TV Audience Measurement

7th Inter IIT Tech Meet, IIT Bombay

Preamble

Television remains the most prominent mode of entertainment in India. In terms of TV viewers, India is the second largest market in the world at 836 Million (just after China). In terms of TV penetration, India stands at 66% penetration. Hundred million homes in India are yet to have a television. There is a huge headroom for growth over the next few years. Even the existing television universe will travel through a transformational journey over the next few years. 79% of Indian homes still has a CRT Television (the conventional box TV-set). The LCD/LED/Plasma/Smart TV homes form only 21% of the pie. 98% of India owns only one TV at home, 'multiple TV' presence is only 2%. So, the Television industry in India is set to witness huge growth and transformation, and its growth will also result in the growth of various allied industries and will be instrumental in ushering a new India.

Of the various channels for Media spends, like Television, Print, Digital etc, Television enjoys the lion's share of the pie. Television Advertising Expenditure (Adex) in India is estimated to be a 3.7 Billion USD and which will see significant growth. With such huge amount of spends being transacted in the ecosystem, measurement of the Television viewership data, in a transparent and conflict-neutral manner was the need of the hour.

About BARC India

To address this need, Broadcast Audience Research Council of India (BARC India), an industry body was set up to design, commission, supervise and own an accurate, reliable and timely television audience measurement system for India. Guided by the recommendations of the TRAI (Telecom Regulatory Authority of India) and MIB (Ministry of Information and Broadcasting) notifications of January 2014, BARC India brought together the three key stakeholders in television industry - broadcasters, advertiser and media agencies, via their apex bodies, namely IBF, ISA and AAAI respectively. More details are available on BARC India website www.barcindia.co.in

TV Measurement today

BARC India is the singular currency of Television Measurement in India and it has been releasing data since April 2015. To ensure accountable and accurate measurement of data, BARC India has a state-of-the-art infrastructure that runs behind the scenes 24X7, upholding the robustness of the whole system. The infrastructure pivots itself on two key pegs – Statistics and Technology.

Statistics:

At the heart of the TV Audience Measurement, lies a highly sophisticated Statistical process, perfected by the Measurement Science professionals at BARC India. BARC India's statistical design and methodologies have been certified by Indian Statistical Institute, Kolkata. The source of the TV Measurement Ratings is a household panel of 33,000 homes spread across the length and breadth of India (BARC India is in the process of expanding the panel size further and it will touch a 44,000 size by March 2019). Within a home, all members become a part of the BARC India panel. Therefore, at an 'individual' level, BARC India panel has a size of 1 lakh 40 thousand (average family size in India being 4.25 | Source: Broadcast India 2018, BARC India)

The decision of how the 33,000 panel would be spread across the country, is determined by Population proportionate sampling, such that the panel represents a 'statistical' microcosm of India. BARC Panel homes are present in the metros, small towns as well as villages in India. This panel is then up-weighted to represent the All-India TV universe. The information on "weighting" is sourced from Broadcast India study, which an annual TV Universe Estimation study, conducted amongst 3 lakh homes, commissioned by BARC India.

This highly robust and representative panel construct and accurate 'weighing' system, forms the main reason why BARC India viewership data truly captures what the Indian population watches on TV.

Technology:

The most essential step of Audience Measurement is about capturing accurate information about 4 questions:
1. What is getting watched?
2. When it is getting watched?
3. For how long it is getting watched?
4. Who is watching?

The technology solution which forms the backbone to the Measurement system today is "Audio Watermarking Technology". All TV channels which want to avail of BARC India's Measurement data, have an "watermark" encoder positioned at their broadcasting stations. This encoder inserts a digital cryptographic code into audio signal of the TV programs. This watermark contains two data – first, an identifier part or Watermark ID, tied to the channel which broadcasts the program. Second, a timestamp which is incremented continuously, and which is accurately synchronized to the digital clock used in broadcasting head-end.

The watermark is unique for every channel. Even if a broadcaster network has a bouquet of channels, each channel has a unique watermark. Every HD channel has a unique watermark distinct from its SD version. The broadcasted beam is recognized and read by the "BAR-O-meters" installed in the homes of the BARC India sample. A BAR-O-meter is a set-box like device, which is placed in 33,000 homes across India, which forms the Television Measurement panel in India. This device has been indigenously designed by BARC India at 1/6th the cost of other globally available meters, which are used in other countries. When a panel home watches TV, the broadcasted content is detected by this BAR-O-meter through the unique "watermark" and the time and length of viewing duration is detected by the timestamp.This provides answers to the first 3 questions stated above. The answer to the 4th question comes from the phenomenon of "button-pushing" by each member of the panel home. Every home is provided with a remote (which looks like a TV remote). Every member in the panel household is assigned a unique button on the remote. At the back-end, BARC India maintains a record of the demographic details i.e. gender, age & socio-economic classification (or NCCS). Whenever a member is watching, he/she registers himself/herself by pressing designated button on the remote. Based on the "button pushing" phenomenon, BARC India is able to detect who is panel household has watched a particular content.

Alongside the capture of all these information from the panel homes, the industry requires the content information in greater granularity so that the industry can plan its media spends better. It is not enough to just capture "which channel" is watched but also provide granular information about the precise playout i.e. which programme, which advertisement/promotional content. BARC India uses Fingerprinting technology to identify what is precisely being watched in the "watermarked" content.Fingerprinting Technology is used for coding all content (Programs/Promos/advertisements) that is watermarked. BARC India's team of data loggers code every frame of the content with metadata manually for the first time as a descriptor. Thereafter same content when telecast and recognized by BAR-O-meter, gets auto-picked and coded through an automated process thus identifying and assigning the pre-set coded metadata. Thus, BARC India data provides the information about every minute of content that

plays out on a "watermarked" TV channel i.e. what is the name of the programme and which brand's, which advertisement is getting aired. Presently around 570 channels are "watermarked" on the BARC India platform and this accounts for 99% of India's television viewership.

The viewership data of all 570 channels is released to the industry every Thursday. This data is a treasure trove of many rich insights and the industry needs to analyse this data to make their business plans and strategize their media spends. To empower the industry to perform advanced analytics on the viewership data, BARC India has provided every user of our data with a Data Analysis software called BARC India Media Workstation (BMW). This tool allows the user to create custom-layouts, create custom-target groups and helps perform complex analysis of minute by minute viewership of every channel. A rough estimate of the total combinations of data views a user can perform on each minute's viewership, per week, per channel is around 44,000!

So, it is evident that BARC India has provided end-to-end technological solution to the industry to encompass all its needs –

- Content recognition through Watermarking technology
- Content playout records and Advertising playout records through Fingerprinting technology (at a minute to minute level)
- Delivery and Analytics platform BARC India Media Workstation (BMW)

The technology solution adopted by BARC India certainly stood ahead of its time and it has won several awards at prestigious forums, including the 'Make in India' Award from Government of India. The decision to keep the cost very low (1/6th that of other global players) was a game-changer, because it enabled scalability. While the current technology, meets the industry requirements, BARC India feels that it's time to plan for the next level in Technology. Standing committed to our motto of always looking forward and staying ahead of the curve, BARC India believes it's time to crack the next breakthrough in television measurement.

Foreseeing few problems with the current Technology solution:

1. **Large and visible hardware (BAR-O-meter):** Installation of standalone hardware device (BAR-O-meter & remote) in a home, no matter how small the size of the hardware is, makes it very inconvenient for the home. Since the BAR-O-meter is of the size of a set-top box, the panelists' neighbours become aware and this exposes the panel home to infiltration and tampering by elements with vested interests.

2. **Presence of a remote:** This is a manual involvement. It is highly possible that a viewer forgets to press the remote button every time he/she watches television, and this leaves room for erroneous measurement of data. This is the only manual step in the whole schema TV Audience Measurement and this makes it the weakest link too. The world over, Measurement

specialists have tried to solve for this, but till date, the 'remote' remains the only way to register demographics of the viewer.

3. **Dynamism of the TV Distribution world:** In recent times Broadcasters have been using the TV distribution to boost viewership ratings of their channels. For example, they place their channel as a landing page such that whenever a viewer turns on the TV, the channel gets inadvertent viewing time. Similarly, some channels run 2 feeds of the same channel on different channel numbers (phenomenon of 'dual LCN)'. Another common tactic used to tamper with viewership is to tinker with the audio of the channel because operators are aware that measurement happens basis "audio" watermark.

4. **High dependency on Broadcasters:** today whether a channel's viewership gets captured or not is dependent on whether that channel agrees to encode its content with the BARC India watermark. If a network of channels disagrees to get its channels watermarked or pulls out of the BARC system, it would result in partial/incomplete representation of the viewing landscape of India.

Problem Statement

BARC India wants to invite ideas that will help us arrive at a Technology solution that will change the future of Television Audience Measurement and will become a global first. This is your chance to introduce new-age transformational technology ideas into the field of Media – the sky's the limit! The new breakthrough idea will put India on the global centerstage.BARC India is looking for radical new ideas that will become the solution for tomorrow. We are not looking at incremental changes of 'doing new things', instead we are inviting ideas for a totally new way of doing things.

Our broad objective is to arrive at a new solution which will help resolve for our current concerns, without compromising on our current promise. For ease of ideation, we are breaking down the problem statement into 5 areas. Each area is a thought-project in itself, which can resolve critical areas of the business. We invite tech solutions towards either one or more than one or all the five problem statements.

Problems to be solved:
1. **New way of channel identification** - What can be tomorrow's 'watermark'? How can we identify a content playing on Television, without having to depend on cooperation from the broadcaster or the cable operator? This identification technology should be able to capture if a channel is playing as the Landing channel or on multiple channel numbers
2. **New way to capture Content & Advertising Playout records** - Arriving at a technology solution to capture the names of the programmes playing on TV and descriptors of all the advertisements playing on TV – 100% automation is needed. Today's solution of 'Fingerprinting' does not give 100% automation because the 1st step requires manual logging of data
3. **Census' level data instead of 'Panel'** - How can we capture the TV viewership data of the whole of India, instead of relying on a 'Panel'?
4. **No button-pushing/remote** - How can we understand who in the home is watching a channel, without the members having to press buttons of a hardware device manually?
5. **No large/conspicuous hardware meters** - Solving for Audience Measurement without the conventional method of installing hardware devices (meters) in the homes of Panelists

This is a mid-prep competition and shall have 250 event points associated with it. Teams should submit the report on time as mentioned in sections below. This event has qualifying score of 75.

Judging Criteria

- There are 40 points for each problems which will be awarded based on quality, novelty and feasibility of the proposed solution and its demonstration.
- 50 points are kept for submissions of report, quality of report and presentation.

Rules and Regulations

- A maximum of 4 participants shall be awarded participation/merit certificate. A maximum of 2 student from team will be allowed to present during tech meet.
- Team has to submit a solution taking into consideration the 5 problems mentioned
- The team is required to submit their report through the respective Contingent Leader/General Secretary Technical Affairs or Equivalent to interiit.tech@iitb.ac.in with the subject 'BARC_IITX_Report_2018', by **16th December 2018.** Eg. IIT Bombay will send with subject : 'BARC_IITB_Report_2018'.
- The decision of the judges shall be final

The problem statement has been provided by BARC, India.