

Measuring the effectiveness of advertising campaigns









Automated fusion of data to analyse and optimise advertising spend

To decide whether your advertising spend is delivering the desired results, you need to know if it's working. Sounds simple, yet measuring advertising effectiveness is a conundrum that has taxed generations of advertisers.

SmartAd is a data analytics system whose cutting edge technology has been designed to solve the age old riddle of determining the success and effectiveness of advertising campaigns.



Up to now marketing research companies go about measuring effectiveness by analysing the direct impact of different advertisement campaigns separately. However, in reality consumers are often influenced by advertisements across numerous media, for example, radio, TV, print and on-line in its many formats.

A customer who first saw an advertisement on TV and later heard about the product on radio might be more receptive to an advert for the same product or service on a social network at which point they might visit the company website and make a purchase.

It is expected that the global spend on advertising will increase over the







coming years, with reports predicting this spend will reach nearly \$720bn annually by 2019.

With SmartAd the user can input different data sources (various media channels used for the particular advertising campaign), and the data are automatically fused onto a common timeframe. The system detects possible lags between these data sources and the selected target channel (e.g. sales, webpage visits, click-through rates, etc.), and constructs a model to estimate the effect of the 'influencer' channels on the selected target channel, thus providing a more accurate drill down of the advertising journey taken by the customer to the point of purchase.



Above: SmartAd - measuring effectiveness of advertising

Applications

SmartAd will appeal to advertising agencies keen to see which media channels are working most effectively in support of their campaigns.

Another potential application is market research companies. These companies are entrusted with measuring advertising effectiveness and this technology could significantly boost their armoury.

Large-scale purchasers of advertising will value SmartAd as a means to determine return on investment.

However, SmartAd technology is applicable to all data analysis problems where various data inputs influence one target. The underlying model can also be exchanged, so SmartAd is not restricted to a linear model. Because of this the inventors anticipate a wide field of applications will develop over time.

Opportunity

The outlook for global advertising spending through to the end of 2019 remains optimistic, with advertisers gaining confidence as stability returns to most major economies. Worldwide ad spending is predicted to reach \$719.20 billion by the end of 2019. (Source: eMarketer, September 2015).

As a pioneering solution SmartAd offers numerous opportunities over the current methodologies employed to measure advertising effectiveness. The results generated by SmartAd are more nuanced than any other advertising measurement methodology or technology currently available.

SmartAd gives users a far clearer oversight of a campaign's effectiveness and therefore its value for money, a factor that will resonate with client companies (purchasers of advertising).

Advantages

SmartAd's main advantage is automation of the data fusion and model generation process. Previously, data fusion was a manual process, with data scientists building the fusion models in a language such as Matlab, R or Python or data fusion was not done at all, but projections were based on the lowest common time resolution.

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Another key advantage is SmartAd's straightforward 7-step workflow.

- Data Input must include some metadata.
- Target Selection looks for correlations between 'influencer' channels (e.g. advertisement data) and a 'target' channel (e.g. click through rates/sales rates).
- Data Fusion a common timeframe is selected by the user for data analysis.
- Data Clustering uses Principal Component Analysis (PCA) to reduce correlated channels to a manageable number.
- Time Lag Estimation Granger causality is used for the correlation analysis to determine the influencer channels.
- Model Generation gives the impact of certain influencer channels on the target channel relative to other influencer channels.
- Visualisation a connection graph illustrates the strength of the connections between the channels and the metadata of the channels.

Stage of Development

A SmartAd prototype demonstrator is available. It comprises a python based backend together with a HTML/CSS/Javascript frontend.

DIT is currently seeking expressions of interest from potential licensees interested in using the technology or business partners interested in deploying it as a commercial system. The technology may be licensed through the CeADAR Technology Centre.

Technology Readiness Level (TRL)





