

DIGITAL STRATEGY IN THE AGE OF ARTIFICIAL INTELLIGENCE

HOW TO TAKE ADVANTAGE OF AI IN ADVERTISING



XAXIS

THE OUTCOME
MEDIA COMPANY

EXECUTIVE SUMMARY:

Artificial intelligence (AI) has changed what we can achieve in media buying and planning, how to achieve it, and the metrics used to understand success.

This paper lays out what AI is, strategies to apply it to advertising, and the best methods for gaining expertise, evaluating partners, and working with them to leverage the opportunities afforded by AI to achieve the best possible business outcomes.

ARTIFICIAL INTELLIGENCE: IMAGINATION AND REALITY

In our imaginations, artificial intelligence often comes in blockbuster proportions: the computer's takeover in "2001, A Space Odyssey," battles for humanity's fate with multi-limbed robots in "The Matrix," the meaning of love in "Her."

In reality, AI is more pervasive, if less epic. AI algorithms help IBM's Deep Blue and Watson win chess and "Jeopardy!" tournaments. Voice-activated assistants give information, entertain, and control devices and homes. Self-driving cars will go on sale to car services next year, General Motors promises.¹

* AI is a computer's ability to choose and perform the right machine learning techniques at the right time, successfully, regularly, and with a minimum of effort.

AI, EXPLAINED

At its core, artificial intelligence processes specific inputs then delivers specific outputs. Asked the right questions and given the right instructions, its algorithms will provide solutions and suggest actions that produce desired results.

The problems addressed by AI are sometimes ones that people could solve without intervention, on a smaller scale. AI could, for example, match one facial image to another, predict next week's sales, or say whether someone's credit history shows they're likely to pay off a loan.

By breaking the problem into component parts, each relevant input can be weighted and a solution derived. Recognizing a face, for example, is a combination of evaluating the curve of a jaw, the angles of a nose, the color of someone's eyes, and so on, with some factors being more pertinent to the solution than others.

"AI is like a spreadsheet on steroids," says Sara Robertson, VP of Product Engineering for Xaxis, and an expert in artificial intelligence.

AI usually works in concert with machine learning so that algorithms get increasingly better at increasingly complex tasks like pattern recognition and predictive analysis. Machine learning takes the results produced from a round of instructions, compares them to the predicted outcomes, evaluates, then sends information back on how to adjust and optimize.

Further enhancement comes from processes such as "neural networks" — connected computing nodes working together to increase processing

power — and “deep learning,” which helps refine the understanding those neural networks can produce.

AI algorithms can work ‘supervised’ — with people indicating which results are closer to the desired outcomes — or ‘unsupervised,’ where they execute and adjust on their own, usually after a period of human instruction (see right).

AI today is used in nearly every industry in ways we access every day. It helps search engines find their targets; executes complex decisions for financial trading; powers programming recommendations for services like Netflix². It can also aid in content curation, enhance cyber security, improve warehouse inventory management, assist salespeople in generating better leads, and help fly airplanes.

AI FOR ADVERTISING

For advertising, AI is being used in a variety of ways to improve effectiveness. It has been used to find and define audiences, refine creative messaging (see graphic page 5), generate audience personas, and develop bidding strategies that optimize for clients’ stated goals.

“AI has many seemingly small applications that currently deliver digital marketing efficiencies for companies all over the world — from advanced consumer targeting and insights to highly personalized ad experiences,” says Adam Grow, SVP of Display at Rakuten Marketing.³

SUPERVISED VS. UNSUPERVISED, APPLIED TO ADVERTISING

SUPERVISED

Train the model on data where the correct answer is included.

E.g. What bid price is likely to win this impression?

UNSUPERVISED

Train the model on data with no answers and see what it comes up with.

E. g. What do people who click my ad have in common?

VS

At present, most advertisers aren’t taking advantage of the full capabilities of AI. Instead, they deploy it to achieve simple goals. But it can do much more than elevate discrete performance metrics. When the many applications of AI are used in concert, they can add up to a significant transformation in digital advertising strategy that drives remarkably improved results.

To accomplish that, new campaigns must be conceived and built around the unique opportunities and strategies afforded by AI. This requires advertisers to shift their perspective; to refine and expand their idea of marketing success and approach new campaigns in cooperation with the way AI works.

The most powerful — and largely unfulfilled — potential of AI lies in the bigger picture, in its ability to optimize towards business outcomes rather than simple metrics.

One car maker, for example, sought to increase sales. To do so, it evaluated the influence of individual performance metrics within the context of that larger goal. It weighted factors such as website interactions, brochure downloads, and showroom visits to determine messages that ultimately lead to that outcome, and used artificial intelligence with machine learning to continually optimize toward better scores — thereby making its marketing evermore effective.⁴

AI IN PROGRAMMATIC

Programmatic advertising is exceptionally well-suited for AI. A world with billions of impressions auctioned in fractions of a second and always-changing circumstances creates a scale of multi-factorial problems that can only be solved effectively with the help of AI.

“To achieve an objective becomes very hard without the help of an AI platform that can do a lot of the heavy lifting,” says Xaxis CEO Nicolas Bidon. “The amount of data, the combinations that can result, is growing exponentially to the point that a human will have trouble determining the right bidding strategy to buy media for a client.”

DESIGNING MEDIA STRATEGIES FOR AN AI WORLD

It's a given advertisers want to reach the right person at the right time with the right message, and of course, at the right price.

DIGITAL STRATEGY IS EVOLVING

But, in the digital era, a lot of advertising media strategies have focused on targeting audience segments that seem to contain propitious prospects. Messages are tailored to them via medium, platform, and screen, and, when possible, factor in behaviors and locale.

Advertisers run their messages, gather results, then try to optimize against marketing metrics such as completed view rates, time of exposure, clickthrough rates (CTR,) and effective cost per thousand impressions (eCPM).

Yet, every one of those measurements is an imperfect proxy for what's actually desired: sales. By optimizing toward CTR among a target audience, for example, a media buyer may be getting a lot of the “right” people onto a web page, but that's not necessarily a measure of sales efficiency.

By contrast, artificial intelligence algorithms — correctly instructed — can help optimize marketing plans toward better sales metrics.

Audience segments based on demographic, behavioral, and geographic characteristics can be highly effective, but they will always miss a large portion of potential purchase intenders who deviate from the standard definitions.

Digital media strategies that use AI to identify and locate prospects without bias or assumptions will find customers, not just segments.

Take, for example, a high-end home appliances maker that may be willing to spend \$100 to sell one machine. Articulated in that way — rather than in terms of metrics like demographics or CPM — data

* Determining the bidding strategy to achieve specific outcomes becomes very hard without the help of an AI platform.



scientists and engineers can focus on optimizing for the ratio of the cost to market the appliance against the number of appliances that marketing sells.

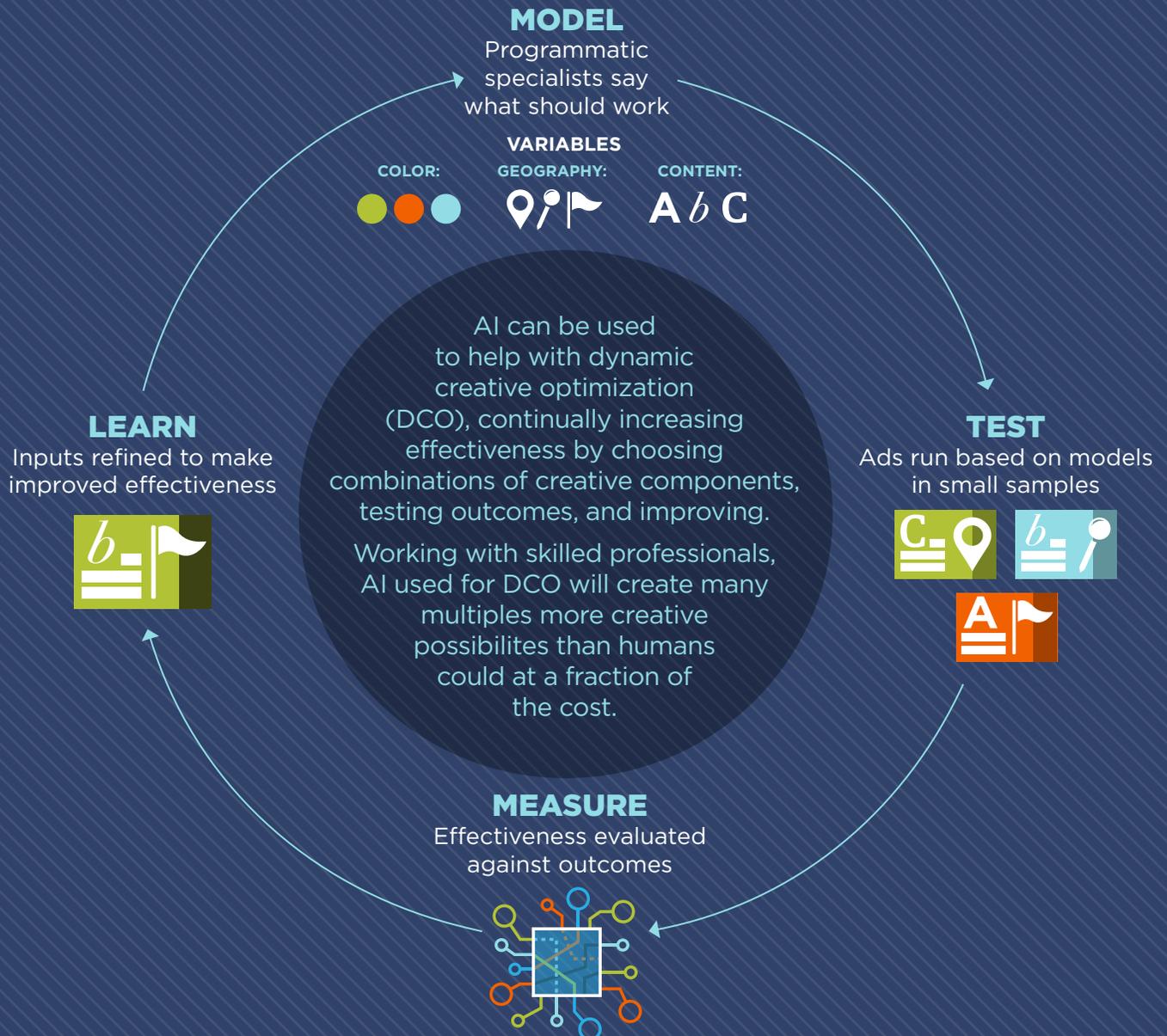
With machine learning, AI may even make some counter-intuitive leaps, such as finding that a higher volume of less expensive clickthroughs leads to better business results than more targeted CTRs.

Plus, a machine-powered bidding strategy can extract maximum value by conducting large

numbers of real-time tests in very granular increments well beyond the capabilities of any human. Where a programmatic specialist might test bids in five broad increments from \$1.00 to \$2.00, AI can run 10,000 tests in that range in increments of fractions of a penny to hone in on precisely the most cost-effective bid.

In this process, a feedback loop is created in which the outcomes continually improve in lightning-fast increments that add up to big results.

AI, APPLIED TO DYNAMIC CREATIVE OPTIMIZATION



EXECUTING AN AI-POWERED STRATEGY

One of the biggest challenges in employing AI is defining the desired outcomes in ways the machines can understand and properly act upon.

An advertising bidding strategy that applies AI likely starts with programmatic specialists who have a thorough understanding of the current advertising landscape and can:

> **Design.**

Build a unique plan based on the requested parameters and desired business outcomes, including forecasting the likelihood of delivery.

> **Implement.**

Run complex modeling on large data sets to generate performance predictions and customize bidding strategies in DSPs (demand-side platforms).

> **Optimize.**

Improve the execution of the AI to make it more effective and to achieve better outcomes.

> **Analyze.**

Review the results earned from the AI in reports that are uniquely formatted to provide insights into the effectiveness of the algorithms and configurations.

THE KEY TO SUCCESS: TALENT

Those strategies require not only access to premium marketing opportunities but also the skills to handle premium technologies. In addition to marketing expertise, programmatic specialists will need data science and engineering acumen to articulate the steps in ways that lead AI to the best results.

Scientists can define the fundamentals of the project, making sure it's sound. They will:

- > Devise a proof of concept.
- > Test algorithms against those proofs.
- > Work with the data.
- > Decide on inputs and outputs.

Then the scientists will choose an algorithm they believe will work for the case, make it better, run experiments, and make recommendations for engineers to execute.

Engineers will then:

- > Put the algorithms into production and use.
- > Gather and further refine the data.
- > Make the algorithms repeatable.
- > Get them to scale.
- > Work with servers to make sure they can handle the demands put on them.
- > Figure out how to handle edge cases that may not have been predicted.
- > Make recommendations for further improvements, and for the scientists to test.

While many of the best algorithms used in AI are freely available via a community of

leading scientists, it takes great expertise to assemble, customize, and deploy them intelligently.

"You can't just download an algorithm and expect it to work out of the box," Robertson says. "It needs to be customized to your business, which is why data scientists and engineers who specialize in AI are so in-demand."

PARTNERING UP

Assuming such talent is not available in-house, the task for marketers becomes how to evaluate potential AI partners.

Understanding the imperatives described above, they might ask if a potential partner can:

- > Give thousands of examples of machine learning models and algorithms they've run.
- > Indicate what revenue their AI installations have produced.
- > Show when their AI outperformed manually traded campaigns. (See case studies.)
- > Handle multiple competing requirements across multiple geographies and languages.

Perhaps most crucially, the potential partner must give examples of ways they've customized their algorithms to not only work with clients' KPIs but also their proprietary, first-party data. After all, that data helps fuel the AI and give brands a competitive edge.

"It may be easy to replicate software, but it is impossible to replicate someone's proprietary data," Robertson notes. "It's the customization that gives algorithms their real power and makes them most awesome."

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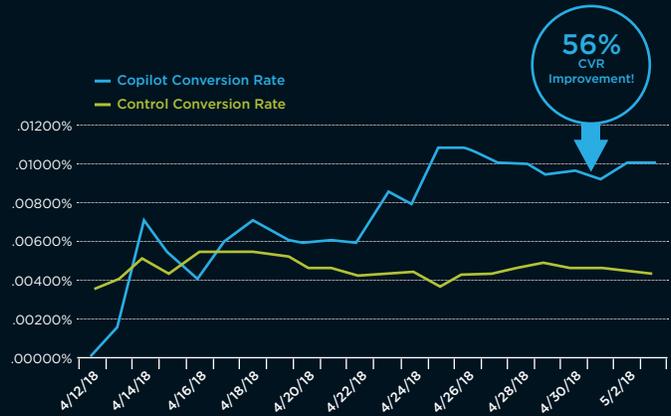
—Sara Robertson
VP of Product Engineering,
Xaxis

CASE STUDIES

CASE STUDY 1: TELCO BETTER OUTCOMES USING AI FOR RETARGETING

A telecommunications company historically had a complex setup, with 2,000+ campaigns being manipulated in a programmatic advertising platform. Optimizing towards performance required time-consuming manual changes that risked inadvertent errors.

Xaxis' Copilot AI engine was used to simplify setup and optimization. Xaxis implemented its "Segment Recency" strategy to optimize retargeting spend towards pockets of strong performance. Performance was then evaluated in an A/B test. The solution significantly increased performance while achieving viewability goals.



The conversion rate more than doubled compared to the control. The client said they were "really happy with performance and willing to move more budget to Xaxis."

CASE STUDY 2: LUXURY RETAILER ALGORITHMIC OPTIMIZATION YIELDS LUXURY BRAND CONVERSIONS

A luxury retailer had a unique return on ad spend (ROAS) goal for their digital campaigns. A customized regression algorithm was used to analyze log-level data and predict better-performing impressions. Copilot, Xaxis' AI engine, used its "Predictor Strategy" to look for features with the strongest correlation to performance to drive smarter optimization. Here's how it performed:

OUTCOMES:
Two flights drove stronger performance, leading to increased conversion rate and higher clickthrough rate.



ELEVATING PEOPLE TO DO BETTER WORK

In evaluating artificial intelligence and machine learning for digital media planning and buying, the questions to ask are: does it enhance the work that people can perform, and does it exceed what programmatic specialists could do alone in similar timeframes and cost?

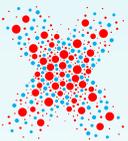
AI can elevate people to the kinds of creative, analytical work that humans do best.

Informed by the knowledge and intuitions of skilled experts, AI will optimize toward not just simple metrics but instead toward a multiplicity of factors that help achieve strategic outcomes in increasingly effective fashion.

It helps drive toward the results brands want, accounting for sales that can be attributed in newly sophisticated and enhanced ways.

AI lets brand advertisers tap into masses of available data combined with their own proprietary data and understanding of their customers to achieve outcomes of the highest order.

Xaxis is The Outcome Media Company. We combine unique brand-safe media access, unrivalled programmatic expertise, and 360-degree data with proprietary artificial intelligence to help global brands achieve the outcomes they value from their digital media investments. Xaxis offers managed programmatic services in 47 markets, including North America, Europe, Asia Pacific, Latin America, the Middle East, and Africa.



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For more information, visit www.xaxis.com.

[CLICK HERE](#) to learn how outcome-driven strategies are working with AI to transform how advertising is bought, optimized, and evaluated.

[CLICK HERE](#) to read about Copilot, a new artificial intelligence tool for programmatic advertising built by Xaxis that uses customizable AI strategies to help traders achieve vastly improved outcomes.

[1] <https://www.fastcompany.com/40516928/qm-is-leading-the-self-driving-car-race-while-tesla-lags-far-behind-report-says>

[2] <http://www.wired.co.uk/article/how-do-netflixs-algorithms-work-machine-learning-helps-to-predict-what-viewers-will-like>

[3] <https://martechtoday.com/value-applying-artificial-intelligence-display-advertising-199306>

[4] As referred to in our previous paper, "From CPMs to Measurable Outcomes: Rethinking How Advertising is Bought, Optimized, and Evaluated"