How to Use the Hybrid Measurement Methods

Andrew Cheng
Business Development
CSM Media Research

Jianbing Xiao
Deputy Managing Director
CSM Media Research

Zod Fang
Head of Data Center & Knowledge
GroupM China
Over 44.9% of Households in China’s 52 Key/A/B Cities Owned Connected TVs and Devices with Estimated 320 Million in Market

44.9% of HHs Owned Connected TVs & Devices

<table>
<thead>
<tr>
<th>Connected TVs &amp; Devices</th>
<th>2016</th>
<th>2017</th>
<th>2018 Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td>44.9%</td>
<td>85.2%</td>
<td>90.3%</td>
<td>95.0%</td>
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<td>43.9%</td>
<td>0.62</td>
<td>0.74</td>
<td>0.79</td>
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<td>56.5%</td>
<td>1.34</td>
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<td>62.5%</td>
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<td>-6.0%</td>
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<tr>
<td>+10.9%</td>
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</tbody>
</table>

Data Source: CSM’s Annual Establishment Survey, Internet Audiovisual Program Service Association of China, Gouzheng Data
Over 70% of Co-viewing Occurred on Connected TVs & Devices Households with On-demand Viewing Dominating a Significant Percentage of Viewing Time

How Audiences Watch Content on Connected TV & Devices?

- My family ordered, I watched with them
- I ordered, my family watched with me
- I watched on my own

Data Source: CTR’s 35-City Online Survey and Focus Groups, Gouzhen Data, CSM’s 52-City Panel (2018 Q3)
Because Advertisers in China Adopted Media Planning & Evaluation from Online and Mobile, Their Inherent Issues Have Appeared on Connected TV and Devices

**Brand Safety**: Ads and illegal or contrary to the value of the brands’ content are broadcast together. Needs to ensure media environment and content surrounding the brand ads are safe.

**Invalid Traffic**: Monitored data presented a large amount of false devices and abnormal traffic, stagnated healthy development of advertisements in connected TVs and devices.

**Viewability**: Viewability measured what ads are actually seen by audiences. Element blocking, ad material not issued, playback failure & other factors greatly reduces value of ads.

**Target Audience**: Accurate target audience demographics can help advertisers to deliver high-value ads, get the best delivery results and ROIs.
GroupM China, in full support of CSM Media Research’s pilot work to create better methodologies to combat issues of invalid traffic and target audiences, to effectively assess and evaluate advertising environment in connected TV and devices.
Method 1: Traditional TAM Panels Supplemented with Census-Level Server Log Data From On-demand Content Providers to Provide True Target Audience Demographic Information

Key features of TV+OTT Single-Source Audience Measurement System

1. Restore true co-viewing behaviors on TVs with individual-based ratings results: Different from ratings of connected TVs and devices that are still device-level, data from on-demand video platforms can by directly compared with live broadcasting channels.

2. With real panelists’ demographics that reflects true target audiences’ information: Unlike industry common usage of profiling, ratings are collected from panelists with real demographic information, which makes the evaluation more precise and intuitive.

3. Use common metrics to evaluate together with live broadcasting channels: Behavior data from the same panel with metrics and calculation standards consistent with live broadcasting channels.

4. Present overall viewing from all devices connected to a TV screen: Rely on CSM’s panels, which guarantees sample penetration meets actual market coverage, and truly reflects audiences’ preference for on-demand content viewing on connected TVs and devices.

5. Strict census-level data verification process to ensure data quality: By using same panelists’ recorded behavior logs, on-demand platforms’ log data is strictly verified to match the exact timestamps to avoid issues may caused by technical or network problems of the servers.

6. Obtain permissions from panelists to ensure information security: Data usage in production and process are clearly informed to the panel households, and comply with relevant national and industry regulations data security standards.
Method 1: Traditional TAM Panels Supplemented with Census-Level Server Log Data From On-demand Content Providers to Provide True Target Audience Demographic Information

1. By cooperating with content providers, who able to provide MD5 hash MAC addresses, enable us to identify our connected TVs and devices households to create a single-source household panels.

2. Using our viewing logs from these same households where on-demand viewing were marked as “unknown”, to match with the timestamps on the server logs from content providers, we are able to identify “unknown”, as different content providers.

3. As panels have demographic information for each viewer within each households, these same information is applied to viewing of on-demand content, weighted and projected to their universe.

4. Allowing us to provide a comprehensive measurement system that can evaluate traditional live channels with on-demand video platforms while providing clients with more comprehensive, accurate, individual-based ratings data.
Method 1: Traditional TAM Panels Supplemented with Census-Level Server Log Data From On-demand Content Providers to Provide True Target Audience Demographic Information

1. In households with enabled connected TVs and devices, on-demand platform (iQiYi’s Galaxy Internet TV) ranked #1 among all live channels including national CCTV channels and provincial satellite channels.

2. Audiences were extremely loyal to this platform; per audience spent about 126 minutes per day, compared with top broadcasting channels, which per audience spent about 40 minutes per day.

3. The platform’s audiences had a more balance gender distribution between male and females due to its general content varieties. They are also younger with higher educational background than their live channel counterparts.

Data Source: CSM, 52-city panel, 2018 Q3
Method 2: Use Multiple Verification Methods to Authenticate Connected TVs and Devices
Enable Viable Devices with Virtual IDs to be Use in Ad Serving and Evaluation

**Multiple Verification Methods**

1. **Viewing Behavior Data**
   - Content and ad viewing information must be in a complete viewing logs from connected TVs and devices

2. **Internet Traffic Data**
   - Connected TVs and devices must connect to Internet to enable viewing

3. **Device License IDs**
   - Each real connected TVs and devices must obtain device license IDs from governing authorities

4. **Sampling**
   - Cross-check with same connected TVs and devices in TAM panels to authenticate behaviors

**Virtual ID (UID) Assignment**

- Device’s MAC Address
  - A1:B1:C1:D1

- Content Providers’ Device ID
  - V3OP97YL021

- Device License IDs
  - 0571338920109

- UID Servers for ID Mapping
  - UID
    - U_Pj5e2mzl30h
Method 2: Use Multiple Verification Methods to Authenticate Connected TVs and Devices
Enable Viable Devices with Virtual IDs to be Use in Ad Serving and Evaluation

1. A pilot test were done on 1.89 million connected TVs, we authenticated 379,294 of devices that passed the verifications. Therefore, these devices were given virtual IDs. They are viable devices which can be circulated in market.

2. The rest didn’t passed one or more verifications. They are grey-listed devices which needs to be re-verify in a month. If these devices failed more than three times, they will be blacklisted and can’t be use in circulation.

Data Source: 2018/10/01-10/07, 10 cities, selected connected TVs
Method 2: Use Multiple Verification Methods to Authenticate Connected TVs and Devices
Enable Viable Devices with Virtual IDs to be Use in Ad Serving and Evaluation

Integration of Sample & Census Data

- **Device-level Data (Daily):**
  - Average Times TV Boot: 3.08 Times
  - Average Viewing Time Per Device: 358 Minutes

- **On-demand Platform A (Daily):**
  - Average Times Used: 8.6 Times
  - Average Viewing Time Per Device: 207 Minutes

- **On-demand Platform B (Daily):**
  - Average Times Used: 9.1 Times
  - Average Viewing Time Per Device: 244 Minutes

- **Average Viewing % Per Viewer**
  - Live: 28%
  - On-demand (A+B): 30%
  - Others: 41%

Data Source: 2018/10/01-10/07, 10 cities, connected TVs with UIDs

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**Chart Details:**

![Chart showing integration of sample and census data.](chart.png)

- **Platform A**
- **Platform B**

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Data Source: 2018/10/01-10/07, 10 cities, connected TVs with UIDs
Method 2: Use Multiple Verification Methods to Authenticate Connected TVs and Devices
Enable Viable Devices with Virtual IDs to be Use in Ad Serving and Evaluation

Integration of Other Datasets: UID-based devices in households can be integrated with cross-domains and cross-platforms attributes for more precise marketing.

UID can be upgraded to a household-level virtual IDs, which can integrate with PC/Mobile, e-commerce attributes to achieve precision marketing across individuals in households.

Household-level

PC-based DMPs
Mobile-based DMPs
E-commerce-based DMPs
Other DMPs
Business Results and Impacts

a) By utilizing true viewing behaviors and other verification data from real TVs and devices, thereby creating more realistic protection against invalid traffics. Because virtual ID (UID) desensitized confidential information, it is truly a confidential, legal and compliant way to use and circulate connected TVs and devices within ad industry.

b) By using TAM panels to supplement with content providers’ census-level on-demand server log data, combined with accurate virtual ID (UID) authentication, form a comprehensive measurement system that includes traditional live channels and on-demand platforms with true target audience information for targeting individuals rather than devices.
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3. If you haven’t reviewed a session you attended earlier, please go back to review it.

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