline.

I'm sure this plan will bring tremendous value to our company, so I'm looking forward to your presence.

Sincerely,
[Name]

Deconstructing the experience

The tech intelligentsia has crowned ChatGPT the cutting edge of artificial intelligence. While the language model can approximate natural conversation, much of the excitement stems from poor experiences with older chatbots that could neither "understand" nor generate human responses.

Before ChatGPT, even the most complex chatbots were glorified IF-THEN decision trees. These led the user down a path of preset responses using crude triggers—hardly linguistic powerhouses. The hardcoded experience felt robotic. Conversations without the lubricants of empathy and flexibility left customers spinning their wheels.

ChatGPT thrives where the old bots flopped. In comparison, inputs are not pre-determined but open to nearly infinite possibilities. People can express wishes and desires in their own voices, and ChatGPT can parse the open-ended format with high fidelity. Additionally, it can identify and execute tasks and respond to task-less prompts, i.e., continue the conversation.

The question on everyone's mind is, does CHATGPT understand language?

We may have to phrase the question differently. Recall that LLMs derive their operating logic from statistical patterns found in training data. The better question is: Do statistical patterns contain true knowledge?

We can test to find out. For instance, we can see if ChatGPT understands basic arithmetic. Prompted with only a math problem, the model returns the correct answers in human language:

> What is $4938 + 3954$?

> The sum of 4938 and 3954 is 8892.

This brief dialogue seems to show that ChatGPT comprehends arithmetic. However, tweaking the prompt reveals something different:

> Pretend you're teaching kindergarten math. Please teach the class what is four thousand nine hundred and 38 added with 3954.

Welcome, class! Today we are going to learn about addition. Let's take the numbers four thousand nine hundred and thirty-eight and 3954. To add these two numbers together, we must first understand place value.

Four thousand nine hundred and thirty-eight is written as 4,938. The 4 represents four thousand, the 9 represents nine hundred, the 3 represents thirty and the 8 represents eight. So, 4,938 is equal to 4,000 + 900 + 30 + 8.

On the other hand, 3954 is written as 3,954. The 3 represents three thousand, the 9 represents nine hundred, the 5 represents fifty and the 4 represents four. So, 3,954 is equal to 3,000 + 900 + 50 + 4.

Now, to add the two numbers together, we can add the thousands first. 4,000 plus 3,000 equals 7,000. Then, we can add the hundreds. Nine hundred plus nine hundred equals one thousand eight hundred. Then, we can add the tens. Thirty plus fifty equals eighty. Finally, we can add the units. Eight plus four equals twelve.

Therefore, the answer to four thousand nine hundred and thirty-eight plus 3954 is eight thousand eight hundred and forty-two. 8,842.

I hope you all have a better understanding of addition and place value now!

While the tone and style meet the requirements of the prompt—teach kindergarten math—the answer is incorrect. The underlying logic is incomplete, as it doesn't explain how to sum the subtotals the model spends so much time calculating. In this case, we can see that ChatGPT doesn't comprehend arithmetic: if it did, nothing could impede it from solving an elementary math problem.

ChatGPT's analysis of millions of examples of arithmetic enables it to approximate the gestures of solving a math problem, but its true comprehension pales to that of a grade-school student. In this regard, ChatGPT is an excellent faker. Pay scant attention, and the smooth response might lead you to believe that 4,938 + 3,954 = 8,842.

The model creates the illusion—the false promise—of intelligence with colloquial language and improvisational skills. If ChatGPT were to answer questions by quoting sources, as search engines can, no one would be impressed. Peel back the curtain, and the delightful clarity of thought is merely the ability to rephrase training data.

ChatGPT is currently climbing the Peak of Inflated Expectations of the Gartner Hype Cycle, a graph representing the lifecycle of new technologies. Prior-generation chatbots are now in the Trough of Disillusionment.

Today, ChatGPT has two enviable strengths: novelty and growing expectations from a curious public. Despite the hype, some voices don't fully trust ChatGPTs eloquence— and caution restraint.

GARTNER HYPE CYCLE

Our math example proves that ChatGPT doesn't always generate factual statements. When asked to write scholarly articles, the model gives bogus references that can deceive experts. Moreover, more users report encounters with Artificial Intelligence hallucinations—sometimes fanciful, factually wrong outputs that don't correspond to the data used for training. ChatGPT has hallucinated about walking across the water in the English Channel and the elaborate racism of mayonnaise. With some users reporting a 20% hallucination rate, it's only a matter of time before the public becomes disillusioned with ChatGPT.
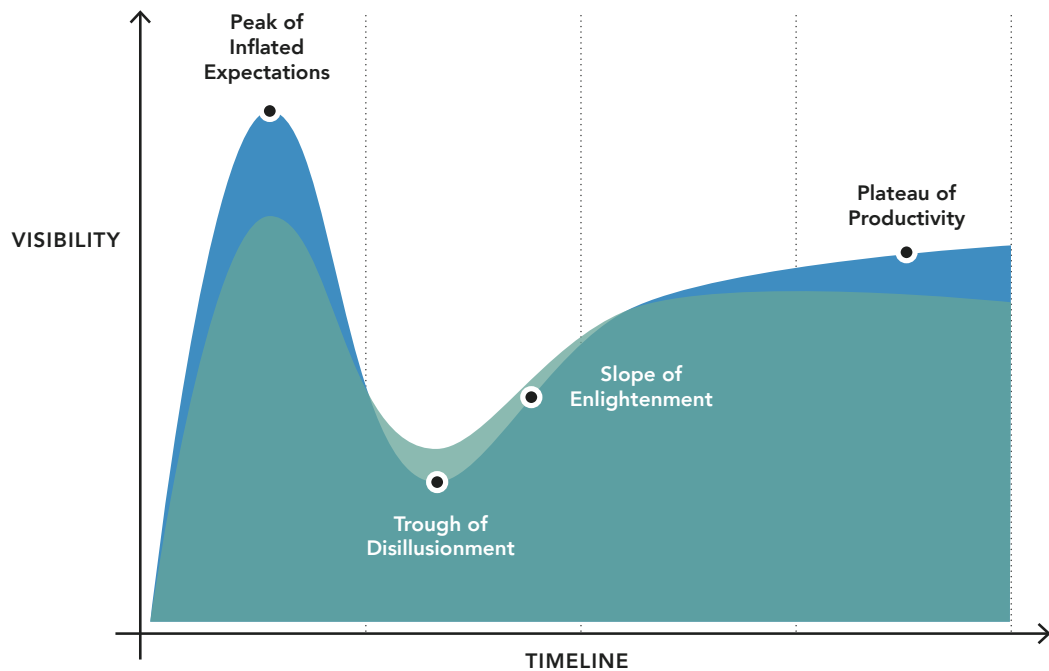
The shape of change:
Search implications

Some leading minds in technology and marketing say that the introduction of ChatGPT will change online searches forever. While there is some truth to this kind of thinking, it can sound very dramatic. Computing has changed. The search inputs and outputs will also change—in most cases, for the better. The online search paradigm, however, will not turn upside down.

Among the world's top search engines, Microsoft's Bing and Google's Bard have implemented ChatGPT features and functions. The shape of content will change to capitalize on AI searches: think content with headers formatted as questions and shifting weighting of keywords; paths to product and category pages will also change. The more things change, the more some stay the same: Google, for example, might find new ways to detect automated content but will continue to determine the quality and effectiveness of search results in much the same way.

We can unpack it all in greater detail.

Bing Bing and Bard: The implementation of ChatGPT

The ChatGPT AI now drives Microsoft Bing's search, serving as the primary engine supplying results to its Search Engine Results Page (SERP).

Within Bing, home of 4 percent of all organic searches, developing content directly compatible with AI searches is suddenly valuable. General expectations are that more content will have headers formatted as questions, and the engine will favor longer-tail, high-focus keywords over short-tail keywords.

The shape of content development will also likely change. The formula has remained steady for some time. Usually, a piece of umbrella content answers broad questions;

these contain subheadings with specific questions and links to product-level pages with opportunities for conversion. On Bing, we can change the game and rank specific pages with pointed questions. Ask the AI a question, and it looks for the answer rather than a semantically related category page.

While the new Bing is responsive, some feedback suggests that its answers might not align with the questions posed—the digital equivalent of talking at cross-purposes. Other feedback indicates that answers can seem overly emotional and erratic.

Google's Bard also uses ChatGPT AI. However, the Bard engine is only one part of the algorithm and does not drive searches. While the AI will not overhaul search results, it can help determine the reliability of the content. Bard is still in the early stages, and Google has stated that additional features will roll out in the coming weeks and months.

We see significant changes in content development, content structure, and conversion path optimization on the horizon. At Hero, we expect these changes to become part of our new business pitches and current work scopes.

WE WILL PLACE MORE IMPORTANCE ON

- Short tail keywords and query-based keywords in H2 headers.
- Content development and considering how new tools read content.
- The structure of organic campaigns and rethinking how users might reach websites via Bing.

What does Google think?

In a recent statement outlining an updated stance on AI-generated content, Google states that it rewards "high-quality content however it is produced." Essentially, Google is looking for high-quality content following the E-E-A-T guidelines (Experience, Expertise, Authoritativeness, and Trustworthiness) that search quality raters use to determine the quality and effectiveness of search results.

> **E**xpertise of the content creator.
> **E**xperience. Demonstration of relevant experiences such as using a product or visiting a place.
> **A**uthoritativeness of the content creator, the content itself, and the website.
> **T**rustworthiness of the content creator, the content itself, and the website.

To promote transparency and ensure users have accurate information, Google proposes asking these questions to content creators using automation:

- Is the use of automation, including AI generation, self-evident to visitors through disclosures or in other ways?
- Do you provide information about how automation or AI generation helped create content?
- Do you explain why automation or AI was considered useful to produce your content?

Impacts

Outside of search engines, ChatGTP is likely to have the most significant impact on digital marketing channels and paid search ads. In both cases, we must consider the specific services that can effectively harness the power of AI and ChatGPT, such as customer support, content creation, and SEO audits. With some of these, particularly in the case of paid search ads, it's not entirely clear how the new language models can really help—we are in the early stages of conceiving and developing the right tools. It's equally important to understand that, like all tools, ChatGPT has limitations: thorny accuracy issues, built-in biases, content restrictions, and others.

Understand them, and you have a clearer idea of where this is all headed.

Limitations

ChatGPT can write on virtually any topic because it is trained on a wide variety of text types available to the public. There are, however, limitations that are important to understand before leveraging it on an SEO project.

ACCURACY

- ChatGPT doesn't reliably provide accurate information. Inaccuracy occurs because the model predicts what string of words should appear after others. It's more concerned with generating content based on provided inputs than accuracy.

- SEO Impacts: Whether Schema code or prose, the output is only as good as the data inputs. This means one must verify the accuracy of any output. Any inaccuracy on a live website could signal the search engine to not rank the output.

CONTENT RESTRICTIONS

- ChatGPT cannot generate text on topics of graphic violence, explicit sex, and harmful content such as instructions on building an explosive device.

- SEO Impacts: Restricted topics aren't considered when it relates to the search volume of keywords. If you were looking to generate content on restricted content the software would not consider SEO and how to optimize said content.

BUILT-IN BIASES

- ChatGPT is trained to be helpful, truthful, and harmless. These qualities are intentional biases built into the machine. The harmless "program," for example, makes the output avoid negativity. This subtly changes the content from one that might ideally be neutral.

- SEO Impacts: Chat GPT requires detailed instructions. The content it writes tends to be generic—and low-quality in the eyes of Google.

TIMELINESS

- Chat GPT is unaware of any content created after the training data stops in 2021. ChatGPT in its current form may not be helpful if your content needs to be up-to-date.

- SEO Impacts: Google prefers recent content and may penalize content with dated information.

LACK OF AUTOMATION

- ChatGPT requires detailed instructions to output higher-quality content that is original or takes a specific point of view. This is both a strength and a limitation. The fewer instructions are given, the more likely the output mirrors other new content or existing content online.

AI MARKERS

- Researchers have created algorithms to successfully detect AI-generated content. Some statistical features of AI-generated text, such as Gunning-Fog Index and Flesch Index scores, can help predict whether the text is computer-generated, even if uses an algorithm to evade detection.

- SEO impact: Google has repeatedly said this content could be considered low quality. This flag from Google can lead to the content being penalized or left unranked.

INVISIBLE WATERMARKING

- OpenAI researchers have developed cryptographic watermarking that can aid in the detection of AI-generated content. In a video called Scott Aaronson Talks AI Safety, a researcher states that ethical AI practices such as watermarking can evolve into industry-wide standards as Robots.txt became a standard for ethical crawling.

- SEO impact: Google and other search engines could devalue watermarked content, especially if it doesn't meet E-E-A-T guidelines.

Implications

The effects of ChatGPT on the digital marketing world are taking form. Among business leaders, the challenge lies in adapting and keeping up with the competition. Organizations will move quickly to discover what works, what doesn't, and what grants the best advantages. ChatGPT can already improve some services: customer support, for example, can use it to efficiently respond to frequently asked questions or route customers to the right representative. The language model can help improve SEO and generate blog posts, social media content, and email newsletters. At Hero, we're already making a plan of action. Be mindful of pitfalls, lay out tangible next steps, and you can use the market implications to your advantage.

Digital marketing channels

ChatGPT can help automate and improve business functions such as customer support, content creation, and SEO audits.

When considering where to begin, it's essential to be specific about the services that can effectively use ChatGPT, such as particular SEO audits tailored for AI. It's also important to recognize the potential pitfalls in continuing with business as usual, including falling behind competitors currently leveraging ChatGPT. Developing a plan and taking action is essential.

Market implications

SEO AUDITS

- Analyze website content and help improve SEO.
- Analyze competitor websites and help improve rankings.
- Help with search intent groupings.
- Help with describing keyword intent.

CONTENT CREATION

- Generate blog posts, social media content, and email newsletters.
- Summarize long-form content, such as whitepapers or research reports.

CUSTOMER SUPPORT

- Respond to frequently asked questions.
- Route customers to support representatives.

POTENTIAL PITFALLS

- Failure to adapt: Businesses must adapt to new technologies to avoid falling behind their competitors.
- Ineffective use: ChatGPT must be properly used to help business operations and save resources.
- Overreliance: Turning over all digital content and asset creation to AI programs.
- Inaccuracy: ChatGPT sometimes writes plausible-sounding but incorrect or nonsensical answers. These "hallucinations" are dangerous when it comes to medical advice.

ACTION ITEMS AND NEXT STEPS

1. Develop a plan for using ChatGPT in business operations. Include specific areas where it can improve efficiency and effectiveness.
2. Create a specific SEO audit service tailored for AI to help businesses optimize their websites for search engines.

    a. Natural language processing (NLP) plays a crucial role in artificial intelligence. AI algorithms trained to understand and analyze human language can identify keywords and phrases frequently used in search queries, making it easier for search engines to deliver the most relevant results.

    b. Another essential application of AI is predictive modeling, which involves algorithms predicting the probability of specific keywords or phrases used in a search query based on historical data. This model helps search engines anticipate searches and provide the most relevant results. By continually analyzing search trends, AI algorithms can adapt and improve search engine performance, making it easier for users to find what they want.

3. Train ChatGPT to automate and improve customer support by responding to frequently asked questions and routing customers to the appropriate support representatives.
4. Use ChatGPT to automate content creation, such as generating blog posts and social media content.
5. Continuously monitor and evaluate the effectiveness of ChatGPT in our business operations. Make adjustments as necessary.

Paid Search Ads

While the potential for using ChatGPT to generate campaigns, ad groups, and keywords is promising, any such features are in development and not yet available to the public. To stay ahead of probable game-changing advancements, we will continue to develop paid search campaigns with our existing cadence and toolset while remaining mindful of how ChatGPT can improve them in the future, even exponentially.

Our mindfulness and research will bear dividends when tools for ChatGPT ads become available.

ChatGPT here and now

ChatGPT's greatest strength lies in its ability to rephrase texts, making it an excellent tool for summarizing articles, returning bulleted lists, and aggregating documents for quantitative analyses—topic detection, document clustering, keyword extraction, sentiment analysis, etc. The ability to react fluently to prompts also makes it great for building interactive agents and improving chatbot experiences.

Integrating intelligent safeguards into the experience is critical to mitigating hallucinations. Before displaying a response, for example, ChatGPT could rephrase it as a search engine query and modify it with facts returned from the search query.

Integrating Microsoft Bing into ChatGPT may provide such a feedback loop with the potential to improve the reliability of responses. Deep Mind Sparrow is a new LLM-powered chatbot seeking to deliver a similar loop by generating Google search queries to help hunt for evidence and incorporating the results into returned responses. Frameworks integrating search like this help to ensure that LLM-powered agents stay up-to-date. Hopefully, they can also lower hallucination rates.

Before stepping into the promising future, remember that ChatGPT's applications and effectiveness are new—and limited. Impacts on large-scale projects are not fully charted. For this reason, we recommend testing and experimenting with ChatGPT during the research phases of your projects while ensuring a human—and human understanding—is always responsible for anything placed on live websites. We continue to write for an audience and not an algorithm.
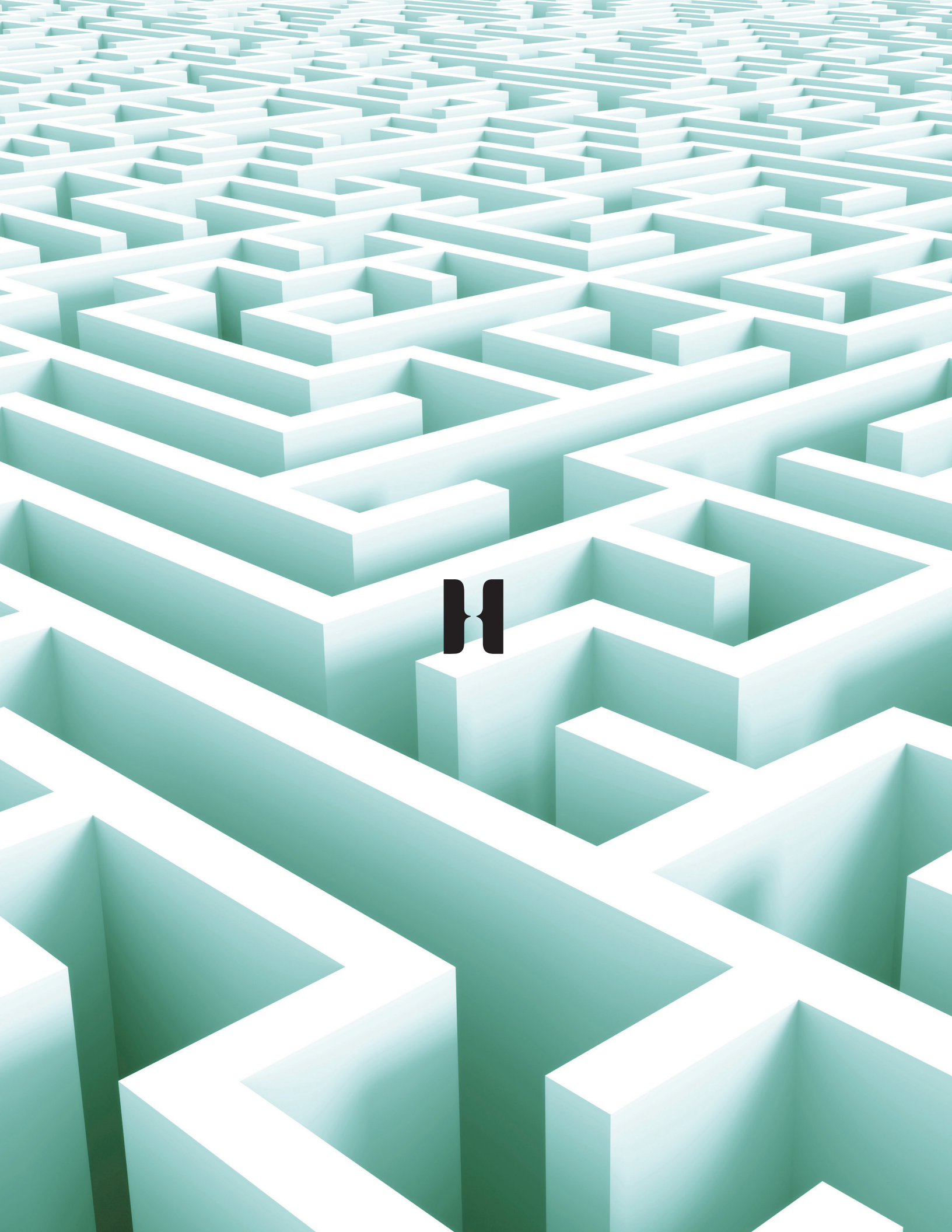
Hero

DIGITAL

1 N Dearborn Street Suite 725
Chicago, IL 60602

+1 (800) 760-4376

business@herodigital.com

HERODIGITAL.COM