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# Television Attribution

Overview, Key Topics and a Comparison of Leading Providers




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# Attribution

at·tri·bu·tion

/,atrə'byooSH(ə)n/ 

*noun*

1. the science of allocating credit to exposures for driving sales or other outcomes.
2. the most scintillating, complicated and elusive topic in the television industry.

# Two Fundamentally Different ROI Measurements

## Attribution

Household or device-level measure of ROI and tool for tactical optimization of media elements

- Requires STB or SmartTV data matched to households or devices

## Marketing Mix Models

Market-level measure of ROI and tool for strategic allocation of marketing and media elements

- Requires media GRPs or impressions at the DMA level (or lower)

# TV Attribution Study Participants

Fifteen leading television attribution providers who incorporate data from Smart TVs and set-top boxes were analyzed and compared.



# What You'll See In This Guide

- ❑ Comparison of methods and services
- ❑ Glossary

## Provider insights

- Use Cases
- KPIs
- TV Data Sources
- Non-TV media included
- Marketing & Non-Marketing Factors
- Data integration method
- Degree of Granularity
- Timing
- Attribution Method
- Advertising Modeling Factors
- Incrementality/baseline
- Quality Control
- Privacy Management
- Model Validation

## TV Providers At-a-Glance

	IX ERO IVE	alphonso	ANALYTIC PARTNERS	Q Sensory	D+M Data Plus Math	IRI	iSpot.tv	MARKETING EVOLUTION	neustar	Nielsen Catalina Scout24	nielsen	Placed	SAMBA TV	TRUOPTIK	tvSquared
Dependent (Outcome) Variable: Online Sales	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Dependent (Outcome) Variable: Offline Sales	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Dependent (Outcome) Variable: Online Traffic	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Dependent (Outcome) Variable: Offline Traffic	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Dependent (Outcome) Variable: Brand Metrics (e.g., Awareness, Consideration, Purchase Intent)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Dependent (Outcome) Variable: TV Tune-In	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Primary Application: Measure the ROI of television and its components	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Primary Application: Provide tactical optimizations (creative or placement)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Forms of TV Analyzed: Linear TV	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Forms of TV Analyzed: VOD	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Forms of TV Analyzed: Addressable TV	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Forms of TV Analyzed: Short digital video viewed on a computer or mobile device	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Forms of TV Analyzed: Short digital video viewed on a connected TV	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Forms of TV Analyzed: Premium TV/Video viewed on a computer or mobile device	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Forms of TV Analyzed: Premium TV/Video viewed on a connected TV	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Preferred TV Data Sources: Audio/Video Content Recognition on Mobile Devices	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Preferred TV Data Sources: Set Top Box	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Preferred TV Data Sources: Audio/Video Content Recognition on Smart TV	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Preferred TV Data Sources: Nielsen Panel Data	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Preferred TV Data Sources: Ad Occurrences	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Scaling Data Through Data Integration or lookalike models	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Other Marketing Factors Included?	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Other Non-Marketing Factors Included (e.g., weather)?	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Other Media Included?	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Diminishing Returns Included In Analysis?	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Adstock Included In Analysis?	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Halo Included In Analysis?	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Baseline Included In Analysis?	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Interactions Included In Analysis?	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



## Data Plus Math

Data+Math leverages ACR and STB data in its ensemble machine-learning attribution MTA method.

### DEPENDENT (OUTCOME) VARIABLES:

#### ONLINE SALES

**Yes.** Source data from a brand's website, directly from brands or from brands or through partnerships with third-party providers.

#### OFFLINE SALES

**Yes.** We typically source data directly from brands/advertisers.

#### ONLINE TRAFFIC

**Yes.** Online and mobile traffic sourced via pixel.

#### OFFLINE TRAFFIC

**Yes.** Work with third-party mobile location partners and advertisers' first party store visit data.

#### BRAND METRICS (E.G., AWARENESS, CONSIDERATION, PURCHASE INTENT)

**Yes.** Through partnership with leading research firm.

#### TV TUNE-IN

**Yes.** Data sourced from partnership with Vizio Inscape and a number of MVPDs.

### PRIMARY APPLICATION:

#### MEASURE THE ROI OF TELEVISION AND ITS COMPONENTS

**Yes.** Ultimately, how findings are applied is up to our clients and their specific objectives. We have a dashboard that provides timely access to attribution model results. Our models enables clients to understand the contribution of different components of the media campaign and explore these results at a granular level.

#### PROVIDE TACTICAL OPTIMIZATIONS (CREATIVE OR PLACEMENT)

**Yes.** Can also supply a programmatic feed of results to advertiser and platforms.

### FORMS OF TV ANALYZED:

#### LINEAR TV

**Yes.** We measure Linear TV exposure via Vizio Smart TVs (approximately 8M households), as well as via 4 of the top 8 MVPDs in US for approximately 38M households.

#### VOD

**Yes.** VOD and other time-shifted viewing.

#### ADDRESSABLE TV

**Yes.**

#### SHORT DIGITAL VIDEO VIEWED ON A COMPUTER OR MOBILE DEVICE

**Yes.** VAST compliant tracking tags appended to ads served across most major digital video ad-serving platforms.

#### SHORT DIGITAL VIDEO VIEWED ON A CONNECTED TV

**Yes.** Using VAST compliant tracking tags appended to ads plus Smart TV ACR.

#### PREMIUM TV/VIDEO VIEWED ON A COMPUTER OR MOBILE DEVICE

**Yes.** VAST compliant tracking tags appended to ads served across most Premium TV/Video ad-serving platforms. In use across most major networks' full episode players.

#### PREMIUM TV/VIDEO VIEWED ON A CONNECTED TV

**Yes.** Using VAST compliant tracking tags appended to ads plus Smart TV ACR.

### TV DATA GRANULARITY:



#### MEDIA UNITS

Second-by-second program and ad viewing.



#### TIME

Precise program airtime or ad exposure time.



#### GEOGRAPHY

Zipcode, market and region.

### PREFERRED TV DATA SOURCES:



#### AUDIO/VIDEO CONTENT RECOGNITION ON MOBILE DEVICES

**No.**



#### SET TOP BOX

**Yes.** Via 4 of the top 8 MVPDs by subscriber count, approximately 38M HHs.



#### AUDIO/VIDEO CONTENT RECOGNITION ON SMART TV

**Yes.** Via Vizio Inscape, approximately 10M HHs.



#### NIELSEN PANEL DATA

**No.**



#### AD OCCURRENCES

**Yes.** Ad occurrence data from Smart TV ACR and clients and programmer clients.



#### SCALING DATA THROUGH DATA INTEGRATION OR LOOKALIKE MODELS

**Yes.** Integrates Smart TV and set top box data for a more complete picture of total home TV viewing.

### ADDITIONAL DATA IN THE MODEL

#### OTHER MARKETING FACTORS INCLUDED?

**Yes.** Price and promotion, sourced from third parties and matched at the HH level, competitive media spend; HH characteristics such as age, income, seasonality.

#### OTHER NON-MARKETING FACTORS INCLUDED (E.G., WEATHER)?

**Yes.**

#### OTHER MEDIA INCLUDED?

**Yes.** Digital via proprietary pixel tags; other media (e.g., OOH, Email, etc.) from third parties can be integrated.

#### METHOD FOR MATCHING OTHER DEPENDENT (OUTCOME) OR MEDIA DATA

TV and digital media matched with our signal graph at the household or device level via multiple different match points and methods, including IP address and cookie/device/identity matching partners like

### STATISTICAL, OR RULES-BASED, APPROACHES USED TO ESTIMATE TV LIFT ON KPIS

Ensemble of machine-learning models are trained on both aggregated and user-level data. Where appropriate, model parameters are calibrated to norms.

### CONTROL GROUP SELECTION, IF APPROPRIATE

Where no explicit test or control group has been utilized like with addressable TV, Data+Math's platform uses synthetic control groups based on viewing and other user level attributes.

### TYPICAL MODEL CYCLE AND REFRESH TIMING

As frequently as nightly, depending on data latency.

### QUALITY CONTROL PROCESSES

Data is tested at the aggregate level by comparison to known measures such as content/spot ratings for consistency and accuracy. Quality of other platform inputs, such as synthetic controls, is measured by computing statistical metrics to check for bias.

### MANAGING CONSUMER PRIVACY

Data+Math does not collect any PII. Our policies and contracts do not allow for the re-identification of any collected data. Consumers can opt-out of our TVPixel™ tracking.

### MODEL VALIDATION

We use both hold-out samples and cross-validation to validate our models. We compare model performance across markets and data sets to ensure consistency and to discover and avoid systematic errors inherent to individual data sets.

### DIMINISHING RETURNS INCLUDED IN ANALYSIS?

**Yes.**

### ADSTOCK INCLUDED IN ANALYSIS?

**Yes.**

### HALO INCLUDED IN ANALYSIS?

**Yes.**

### BASELINE INCLUDED IN ANALYSIS?

**Yes.** The model synthetically controls for the propensity of consumers to be observed in exposed group and extracts the baseline conversion in the absence of a campaign.

### INTERACTIONS INCLUDED IN ANALYSIS?

**Yes.** Interaction between channels.



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# Industry's Current Concerns

- ☐ *Fully measuring television*
- ☐ *Bridging the knowledge gap*
- ☐ *Disentangling data issues*
- ☐ *Implementing solutions*
- ☐ *Accumulating learning*





## 7 Key Areas In TV Attribution

***1. Does the overall model approach fit your needs?***

Tactical Optimization or ROI?

***2. What type of television is analyzed in the model?***

Linear, DVR, VOD, Addressable, Premium TV and  
Short Video on Smart TVs or Mobile/Computer

***3. Can the modeler measure the outcome variable and business objectives you want?***

Sales, Traffic, Brand Attitudes or TV Tune-In



## 7 Key Areas In TV Attribution

### *4. Does the TV data meet your needs?*

Accuracy, representativity, granularity... How much is measured, modeled or matched? How are data matched?

### *5. Are all the media and marketing elements in the model?*

Other media, other marketing and non-marketing drivers

### *6. What method determines attribution?*

Statistical models, algorithmic or experimental design?

### *7. Understand QC, privacy and validation processes*



## Industry's Current Concerns

- Fundamentals of how advertising and TV work must be addressed in the model
- Creative matters!
- Don't forget the brand... and television's upper-funnel benefits