SUMMARY

A collaborative research study by the University of Wisconsin E-Business Consortium and SmartLens Analytics, Inc. with retailer Furniture & ApplianceMart/Ashley HomeStore demonstrated that artificial intelligence (AI)-based customized bidding in paid search marketing increased store visits by 41%, while spending 18% less compared to Google's Smart Bidding Maximize Conversions strategy.

INTRODUCTION

The University of Wisconsin E-Business Consortium (**UWEBC**) is a collaborative learning community of more than 80 world-class companies from a broad range of industries.

Furniture & ApplianceMart / Ashley HomeStore, a UWEBC member, operates 15 retail stores throughout Wisconsin under two brands: Ashley HomeStore (**Ashley**) and Furniture & ApplianceMart.

SmartLens Analytics, Inc. (**SmartLens**) helps companies optimize paid search marketing campaigns on marketing platforms, including Google, Bing and Amazon, by using advanced machine learning methodologies and data science.

The UWEBC and SmartLens conducted a study of how AI-based keyword bidding can improve Ashley's paid search engine marketing (SEM) campaign performance.

STUDY DESIGN

Ashley's SEM campaigns involving nonbrand search terms were divided into two groups, control and test, which were balanced by location and furniture type. Before any testing commenced, the control and test groups used the same Google Smart Bidding strategy for a four-week Prestudy Period (February 11 – March 10, 2019). During this time frame, we examined the performance of both groups to assess if there was a significant pre-existing difference (bias) in performance between the test and control groups that would need to be addressed. We concluded both groups were performing similar to each other in terms of cost and conversion.

Immediately following the Prestudy Period, we initiated a six-week Study Period (March 11 – April 21, 2019). During this period, the control group's bidding continued using Google's Smart Bidding strategy, which was managed by an outside digital marketing agency. Meanwhile, SmartLens managed the test group's bidding using an AI-based customized model that was developed specifically for Ashley. Changes to other aspects of SEM, including landing page and ad copy, were kept to a minimum. Any necessary changes were applied to both the control and test groups.

The first two weeks of the six-week Study Period focused on learning. During this Learning Period, the SmartLens bidding model learned from the data and made initial model adjustments. The remaining four weeks of the Study Period were the Test Measuring Period. During this time, the test group's performance was measured and compared against the control group's performance.

WEEK	1	2	3	4	5	6	7	8	9	10

PRESTUDY PERIOD   LEARNING PERIOD   TEST MEASURING PERIOD

STUDY PERIOD
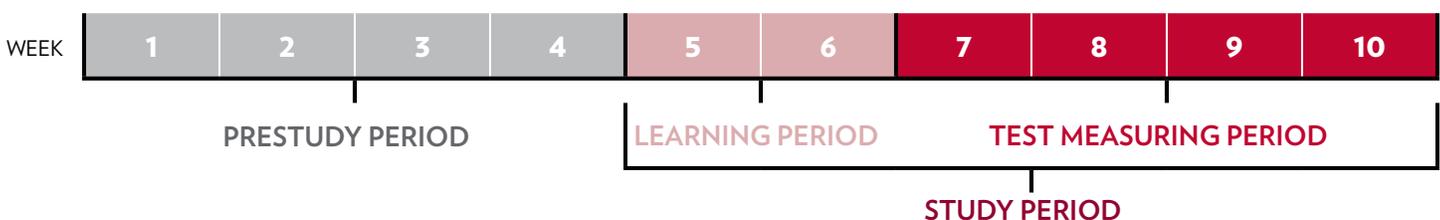
SMARTLENS BIDDING METHODOLOGY

SmartLens develops predictive models using advanced machine learning methods, such as Bayesian estimation, ensemble modeling and text mining. Using customer's data that are available within Google Ads and similar advertising platforms, SmartLens' methodology for developing customized bidding models requires no additional data or client-side engineering effort.

The methodology is particularly effective for bidding on long-tail keywords. Although each of the long-tail keywords has a very small volume, aggregately, they represent a large fraction of the word volume of SEM campaigns.

RESULTS

Key performance metrics (including acquisition cost and conversion to store visits) were collected for both the control and test groups.

Over the course of the two-week Learning Period, the control and test groups were even in cost and store visits (conversion).

During the subsequent four-week Test Measuring Period, the test group using SmartLens' AI-based bidding strategy achieved a significant performance improvement in comparison to the control group that used Google's Smart Bidding strategy. Specifically, **the test group spent 18% less than the control group, while generating 41% more store visits.**

The following charts summarize the study's results:
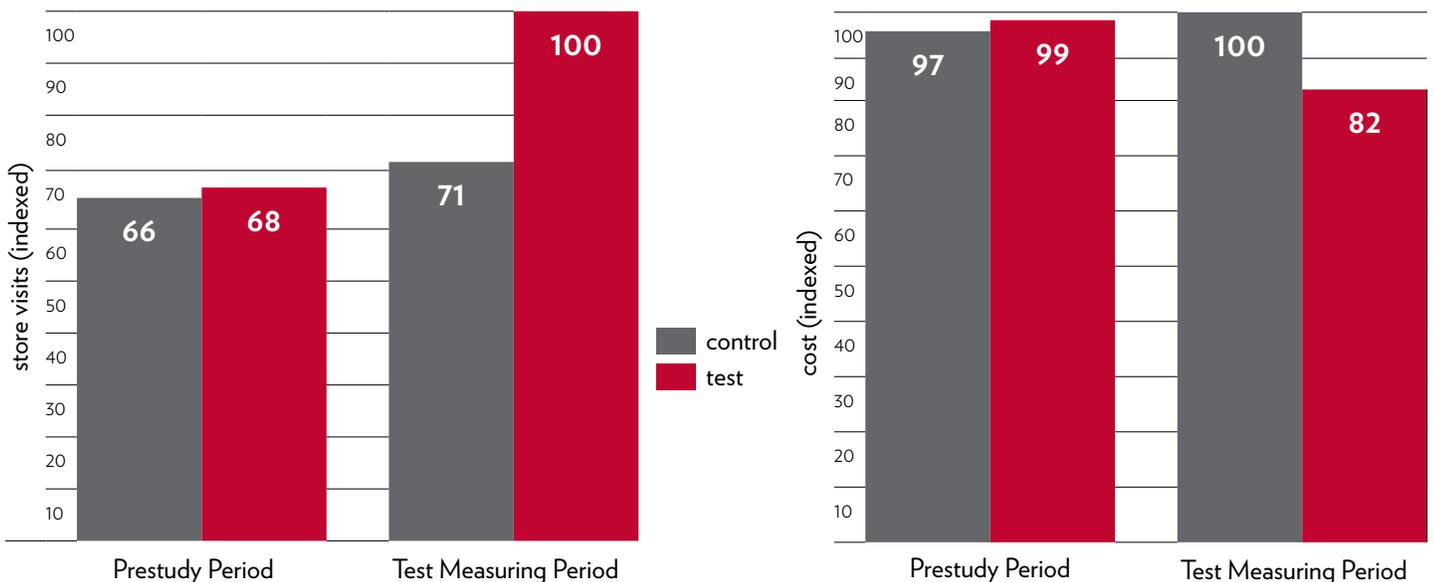
CONCLUSION

This study demonstrated that SmartLens' AI-based key word bidding methodology can be superior to other automated bid strategies, specifically Google's Smart Bidding strategy. Due to the growing importance of paid search marketing and the complexities of optimizing the bidding, especially for long-tail keywords, AI-based customized bidding offers the potential to deliver significant business impact through performance improvement of marketing campaigns.

If you are interested in collaborating with the UWEBC on a research project, please contact Dr. Raj Veeramani at raj.veeramani@uwebc.wisc.edu. ■