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Transforming Television: New Audience Measurement Systems

Televizyonu Dönüştürmek: Yeni İzleyici Ölçüm Sistemleri

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ABBREVIATIONS

AGB	:	Audits of Great Britain
BARB	:	Broadcasters' Audience Research Board
EBU	:	European Broadcasters Association
GGTAM	:	Global Guidelines for Television Audience Measurement
GRP	:	Gross Rating Points
JIC	:	Joint Industry Committee
MOC	:	Media Owners Committee
NUTS	:	The Nomenclature of Territorial Units for Statistics
OS	:	Own Service
RIM	:	Random Iterative Method
RTÜK	:	Radyo ve Televizyon Üst Kurulu
RVD	:	Reklam Verenler Derneği
SES	:	Socio Economic Status
TAM	:	Television Audience Measurement
TİAK	:	Televizyon İzleme ve Araştırma Komitesi
TRT	:	Türkiye Radyo Televizyon Üst Kurulu
TÜAD	:	Türkiye Araştırmacılar Derneği
TÜİK	:	Türkiye İstatistik Kurumu
VOD	:	Video on Demand
VOSDAL	:	Viewing On the Same Day As Live

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ÖNSÖZ

Radyodan televizyona, basılı yayınlardan internete kadar gelişimini devam ettirmekte olan "Medya", iletişim kanallarının kendine özgü özelliklerini kullanarak iletiyi kullanıcıya aktarmada yüzyıllardır rol oynamıştır. Kitle iletişim kanallarının çoğalması ve çeşitlenmesi ile birlikte toplumsal algının, hayat tarzı ve yaşam kültürünün de dönüşüm geçirmesi kaçınılmaz olmuştur.

Bu yüksek lisans tezi, günümüzde kitle iletişim araçlarının nasıl çeşitlendiğine, ne amaçlarla kullanıldığına, izleyici ölçümlerini nasıl biçimlendirdiğine ve bundan sonraki süreçte neler beklendiğine dair teorik ve uygulamalı bir araç sunmaktadır. Bu tezle, izleyicinin dönüşümü ve bu dönüşümün izleyici ölçümlerindeki yeri ve katkısı yaklaşımı kullanılarak yapılan bir uygulama ile bu alana önemli bir bilgi sağlamak hedeflenmiştir.

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ABSTRACT

Since the years when the television screen was accepted as the primary communication medium of society, the people in the screen as well as those in front of it were spoken. As academic studies aimed at understanding and analyzing the society focused on how and to what extent the messages on the screen affected the audience, they started to ask who this audience really was. Thus, an anonymous audience group was objectified. Finding out who the audience really is has been a matter of curiosity for communicators as well as sociologists. In this study, the past and present of the audience measurements that started with private television (commercial) broadcasting will be investigated and information will be given about the steps taken regarding the future. The role of television in the consumer society in the transition of the curiosity to know the audience from sociologists to advertisers and the transformation of the audience into 'rating' will be examined in depth. In this study, studies on measurement methods of different medium transforming from television to "screen" will be examined.

Keywords: audience, rating, measurement, consumption, consumer

ÖZET

Televizyon ekranının toplumun birincil iletişim mecrası olarak kabul edildiği yıllardan itibaren ekranın içindekiler kadar karşısındakiler de konuşuldu. Toplumu anlamayı ve analiz etmeyi hedefleyen akademik çalışmalar ekrandaki mesajların izleyiciyi nasıl ve ne kadar etkilendiğine yoğunlaşınca, bu izleyicinin gerçekte kim olduğu da sorulmaya başlandı. Böylece anonim bir izleyici grubu ete kemiğe büründürüldü. İzleyicinin gerçekte kim olduğunu öğrenmek sosyologlar kadar iletişimcilerin de merak konusu oldu. Bu çalışmada özel televizyon (ticari) yayıncılığıyla birlikte başlayan izleyici ölçümlerinin dünü ve bugünü araştırılıp, geleceğine dair atılan adımlar ile ilgili bilgi verilecektir. İzleyiciyi tanıma merakının sosyologlardan reklam verenlere geçişinde televizyonun tüketim toplumu içerisindeki rolü ve izleyicinin 'reyting'e dönüşümü derinlemesine incelenecektir. Bu çalışmada televizyondan 'ekran'a dönüşen farklı mecraların ölçümleme yöntemleri üzerine yapılan çalışmalar incelenecektir.

Anahtar Kelimeler: izleyici, reyting, ölçümleme, tüketim, tüketici

INTRODUCTION

Screens have become the main medium of content consumption in the media. The screen's transformation into mainstream media has not only applied to television content, but also to newspapers, magazines, and other media. Digitalization has increased the number of screens in social life. However, the television screen remains the most effective screen that reaches the most viewers. Although mass media or mass communication studies have decreased in recent years with multiple choice, more individual (mobile) screens brought about by digitalization, television is still seen as a medium that offers content to the largest audience. Television accessibility is still one of the most consumed channels with its continuity in terms of content and display technique. However, digital, which transforms every medium in daily life, gains different functions according to the changing needs in social life.

Watching the content on TV in the digital environment has brought the viewer together with the second screen phenomena. Nowadays, it has become possible to convey the same content to the user on television and digital media. And even with the developing technology, it has been possible for people to share the same content on social media while simultaneously watching television.

Television audience measurement studies were one of the main research veins in the media to get to know the audience in front of the television screen, to bring the audience together with the right product advertisement and to produce content according to the audience. While the academic world investigates paradigms such as influence, use and satisfaction between audience and content, the private sector has positioned research on better recognition of the audience to be persuaded for consumption. Audience measurements have gained importance because of the spread of private television channels and the use of television broadcasts for marketing and advertising. Measurement results appear as a very important information used by all stakeholders, namely publishers, advertisers, and media agencies, which constitute 3 different pillars of the industry.

With this measurement, broadcasters can learn to what extent programs with different content are watched by the audience. This information is used by publishers both in planning future broadcast policies and investments, and in determining the unit / time prices of advertisements to be included in or between them. Advertisers and agencies determine which channel and how much they will pay for advertisements; Audience measurements are needed to find out how many people the advertisement has reached and how this situation reflects on sales. In this respect, audience measurements show not only how the given message is received by the audience, but also guide the planning and content creation.

Television audience measurements, which are the subject of this study, are not only a basic criterion for broadcasters in terms of reflecting the television watching habits of the society, but also an important data source for the advertising market. Audience measurement research has also diversified when the screens, which multiplied not only with private television broadcasting but mostly with digitalization, began to change the viewing behaviour of the audience. Changing audience behaviour and expanding viewing channels have increased the need for innovation in audience measurement research.

In the light of this information, the aim of this thesis is to explain the working principles and methods of audience measurement systems up to now; to understand how to measure on the basis of changing screens and to reveal how audience preferences have changed by examining cross media metrics.

In the application part of the research, the results of the YouTube and TV audience measurement study of 10 brands, which is a first in Europe and conducted in cooperation with Google Turkey and Kantar Turkey, will be used. It is one of the first studies in the field of Cross Media Audience Measurement, offers great inferences on how the audience changes the means of content consumption, the definition of audience and incremental reach rates of new media.

1. AUDIENCE

Once upon a time, ordinary people used to spend most of their free time, often with others, intensely or distracted, watching scheduled mass broadcast television channels, and then talking about the content they watched. Nowadays, people often look alone at their computers or at the screen of their cell phones while browsing social media, downloading music, chatting, searching for information, or playing games, as well as discussing their experiences with other people elsewhere. According to We are social 2021; People around the world watch television for an average of 3.5 hours a day, spend 2.5 hours on social media, 2 hours reading books, 1.3 hours listening to music, 1 hour listening to radio / podcasts, 1 hour playing games.[1] Just in a few years people as audience have created these two different types of behaviour. There isn't much time for people to change their core interests and concerns. Yet their daily habits - and the means of communication - have changed significantly, reflecting the historical transition from mass society to networked society, from push media to attractive media, from one-way communication to multi-faceted communication. [2]

Most of the time, we used to start the "TV time" session alone or with our friends, leaving the rest of the world aside. Many cultural studies have shown that; Even if we do the media consumption alone, it is a social activity. For example, when you watch a TV series in mainstream media, you are doing the same action with millions of people across the country. Watching together is an activity that has a common cultural currency. [3]

David Morley's Family Television (1989) and Janice Radway's Reading the Romance (1983) both illustrate how various modes of audiencehood can be used to regulate family relationships that in turn respond to broader social forms of identity, especially gender.

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[1] https://www.brandingturkiye.com/we-are-social-digital-2021-yayinlandi/
[2] Sonia Livingstone, The End of Audiences? Theoretical Echoes of Reception amid the Uncertainties of Use
[3] Andy Ruddock, Understanding Audiences Theory and Method

Already we can see, then, how audiencehood is more complex than the first appears. As Ang's (1991) work goes on to illustrate, this complexity means that it is equally difficult to study media audience. Audiences are hard to analyse because, in the first instance, they are difficult to define.[4]

The audience is a network of people who have the potential to interact with each other on a particular topic in the media.

Audience research to date has only one goal: "to understand the perception of the audience". When we look at the history of audience research, there are 4 phases defined by McQuail (1994: 328–32).

[4] Andy Ruddock, Understanding Audiences Theory and Method

Phase 1: The Media Has All the Power

This research phase extends from the beginning of the 20th century to the 1930s. Its beginning is Adorno and Horkheimer cultural studies at the Institute of Social Research. Adorno shows, with examples, that the audience is passive and the effect of mainstream media. (Uzun, 2013c:171) The Nazi invasion in Germany and Fascism in Italy have been interpreted as proof of mainstream propaganda's ability to control the audience.at it includes is that the influence and persuasiveness of mainstream media is very high.

According to the Hypodermic Needle Theory, every information transmitted by the mainstream media to the individual is accepted by the audience. Viewers are described as mindless ships waiting to receive media messages. (Ott & Mack, 2010, p. 222). The messages given by the mainstream media are received by the audience regardless of demographic characteristics and the audience tries to adapt to these messages given in social and cultural terms.

Phase 2: Confronting All the Power in the Media

In the 1950s, Katz and Lazarsfeld (1955) developed The Two Step Flow Theory. This theory assumes that communication consists of 2 steps. This theory, which does not accept the power of mainstream media in communication, argues that interpersonal communication is also effective. Opinion leaders in the society convey the messages they receive from the radio or printed broadcasts to other individuals as they interpret them.

Today, one of the best examples of this theory is Twitter and Instagram. 'Opinion Leaders' to the people and groups that affect the public the most. (Bektaş, 2013: 110).In this respect, opinion leaders have the power to influence and direct individuals or groups and use this power when consulted. Paul Lazarsfeld and Elihu Katz; They explain communication in the process of people voting for a candidate or deciding which product to consume with a model called two-step flow (Bourse &Yücel, 2012: 86). For example, many brands prefer social media influencers as an advertising medium.

Phase 3: The Power Is Back in the Media

At this stage, Gerbner's Theory of Cultivation Analysis emerges (1976). It reveals the effect of television on people who watch television more than 4 hours a day, defined as "heavy" viewers. In this theory, the viewer is again seen as passive. The audiences are influenced by the content they have been exposed to on television for a long time, and they unconsciously accept the message in the content and adapt it to their lives.

Phase 4: Discussing the Meaning of the Media

The last phase (but perhaps not) covers the late 1970s and early 1980s. Stuart Hall's Theory of Encoding / Decoding and Theory of Needs and Gratifications were included in this period.

At this stage, the audience is active. It reveals that the social and cultural environment, demographic characteristics, and experiences of the individual make a difference in receiving the messages given by the media. According to Stuart Hall, the message is first created by the producer. It is sent to the audience by any communication tool and the audience can analyse this message in 3 ways.

1.Hegemonic position: The message given by the producer is taken directly without questioning.

2. Negotiated position: The viewer analyses the message sent, accepts only the part that interests him.

3. The oppositional position: The viewer receives the entire message sent but does not accept this message.

According to Silverstone, the notion of active audience is a kind of tautology (1994: 153). Because the practice of watching television is one way or another an active process, it is therefore important to clearly describe exactly what is meant by the notion of activity. In a similar approach, Takahashi states that the active-passive dichotomy points to a kind of dilemma for audience research and suggests using the concept of

“audience engagement” instead of active audience (2009: 7). In this way, a wide range of activities from turning the television switch on and off to commenting on the program content on social media is covered.

And then there was `the New Audience Research'... Roughly from the mid-1980s onward there is a more or less sudden increase in qualitative audience studies in mass communication research. The New Audience Research covers a wide range of subjects. It refers amongst other things to studies of romance reading, television viewing, and how we make sense of the news. The definitive characteristic of these studies is that they actively invite those who read romances or watch television to present their own point of view in lengthy, open interviews or in the course of `participant observation' - see p.172 of Communication, Cultural and Media Studies: The Key Concepts (3rd Edition) (Hartley, J., 2002). Ien Ang's study of watching Dallas, the American prime time soap opera is a classic example of the New Audience Research (Ang, 1985).

Audience is a technology-dependent position. In other words, technological developments transform the audience position and practices. Today, the most important technological development that transforms viewer practices is the change that has emerged in the field of television broadcasting with internet technologies. Developments such as the increase in the number of channels, thematic broadcasting, and digitalization underline that we will no longer describe the audience as a large group (Webster 2005). This process, called audience fragmentation, is the division of the audience, which is stuck between 3 or 4 channels, into small groups with increasing channel and broadcast options (Webster 1986).

On the other hand, the argument that the audience is fragmented by being divided into small groups can be questioned at the program level rather than the television set. This is because productions broadcast or not broadcast on national channels such as TV series or reality shows can reach a transnational audience via the internet. On a mass scale, although we cannot imagine audiences on television at the same time, we can say that productions that reach the world, especially from English-speaking countries, are watched beyond the target audience.

Today, technological innovations that have diversified with the internet require a different approach to the audience concept. First, developments that allow different technologies to be used together have changed the picture framing the audience while sitting in front of the television screen or doing household chores. Apart from viewing behaviour, viewers can respond to programs in a wide variety of ways, via cell phone messages, fan pages, social media, internet forums. Another development that is specific for television is the consumption of programs produced for television on the Internet. Watching television programs on the internet enables you to be a part of the television culture without ever “messing with” the television device. This also makes it easier for you to have a more individual, selective attitude as a viewer. It is possible to watch TV series and reality programs on the internet that you cannot watch on national TV channels broadcasting terrestrial broadcasting and create your own program “portfolio”. (Scannel 1991; Livingstone ve Lunt 1993; Gillespie 1995)

Television's “here and now” character has evolved into the potential of being “whenever and wherever”, with internet technology. Therefore, it is necessary to consider the audience as a part of the television culture that exists in the media fields other than the television set. Multimedia ecologies challenge the traditionally defined "television audience" concept. This challenge also transforms audience measurement systems. In the following chapter, I will analyse the audience measurement systems from historical perspectives.

2. TELEVISION AUDIENCE MEASUREMENT AND DEVELOPMENT

In the world of television, channels know what broadcasts they own and when they broadcast, but they do not have the information by whom, how many and which broadcasts are watched. Audience measurement data was therefore of great importance for all television channels whose budgets were dependent on selling ads.

According to the "Global Guidelines for Television Audience Measurement (GGTAM)" published by the European Broadcasters Association (EBU), there are essentially three basic organizational structures in providing audience measurements. But in world practice, there are differentiations in each of these structures that ensure the continuity of organizational arrangements.

Joint Industry Committee-JIC

JIC is a united industry committee consisting of channels, advertisers and agency representatives.

The committee usually arranges the tender specifications for the service, invites tenderers, makes the tender, establishes the contract, supervises the service, owns copyrights, and determines the terms and conditions for access to information licenses. Daily management activity authority and technical duties and powers; given to representative management and technical advisory committees.

Among these systems, JIC (Joint Industry Committees) are the most accepted systems in the world.

Media Owners Committee-MOC

One of the most common examples of this structuring is the media owners committee formed by the gathering of broadcasters. Advertisers and agencies are not involved in determining the terms of the committee license or overseeing the contract but should be invited to participate in consultative user technical committees.

Own Service-OS

The research company presents audience information as a private, commercial enterprise and signs many unilateral contracts with purchasers of information. These systems are expected to bring formal provision for regular user consultations with user groups, subject to equivalence procedures that include an independent auditor and the active participation of the industry.

2.1 History of TV Audience Measurement Methodology:

Television audience measurement model is mainly based on market research methodology, statistical theory, and practice. First, a sample that will represent the monitoring behaviour of the households is selected and measured. The data collected afterwards are weighted and converges to the values of the universe. With few exceptions, this model has been accepted everywhere. A measuring device (meter) is attached to the working televisions of a household-based sampling audience panel to measure which content is watched for how long. Apart from this, the measurement was also used with a diary survey method, in which the household kept daily monitoring television viewing's behaviours.

Over the years, the television audience measurement system has managed to adapt to technology and the changing television world with great performance.

It was able to cope with many changes such as the speed of the spread of television, the increase in screen size, the presence of more than one television in the household and the change of the viewer screens, the increase in the number of television channels, the way of reception and the change in the platforms, the recording feature was able to easily watch the contents other than the live broadcast stream.

TAM technology has been developed from mechanical meter and daily measurement kept on paper to people meter with smart meter that can send daily or instant data.

The TAM system can measure almost all viewings, except for a small number of portable televisions and measurements taken outside the home. By adding guest monitoring to the measurement data and analysis system, it has been made ready for the use of the industry.

1950: Phone Survey

Since the advent of commercial television in 1947, systems it was applied to measure what the masses watched. Rating systems used phone calls methodologies developed to measure the radio.

Clark Hooper eliminated the biases and problems of the previously used research method that allows participants to recall what they watched / listened to, developing a survey methodology that asked only what listeners were tuned into now they received the call, plus demographic information about who was listening.

These calls, known as phone coincidences, were used in most of the standard metrics used by television rating companies, such as audience shares. This technique developed significantly in 1950 when Nielsen bought Hooper's business and began audience monitoring on national television with Nielsen Television Index.[5]

1953: Meters and Diaries

Nielsen primarily used audiometers that measure what was viewed on a TV and when. This eliminated the dependence on the often unreliable and costly phone surveys, but the system only gathered information about what was on TV, not who watched it. To fill this gap, Nielsen began recording more detailed information in the Nielsen Diaries, thanks to a subset of the sample population that maintained their viewing habits. Demographic information thus complemented the data collected by Audiometer.

[5] Webster JG, Phalen PF, Lichty LW. Ratings Analysis: The Theory and Practice of Audience Research (Third ed.). Mahwah, New Jersey: L. Erlbaum Associates, 2006

In 1971, Nielsen introduced the American Bureau of Research's version of the meter, whose data could be retrieved via telephone line, which shortened the time to prepare data for the market. the audio meter stored data throughout the day and transmitted it overnight. This newly discovered speed and demographics of viewers dominated advertising decisions, making Nielsen ratings and reports increasingly important to advertisers.[6]

This system remained largely unchanged until 1986, when the peoplemeter was introduced. This new audience measurement method allowed individual data collection from multiple members of a household; Monitoring data of individual users was recorded on the peoplemeter device together with demographic information. The big change in data collection has created a huge and available database that contains much more detailed information on exactly who is watching than the method previously available. Businesses could now tailor their advertising message in a more specific way.

1986: Cable TV and VCRs

The spread of cable television has further changed the type of data collected and how it is used for audience measurement.

Cable systems were able to handle more stations, and starting in the 1970s, networks designed specifically for cable distribution were created and an increasingly variety of programming was introduced. By 2011, more than 5300 systems were running in the US with about 60 million subscribers[7].

This spread of cable networks growed up the importance of TV ratings and made user data even more valuable for advertisers. They could now target their products to those groups most likely to be interested.

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[6] Nielsen. 2014. Celebrating 90 years of innovation. Available online at http://sites.nielsen.com/90years/ (Last accessed on May 16, 2014)
[7] Federal Communications Commission. 2014. Evolution of cable television. Available online at www.fcc.gov/ encyclopedia/evolution-cable-television (Last accessed on May 16, 2014).

The widespread adoption of VCRs in the 1980s marked a change in television viewing habits. People can now record television shows and watch them later, this event is known as time shifting. Time-shifted viewing, which later expanded with the introduction of digital TV recorders, significantly changed how data are collected and used in programming and advertising decisions.

The need to keep up with a growing number of shows and take time shifting into account has led to the development of new solutions to automatically detect which programs are viewed using digital signatures. These digital tracking solutions enable to detect of both TV show and TV advertisement signatures.

2000: The Internet and Social Media

The development of the internet in the early 2000s changed the way people watch television and integrated it into other aspects of their lives.

With the millennium, the internet became widespread and people's television watching behaviour began to change. The Internet has begun to penetrate every part of people's lives.

As people spend more time online, companies have realized that clicks, comments, location of people, tweets, purchases, and demographics can all be measured in real time at a large scale almost easily. As society enters the new world of the internet, this new world has given birth to big data. It has been used to measure the impact of television and advertising on viewers, how they feel while watching, as well as what they buy. There are several ways to do this. Beginning in 1999, comScore measured demographics, clicks, and purchases, and has since evolved to measure attention on

many major platforms (for example, both home and mobile Internet). Google Trends allow tracking of keyword searches over time and by geographic location[8].

When users searched for a brand online after seeing its ad on TV, the first online measurement solutions could not count on watching TV because the data was inaccessible. This situation has changed over time. Since the launch of a chat forum discussing The Prisoner in 1995[9], a plethora of social TV platforms have emerged, and usage rates have skyrocketed. As experts point out, users are now more interested in TV shows because the shows also encourage two-way communication.

In 2011, GetGlue announced that it had over 1 million users in less than a year. That same year, the TV show X Factor introduced twitter voting for the first time.

TV viewers make comments on the programs they watch as a second screen on Twitter or Facebook.

Numerous applications have emerged that connect television to the Internet and social media. Huge data sets that reveal audience preferences, habits and buying behaviours were created by users themselves. The age of user-generated content has arrived. For the first time in generations, new behaviour has resulted in new data from set-top boxes, tweets, and Facebook posts. this has addressed some of the limitations of the old methods and enabled new audience measurement methods to be developed.

Research companies started to analyse social media text in the aspect of TV and advertising as soon as the data became available.

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[8] Helft M. 2008. Google's new tool is meant for marketers. New York Times. Available online at www.nytimes.com/ 2008/08/06/business/media/06adco.html?ref=business&_ r=1& (Last accessed on May 16, 2014).

[9] Chorianopoulos K, Lekakos G. Introduction to social TV: enhancing the shared experience with interactive TV. Int J Hum Comput Interact 2008; 24:113–120.

2013 - : VOD and TV everywhere

The proliferation of the Internet and mobile devices such as smartphones and tablets has resulted in major disruption for the TV industry by fundamentally changing the way people watch TV and therefore calls for new models of advertising.[10]

The onstage appearances of services such as Netflix (founded in 1997), YouTube (2005), Hulu (2007), and Amazon Fire TV (2014), etc. have led to an endless world of content for anyone, anytime, anywhere. In terms of global audience, because of online VOD, YouTube competes with TV. In 2014, UpFronts, several tech writers highlighted a presentation where Google chairman Eric Schmidt seemed to say that YouTube's success was because the site now has some one billion unique users who consume some six billion videos a month.[11]

There is more content online now than can be presented on television at any given time. These endless viewing options also represent endless advertising possibilities, which means greater opportunities to identify users.

Introduced by Time Warner Cable in 2009 and followed by many other providers, this model allows users to subscribe to certain channels with a user account and view them on multiple devices. The existence of specific accounts means for the first time that firms can collect data and target users at an individual level. A lot of detailed information can be obtained between devices, such as personal preferences, locations, demographic information, purchases, and social media activity.

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[10] Wilbur KC. How the digital video recorder (DVR) changes traditional television advertising. J Advert 2008; 37:143–149.

[11] Winslow G. 2013. The measurement mess. Broadcasting & Cable. Available online at www.broadcastingcable.com/ news/news-articles/measurement-mess/114643 (Last accessed on May 16, 2014).

The data explosion has made the question of what to measure about TV viewers and their behaviour more and more important. Frequent simultaneous use of multiple screens made cross-platform measurement necessary.

2.2 Changing Television World and TAM Services[12]

In the last millennium, breaks started to appear in the TAM system.

The sample of the TAM system consists of households and in recent years, especially in developed countries, there was a decline on the number of households because of divorces, decline in the birth rate, etc.

The building block of the TAM system may be the household, but it is not the household that watches television, but the individuals living in it. For this reason, to close this gap, more households had to be installed, and the system was tried to be developed despite the more cost, effort and low participation of people in such research. In addition to these, there were opinions that the society was becoming increasingly heterogeneous and that it was difficult to have a representative sample.

Before the introduction of digital broadcasting, television channels increased the number of channels viewable on the platforms. However, despite the increase in viewing time, fragmentation began to occur among the audience. Channels viewed by new and often smaller audiences could not be measured as accurately as the larger channels found in the TAM measuring system. 0 rating measurement has become a common occurrence. As well as the accuracy of the large channel's measurements, they saw a drop in their tracking. This was just a statistical fact, not due to any error. Small channels that are not included in the measurement system received the audience of large channels, and this situation caused small pieces to combine and take a significant share from the large piece. This situation would continue to happen unless there was an alternative system. In the early 2000s, the limits of the TAM system began to be seen clearly. The

[12] Inspired of Egta insight:Advances in Hybrid TV Audience Measurement 2020 Edition

content viewing environment has been revolutionized due to the increase in the number of channels, the advent of the internet, too many alternative screens, and audio-visual content other than the new television. With the transition to digital broadcasting, there has been an incredible increase in the number of channels that can be viewed on television. This put another pressure on the TAM panel sample size. To be able to measure with a certain statistical accuracy, the sample size had to be sufficient for all channels.

The Internet has entered our lives as a new source of audio-visual content. It was on the rise as a platform that has a variety of content and whose viewers can be measured. When the content was watched on the television screen, it could be measured by TAM panels within the limits of sample size and representation.

However, the biggest challenge for the TAM system and methodology is the explosion of screen types. Desktop computers, laptops, tablets, ever evolving and versatile smartphones have become important screens where audio-visual content is consumed anywhere on the internet. None of these screens can be measured as easily as televisions with a fixed and broadcast flow, and the views on them cannot be measured like a television. In addition to all these, new audio-visual content providers started to proliferate on the internet at a rapid pace, and at the same time, their scope of coverage gradually increased within the total. Many people started watching the content on these platforms instead of television. It has previously been proven that these challenges cannot cope with the current TAM methodology. It also had an impact on the audience, especially the younger audience. Instead of watching TV content connected to the broadcast stream on the television, the transition to other screens where they can watch the content they want has started. In many countries, there has been a decline in monitoring data from TAM panels. There has been a lot of talk about the end of TV with this change, but the opposite was the case. Recently, millions of households have acquired new television sets with hitherto unprecedented screen sizes and features. At the same time, access to television has exploded with the growth of screens and types

of screens. Viewing on television screens has increased substantially together, with most people using portable-format television types today.

The Emergence of Return Path Data:

Although the TAM system had difficulty adapting to all these changes, broadcast trade was not affected much by this situation. Online content providers and television broadcasters have both found new ways to trade. The publication of content over the Internet provided RDP (Return Path Data), electronic voting and access to the number of accesses. Thus, a new marketplace has emerged in publishing trading using these metrics.

This has two positive qualities. First, it allowed publishers to create their own big data about their performance. The second meant that since these data could be of census data quality, even the smallest items could be measured at the same confidence level as the larger ones. Television broadcasters started to broadcast their own content on the internet, on all screens, in a live and subsequently viewable manner. The advertisements in and around this content were measured with RPD and commercial transactions could be made on it. RPD has the advantage of being census data quality, even if it is limited to only one screen measurement.

In the view of many, to preserve the integrity and current state of TAM systems, the scope of the system had to be expanded and improved, it was a necessary step to keep up with the current environment. Over the past decade, a lot of work has been done to ensure that views are measured across screens and platforms in many countries. Despite all these developments, the basic questions of advertisers and agencies had to be answered; On which channel, on which platform, on which screen, by whom, how many times and by which target audiences?

The Expansion of the TAM System Beyond Television: Hybrid Measurement

The way to measure the share of linear and non-linear viewing is through a panel-based hybrid measurement solution combined with census data. The measurement of content

consumption on the Internet allows data production at the census level. This is called machine data or RPD (return path data) and gives an accurate value of viewing on all potential devices and displays. The entire video stream can be detected, including viewing time, duration, and actions such as pausing or stopping content. Viewing figures of the whole population can be monitored without the need for extrapolation.

Panels based on sampling theory are vital in explaining people's viewing behaviour, but always make predictions within certain statistical limits. With RPD, these limits can be removed and the whole universe can be included with real viewing data. Census data can solve the sampling problem experienced in small samples, especially in the measurement of small objects, but can only provide information about the data from the devices.

To fully understand what is consumed by who, census-level data must work with a panel that can provide information about demographic information such as age, gender, and other characteristics, so all hybrid Total TV measurement approaches currently under development remain a component with the panel-based measurement center. If we can put together sample panels and RPD, being able to take advantage of each and minimize the disadvantages of each, this is the essence of the hybrid measurement solution.

Approaches to Measuring Viewing Beyond the TV Set

There are several routes followed by those involved in TAM systems, but various problems have arisen. It was an understandable first way to follow viewers and extend the measurement of television from panel size and / or televisions to other screens. In the past, fragmented views between television sets were resolved spontaneously by expanding the panel sample rather than dealing with limited sample size to better measure them. Today, increasing the sample is not seen as a viable and practical solution for these problems. To make a statistically significant improvement in measurement, panel size increments would need to be of a very large scale, which could possibly be too costly or practically inoperable, or both.

A related change to consider is to use a panel several times larger than the existing one, but only install a television set meter for these households. This drastically reduces the load on the panel members and the cost of reproducing the TAM panel size completely. The current TAM set, and person meter panel can then provide statistical factors that can only be used to calibrate data in homes with the television set meter. This solution aims to achieve an equivalent increase in large panel size, without the cost and practicality issues.

However, none of these solutions contribute to the need for multiple screen measurement.

Thus, another way has been found to follow the audience and extend the TAM panel to include screens other than television. There are currently two approaches.

The Software meter / Virtual Meter is a piece of software that can be downloaded to screens outside of television and can simulate the behaviour of set and people meter systems.

Like set meter, The Software meter / Virtual Meter can record when a device is turned on, what is happening on the screen, and generate tracking data for individuals after asking who is watching. Dealing with different and newly developed screen types and operating systems is an ongoing process. The software meter also had to change due to the change monitoring environment. If a software meter is installed on an existing TAM panel, the entire system can measure what the same people watch on all screens. However, this can increase the task of the panelist and result in a decrease in the recruitment of the panelist and compliance levels and can have negative effects on cost and data quality in general.

If a separate panel is deployed using the Virtual Meter to measure viewing on non-television screens next to the existing television panel, this will ease the burden on participants but possibly increase the cost and complexity of data processing from the two panels. The router meter is similar in principle. In this case, a counter is installed in

the home internet router or a router with a counter replaces it. Then, as with the Virtual Meter, the system records what content has been delivered to the screens.

These approaches aim to measure the diffusion of television and other audio-visual content to other screens and the audience it creates. However, they still depend on panel and sample sizes and hence related statistical limitations.

Challenges

The hybrid solution was a simple goal, but very complicated to achieve in practice. For this reason, although it was a solution that was on the table for many years, it remained mostly ongoing or not yet started. There are several reasons for this.

First, the audience environment was constantly changing. A new type of screen emerges, a new presentation system develops, however, audience behaviour changes. Trying to keep up with this pace made it difficult to find a solution.

Second, while measurement companies dominated the strengths and weaknesses of panel data, the RPD emerged as a new discovery journey.

Third, in what detail exactly is data requested from RPD and panel data? Is this fusion, data integration, data merger or something else? How will this be done when the structure of RPD and panel data is different?

Specifically, there had to be a methodology for measuring the scope and frequency (how many people saw the ad and how often) it would be singularized, that is, to follow the same person on different screens and platforms. All these developments have shown that it is a much larger task than originally anticipated. Additionally, all this had to be done in at least a GDPR or equivalent compliant environment.

Despite all this, the goal to be achieved is to consistently measure who views broadcasters' content, regardless of the screen, whenever and wherever it appears.

On the other side, the goal for the advertisers and agencies is to measure target audiences with a single measurement, regardless of the screen, wherever and whenever the content with the ad is watched.

The main purpose of television audience measurements is to create a currency to be used for the sector, but without hybrid measurement, currency has been used in this area for years. This is an obstacle to the development of hybrid measurement.

The ability to analyse audio-visual ads on all screens and platforms is a motivation to make hybrid solutions, especially for advertisers and agents.

Defining Total TV Audience Measurement in Future

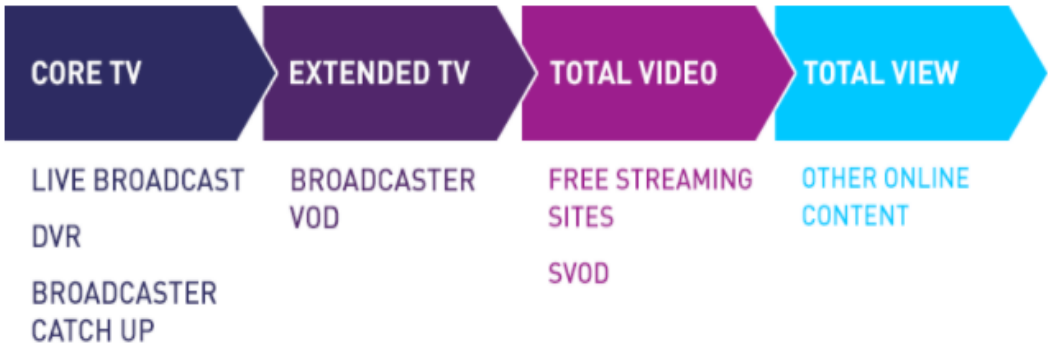
There are variations in the progress of hybrid measurements from country to country. The overall objective may be the same, but the details of the objectives and methodologies often differ. This may be particularly good for those who will come to hybrid development later, as it can help identify the pros and cons of alternatives. However, different approaches can also complicate cross-market data generation initiatives. These initiatives are run by broadcasters and the JICs and may have different perspectives, interests, and priorities. As noted above, the publisher may be targeting the measurement of its content, some of which are watched wherever and whenever they are watched. Others may be targeting a measure of all audio-visual data from all sources. Or the goal could be anything between these two extremes. While some may try to involve non-broadcast audio-visual content providers and platforms in this work, others may want to preserve the publisher-specific nature of the business.

The disadvantage of including non-publisher video content is that it will reduce the impact of broadcasters on viewer shares, as well as the added complexity in integrating themselves. The transition from stable and relatively few measured broadcasters to a more variable and larger universe can make audience sharing meaningless. On the other hand, providing equivalent measurement data helps to bring an insight into the proportional size of television compared to other audio-visual sources.

After all, individuals watch much more television on average than they spend with online broadcasters even those with high reach like YouTube and Facebook.

Kantar Media Solution for Audience Measurement of Cross Media[13]

TV ratings framework starts with core TV consumption and then expands along the spectrum to cover different types of media consumption. Taken to its conclusion it will measure all TV, video, and online consumption.



As media consumption changes and advertisers are running more and more integrated campaigns across different platforms and devices, it becomes more important to measure accurately and consistently across different media. The advantage of cross media measurement is that it gives a total view of the audience, and their media consumption habits.

Cross-media measurement covers:

Core TV: broadcast linear TV, TV content delivered as video-on-demand as well as any time-shifting from recorded programmes

Extended TV: TV content broadcast in simulcast or on-demand on smartphones, tablets desktops and over-the-top (OTT) devices

[13] https://www.kantarmedia.com/global/our-solutions/audience-measurement/cross-media

Total video: all video content from online platforms whether that is broadcast video or not (such as YouTube content)

Total view: all online content whether video or text based, accessed through a browser or app, on smartphones, tablets desktops and OTT devices

Cross-media measurement has long been the holy grail of media research. Kantar formed a strategic alliance with comScore to address this industry need.

Cross-media measurement covers video or text content, whether accessed on a browser, app, smart phone, tablet, computer or over the top device or TV set.

This hybrid system is already live in the Netherlands where a complete picture of audience viewing is being delivered, as well as in development in Spain and being piloted in the Czech Republic.

Understanding audiences, without duplication

With this technology, broadcasters and pay TV operators can:

- Understand the total number of people consuming content over TV and online platforms
- Prove the value of engaged multi-platform audiences and show where they are spending their time
- Sell targeted and customised media packages, across all platforms and demographics, in line with the integrated campaigns advertisers are increasingly running.

Agencies and advertisers can:

- Plan traditional TV and digital campaigns in a single tool without duplicating the audience it will reach
- Measure unduplicated brand exposure and frequency across all platforms for a single campaign

- Determine the best split between TV and other media to reach the audience effectively
- Optimise media investment by finding smarter and more cost-effective ways to reach audiences
- Understand the true cross media value of advertising investments.

Publishers and digital content owners can:

- Competitively package and position online audiences using TV-comparable metrics.
- Discover partnership opportunities to sell packages which complement advertisers' TV purchasing with online video, mobile or display inventory

2.3 Big Data and Television Audience Measurement

Television ratings have been an indispensable data for the industry, but recently, a wide variety of measurements have been made, including the real-time measurement needs of the sector, with the data obtained from social media.

Big Data is the industry's dream fulfilment term; found in news headlines, conference articles, and infographics.

Big Data means in a media research:

• They are large-scale applications obtained from web servers, mobile networks, and user databases. Very large participatory datasets can be a proficiency.

• Customer purchase or usage data produced from online behaviour or offline via electronic point of sale purchase data merged with customer loyalty information.

• Social media data collected from Google, Twitter, Facebook, Instagram etc.

Someone has criticised that the Big Data really comes into play when two or more datasets are combined to have a sum bigger than the parts.

The wider opportunities for using Big Data are exciting, giving media owners, advertisers, and agencies a more granular view of media and consumer behaviour.

Big Data gives a big opportunity to improve, our understanding of audiences, consumers, and their interactions with brands.

Single Source Advantages

The use of Big Data in audience measurement provides an opportunity to understand the relationship between media exposure and consumer behaviour. Evaluating the results of audience measurement in a wider context using big data will be a great innovation in the sector. The danger of relying solely on Big Data is that this will potentially limit our wider understanding of the impact of media exposure. Big Data is the means to an end, but it is not the end.

If Big Data will replace survey-based data is to damage to Big Data and actually, limit its potential. Bringing together Big Data and survey data really is a case of 1+1 = 3. Big Data is improved and becomes more smarter, more three-dimensional. Big Data can influence the parts that survey data alone cannot.

Understanding What Big Data Represents

It is important to understand the universe that a data set represents in time working with Big Data. However, researchers should not assume that data cannot represent anything because it does not represent everything. If this is clearly understood, every data has its own separate universe, the only condition is to be able to define this universe. Clarity is everything.

There is No Safety in Big Numbers Alone

When it comes to the sample, larger sample brings more accurate results. However, sample size is not the only valid test when assessing the reliability of a data set. It is also very important where the data set came from, whether it is an arbitrary sample, whether its balance reflects the universe it is trying to represent, and what quality controls are in

place to correct errors in the data. A balanced, controlled sample of 1,000 people with a high response rate will always be more representative than 1,000,000+ customers selected from an unbalanced, self-selected, or partial sample. Therefore, big does not always mean beautiful.

The Importance of Demographics

Demographic information remains important not only for budget allocation, but also for understanding audiences and developing and managing content. Generally, the size of a dataset will be inversely proportional to the amount of demographics added, users need to be aware of. It's important to keep in mind that most Big Data sources measure devices, not people.

Six Provocations

Besides on the advantage of Big Data, Boyd and Crawford (2011) use the following provocations to critique Big Data[14]:

1. Automating research changes the definition of knowledge
2. Bigger data are not always better data
3. Limited access to Big Data creates new digital divides
4. Not all data are equivalent
5. Claims to objectivity and accuracy are misleading and
6. Just because it is accessible doesn't make it ethical.

Although all these provocations highlight significant challenges for the industry, some are more pertinent than others when it comes to audience measurement.

The results of all these Provocations on big data remain unclear, it can be safely said that Big Data plays an important role in shaping the future of television.

[14] Boyd D and Crawford K (2011) Six provocations for Big Data. Social Science Research Network. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id¼1926431 (accessed 20 June 2016).

Audience Measurement in Social Media

For both commercial broadcasters and public service broadcasters, rating is very important. It is used to measure the popularity of certain programs, program scheduling, audience preferences, and the value of time sold for advertising.
Rating is also an indicator of the publisher's overall financial health and can see its value. Ratings help advertising agencies, media planners and advertisers determine how much money to spend on advertising on a particular channel or platform, and where and when to place ads.
Ratings are not only used for created content. At the same time, it is used as data on the success or failure of programs and broadcasters, on which many studies are carried out for academicians as well as the public. Criticism of audience metrics is made by many, from theoretical and technical questioning of methodologies and technologies applied over time to concerns about data suppliers' business practices. Despite the problem of generalization posed by digitization, the various parties continue to agree on the collection of robust, reliable, and generally agreed-upon metrics about audiences and what counts as audience.

This is the key challenge for rating providers in the future: providing quality and useful data. However, given that so much is in flux, including common understandings of "quality" and "utility," the proliferation of research tools and partnerships will inevitably continue as rating companies provide services in competition with each other.

Broadcasters, content providers and advertisers must also contend with the power of bottom-up recommendation and rating systems emerging with the Internet. From Facebook's "Like" option, you can allow readers to approve or support their likes of something posted by a friend with one click, by sharing and retweeting on Twitter, registering comments on the Internet, or whatever, the rating opportunities are many and varied. To varying degrees, research companies, advertisers and content providers are realising the importance of social media in measurement of audience opinions about the quality of content.

The characteristic online behaviour of countless people now routinely includes what the futurist Mark Pesce (2006) calls the “the three Fs:” finding, filtering and forwarding information found online to contacts (or followers in Twitter-speak, friends on Facebook).

Tagging, rating, and recommending acts often act as forms of feedback for the main benefit of the viewer's own network. However, ever more sophisticated and persistent forms of tracking behaviour and transforming it into useful data are capturing this information and adding it to databases for dissection and fusion.

In terms of quality, audience members who follow or transmit content across multiple media are those audiences that media content producers seek to develop, in part because of the ratings they may provide in the future. The most beneficial thing about online explorers or pioneers is that they can shape the media choices of those around them, who are always most valued by manufacturers, if not advertisers.

Traditional television rating programs provide a standardized and generally reliable, but ultimately limited and one-sided measure of audience engagement; Historically, they provide information on what audience research can be measured easily and regularly, but they do not provide a detailed, in-depth assessment of audience activities even from a qualitative perspective, much less from a quantitative perspective. The resulting multi-channel, multi-platform, multi-screen environment clearly needs support.

Evaluating the forms and quality of audience engagement is often more important than just measuring the overall size of the content. However, for commercial television channels, such information also provides important clues that feed back into the design and production of new programming; Therefore, there is an important need to go beyond the limitations of purely quantitative audience measurements.

Media, communication, and cultural studies scholarship has a long history of recognising the active audience of mass media programming (Fiske, 1992), but has

traditionally found it difficult to measure the extent and impact of audience activities or provide comprehensive qualitative evidence beyond individual small-scale case studies.

This situation has changed significantly in recent years, especially due to the emergence of second screen interaction via social media as a viewer application accompanying watching television content.

Such interaction can be collected internally through Application Programming Interfaces (APIs) of mainstream social media platforms or from the access logs of interaction platforms operated by the publishers themselves.

To be able to compare it with television data, the shortcomings of the big data we mentioned earlier should be taken into consideration. If these activities can be negotiated successfully, first, a relatively simple set of audience metrics can be established for social media, including the volume of specific programming related posts and the number of unique users generating such audience responses.

Here, compared to the traditional rating data of general social media data; to demonstrate which moments in a particular broadcast constitute the greatest audience reaction and hence such an event; A measure of unique active users throughout the broadcast provides initial insights into the influx or exodus of viewers.

In addition, public background data from social media platforms can also be included in the analysis: for example, in addition to measuring the total number of users participating in a social media chat about a particular show, but also determining the number of social media friends or followers for each user's account. Thus, it is possible to assess to what extent the broadcast can attract highly networked (read as "influential") participants. Similarly, if background data is available not only about the size of such dating networks but also about their structure (Bruns, Burgess and Highfield, 2014, developed this for the Australian Twittersphere, for example), it becomes possible both to determine the location of individual users in that network and to determine the total footprint of a particular program within the public social media platform.

Such indicators begin not only to measure aggregate engagement, but also to provide a post-demographic alternative to the mass segmentation models of traditional ratings: social media networks are often structured according to similarities in interests, not geographic or sociodemographic factors. This approach provides insights into analysing social media-based audience activity, whether a particular broadcast can provide deep interaction with parts of the general network specifically dealing with the broadcast's topics and / or generate broad interaction independent of users' preferences.

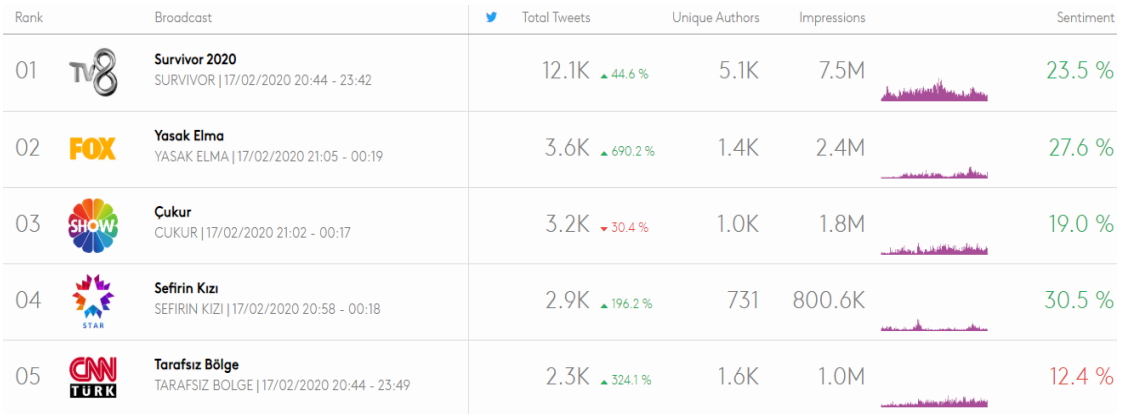
Finally, the fact that audience members' social media responses are instantly accessible to specific television content also provides a qualitative analysis of their reactions beyond mere engagement criteria. For example, from the content of audience posts, it becomes possible to chart popular (or at least controversial) public figures, organizations, actors, and their relative centrality in programming over individual episodes or all seasons, highlight key themes, and draw the topics of their responses.

This can also revert to programming options, from highlighting popular journalists and presenters in current affairs programming to developing stories of favourite characters from drama series.

Such approaches may also seek to explore the use of sentiment analysis, in order not only to determine the volume of mentions for specific themes or persons, but also to identify the tone and context in which they are mentioned (Is a reality TV contestant controversial or popular? Is the coverage of a topic appreciated or criticized?); it should be noted in this context, however, that the effectiveness of current sentiment analysis techniques in processing the very short texts of social media posts remains disputed (Liu, 2012; Thelwall, 2014).

Kantar Media Solution for Audience Measurement of Social Media: Kantar Social TV Rating (KSTR)

Analysing, tracking and correctly understanding the correspondence about TV programs on social media platforms, measuring the sensitivity of the content, analysing brand affinity, and learning what customers are talking about are its main advantages.



Rank	Broadcast	Total Tweets	Unique Authors	Impressions	Sentiment
01	**Survivor 2020** SURVIVOR | 17/02/2020 20:44 - 23:42	12.1K ▲44.6 %	5.1K	7.5M	23.5 %
02	**Yasak Elma** YASAK ELMA | 17/02/2020 21:05 - 00:19	3.6K ▲690.2 %	1.4K	2.4M	27.6 %
03	**Çukur** CUKUR | 17/02/2020 21:02 - 00:17	3.2K ▼30.4 %	1.0K	1.8M	19.0 %
04	**Sefirin Kızı** SEFIRIN KIZI | 17/02/2020 20:58 - 00:18	2.9K ▲196.2 %	731	800.6K	30.5 %
05	**Tarafsız Bölge** TARAFSIZ BOLGE | 17/02/2020 20:44 - 23:49	2.3K ▲324.1 %	1.6K	1.0M	12.4 %

Developed in partnership with Twitter, Kantar Social TV Ratings enables broadcasters, media agencies and advertisers to amplify the power of TV programming and media planning.

- Analyse, leverage, and benchmark the impact of Social TV with an established and official industry metric.
- Keep track of conversations around programmes and benchmark them against competing programmes.
- Add a new layer of audience data to measure programme's performance and the effectiveness of Twitter social engagement strategies.
- Improve media planning and buying decisions by connecting brands with socially engaged viewers by being culturally relevant
- Maximise audiences and prove value to advertisers by understanding who is engaging with TV programmes.
- Understand and leverage the sentiment of social conversations by gaining social insight on the affinity of TV programmes and its brand affinity.

- Track real-time Twitter conversations linked to TV programs 24/7 and report the data on program in a user-friendly manner

In summary, Amplify the power of tv programming and planning

Kantar provides a gold-standard currency for TV viewing which is combined with real-time access to Twitter interactions. The outcome is the official Social TV metric, which can be harnessed to increase audience engagement and targeting capabilities.

Kantar Social TV Ratings complements traditional TV ratings and can be used to analyse multiple scenarios such as:

• How the Twitter reach of a TV program compares to its viewership

• The relationship between a program's minute by minute Tweets curve and viewing audience curve

• Qualitative insights on TV programming that cannot be gained from TV Ratings alone

So how does it all work?

- A user shares his/ her feelings in the Twitter app.
- Twitter make that tweet available to us through their API,but Kantar have an IT infrastructure to collect tweets and only those in relation to TV programmes are relevant.
- Kantar IT infrastructure connects to the Twitter API and a back office select those related to TV with editorials team ensuring the quality of the programmes tracked and tweets collected in each market.
- All this data is available through Kantar's intuitive and web-based dashboard, Instar Social.

Facebook and Instagram individual posts, including videos, can also be viewed on Instar Social. These can be sorted by date, comments, and likes.

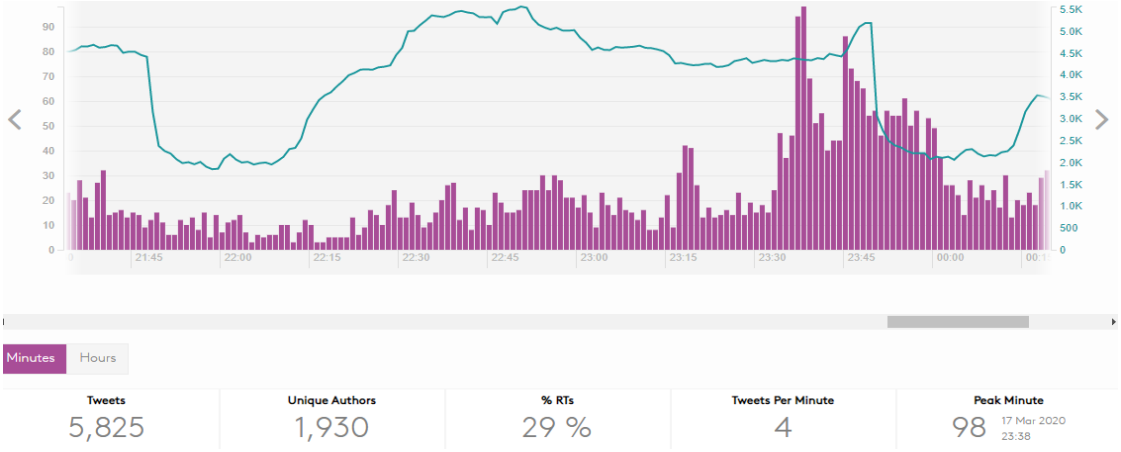
The posts can also be explored further by going directly to their Facebook page or Instagram account with a click of a button.

Seeing the links between TV and social media activity across Facebook, Instagram and Twitter helps you maximise audience engagement and optimise planning and buying decisions to reach socially engaged viewers.

Tv Rating:

Tracking how the tweets guide the audience by analysing the minute data of the tweets together with the tv ratings graph.

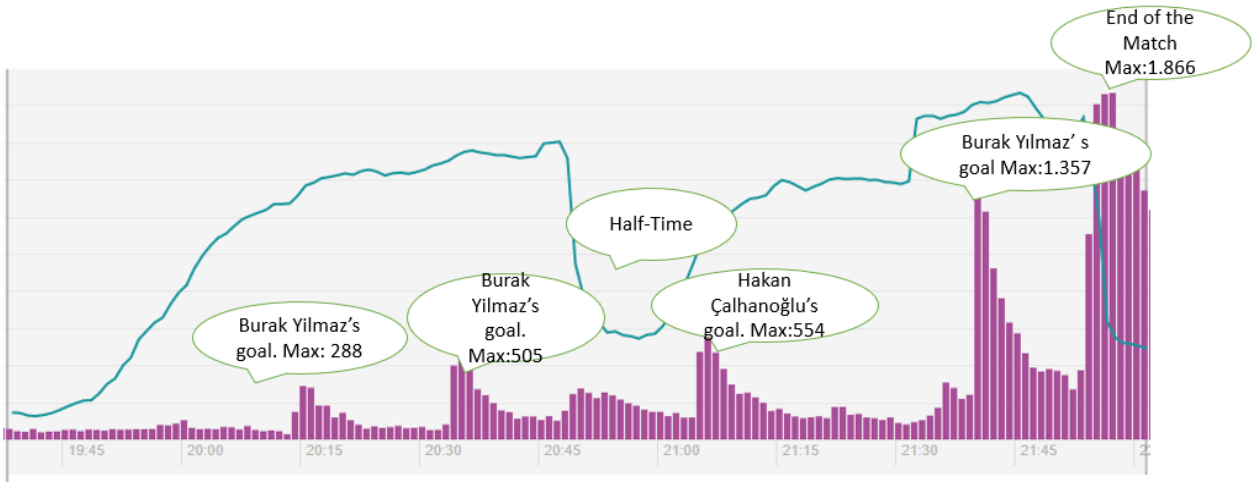
By analysing audience tweets, the impact of the story and characters can be examined in depth.



An example of KSTR :24 March 2021[15]:

A. Turkey-Netherlands World Cup Play-Off Match

Figure 1.TV and Social Media Comparison



Purple lines show minute by minute tweets, blue line show minute Total rating data for those minutes. The number of tweets per minute with the most tweet within 1 minute after goals is shown as the max.

[15] Kantar Media KSTR 24 March 2021

Figure 2.Most spoken words in tweets during the match

Figure 3.Most used hashtags in tweets during the match

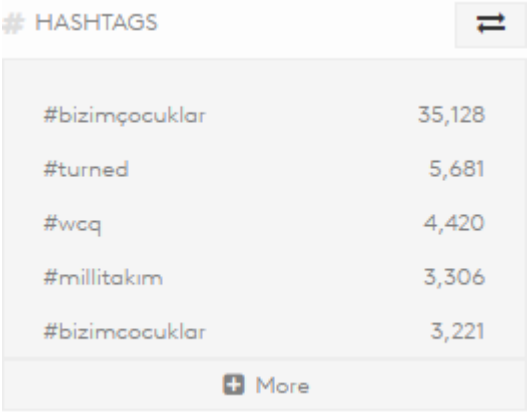


Figure 4.Devices and apps where tweeters post tweets

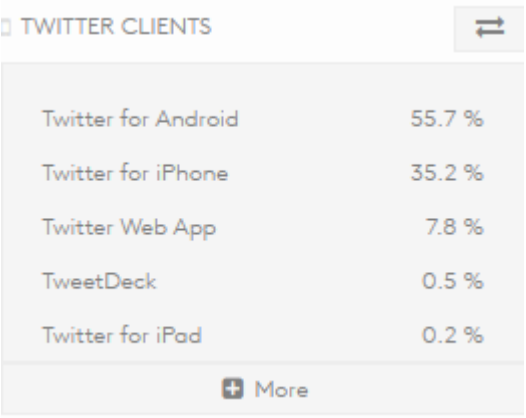
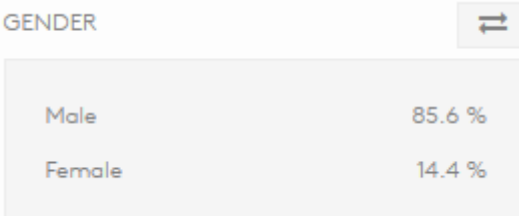


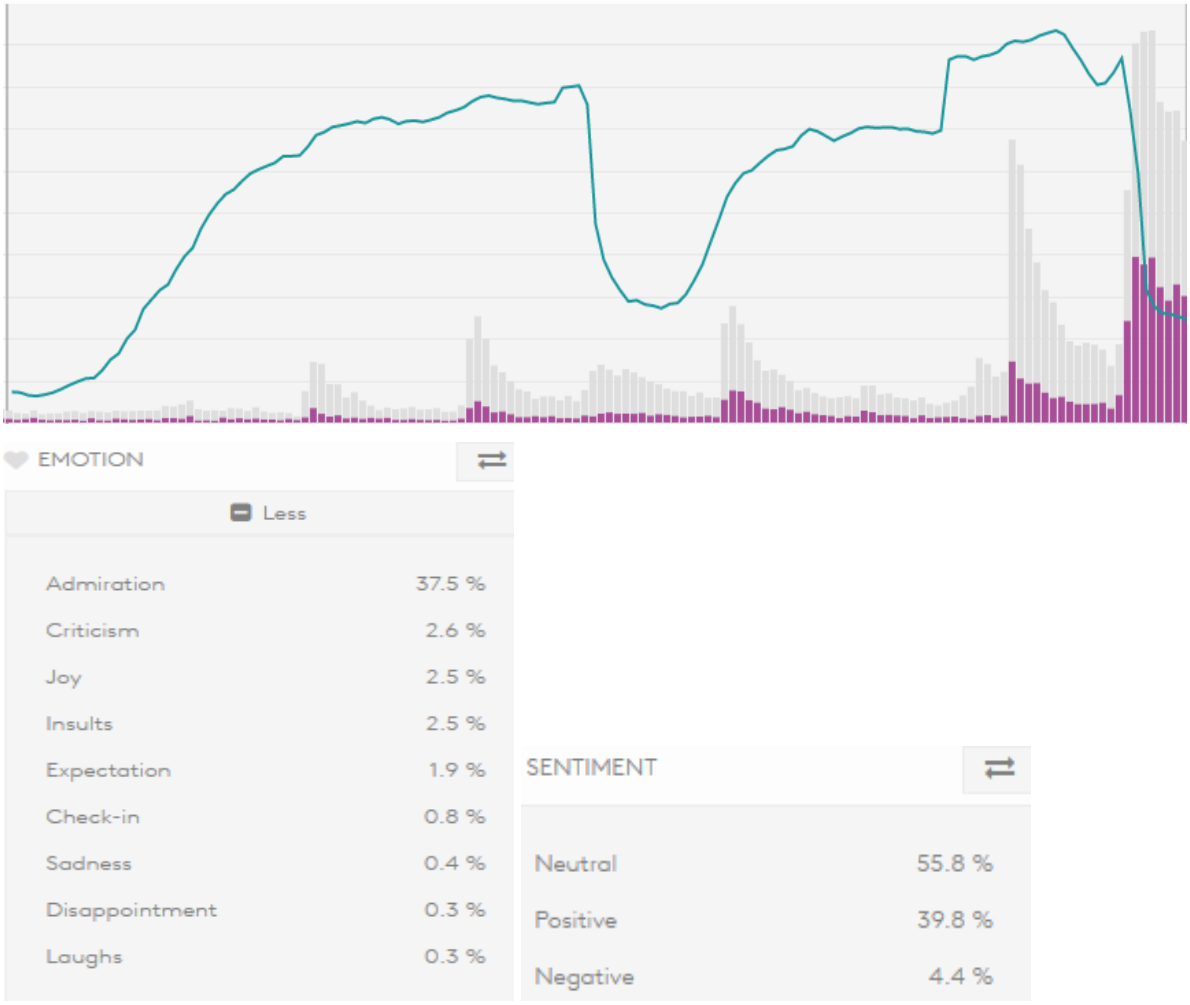
Figure 5.Gender distribution of Tweeters



Sentiment Analysis:

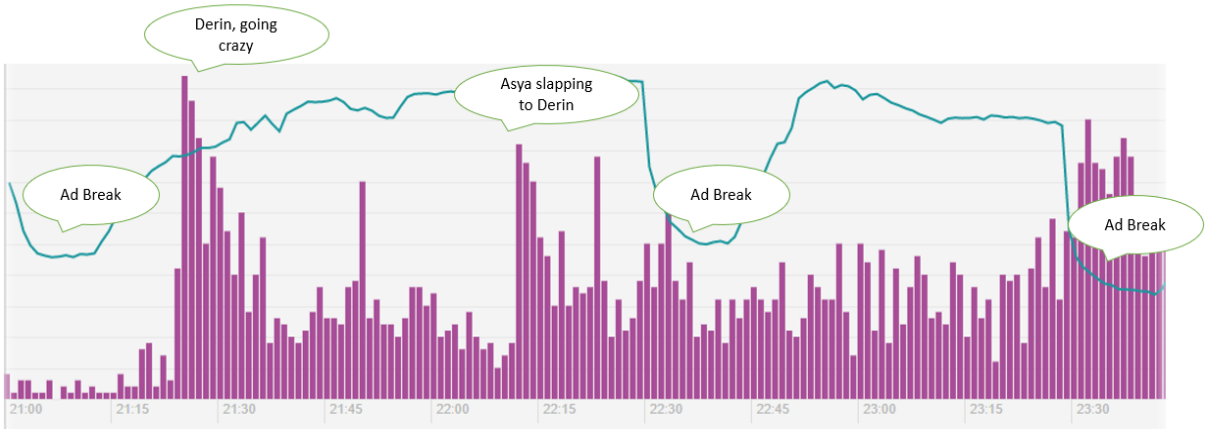
The chart below shows only positive tweets. The lines that appear in purple show the tweet distribution that includes the positive sentiment. In addition, the boxes contain the distribution of emotion analysis.

Figure 6.Sentiment Graph with Audience Curve



B. Sadakatsiz - Turkish Series

Figure 7. TV and Social Media Comparison



The purple lines show the minute-by-minute tweets, while the blue line shows the minute-by-minute Total rating data for those minutes. While the speech decreases before the exciting scenes in the series, there is a rapid increase of tweets at the end of the scene.

Figure 8. Most spoken words in tweets during the series

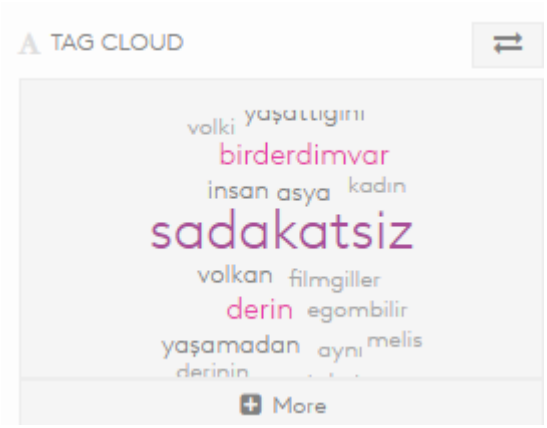


Figure 9. Most used hashtags in tweets during the series

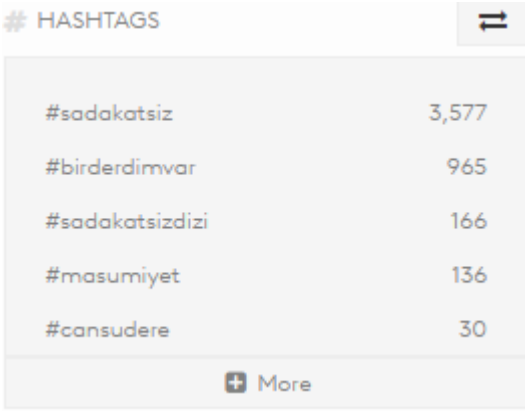


Figure 10. Devices and apps where tweeters post tweets

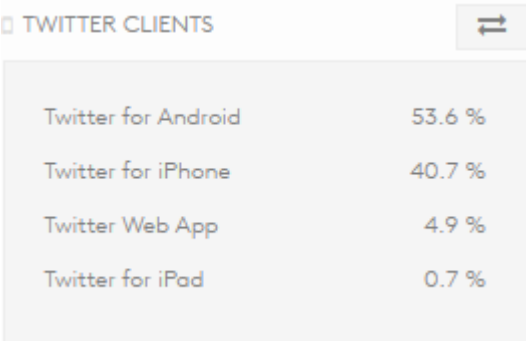
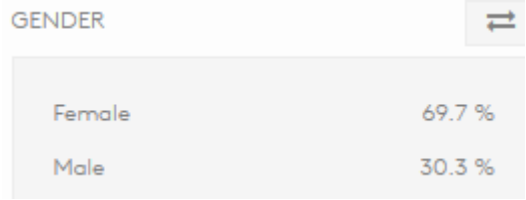


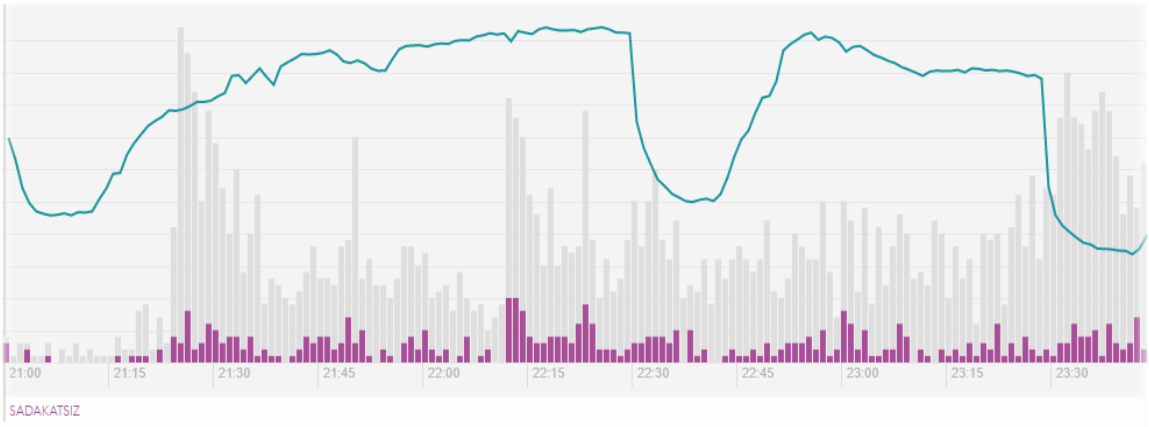
Figure 11. Gender distribution of Tweeters



Sentiment Analysis:

The chart below shows only positive tweets. The lines that appear in purple show the tweet distribution that includes the positive sentiment. In addition, the boxes contain the distribution of emotion analysis.

Figure 12. Sentiment Graph with Audience Curve



EMOTION

Less

Admiration	10.5 %
Insults	8.3 %
Criticism	4.2 %
Joy	2.2 %
Expectation	1.7 %
Check-in	1.7 %
Laughs	1.4 %
Sadness	1.1 %
Disappointment	0.9 %

SENTIMENT

Neutral	72.9 %
Positive	14.9 %
Negative	12.2 %

3. TELEVISION AUDIENCE MEASUREMENT IN TURKEY

In the 1980s, a structural transformation that performs free market economy transition in Turkey has created a significant impact on mass access vehicles. In this respect, the most important development in the history of private radio and television broadcasting was the Star television channel, which is affiliated with the Magic Box company, started broadcasting in Turkey from the Federal Germany in 1990.

Since the 1990s, the media sector has been one of the sectors with the highest growth and development in Turkey. Media management has become a field of activity that many people from non-media sectors have taken over with the start of broadcasting of private television and radio organizations and gaining a legal order in 1994. Public service broadcasting as a monopoly that carried out by Turkey Radio and Television Corporation (TRT) until 1990, with the introduction of commercial initiatives of the media sector has undergone a serious transformation in terms of the relations of production and the form. After the first private television channel Star, many television broadcasts such as Show TV, Channel 6, Tele On, HBB started in a very short time.

TRT, which was in a single hand in radio and television broadcasting until the early 1990s, lost this position with the start of private radio and television broadcasting, and a competitive environment was created for both broadcast content and advertising cake in radio and television broadcasting.

In the "A Look at Communication" report published by the OECD in 1999, it is seen that Turkey is the growth record holder in radio and television broadcasting. While the growth rate in the radio and television sector was 3.4% in the world in 1995-1997, this rate being 24.3% in Turkey shows how big the growth trend in the media sector is.

The main development that enables the start of television audience measurements in Turkey is that private television broadcasting has started with the transformation in the field of broadcasting and that this broadcasting service is fully ad-supported economically. Because television audience measurements are used by television broadcasters to increase advertising revenues by reaching the highest number of viewers, and to ensure that the

advertised products reach the highest number of consumers by advertisers and other related organizations.

In Turkey, the "Joint Industry Committee" model, one of the television audience measurement organizations, is applied. Within the scope of this model, the "Television Audience Research Board" carried out the studies from 1992 to 28 December 2010, after this date, "TIAK Television Audience Research Inc." started to operate.
TIAK is a 16-member committee consisting of 3 Advertisers Association Members, 3 Advertising and Media Agency members, 3 International Advertising Association members and 7 Television channel members.

TIAK was established to organize and supervise TV audience research. Founded in 1989, AGB Anadolu published the first television audience measurement data, which was made with the electronic audience meter method in Turkey, in 1990 from a panel consisting of 150 households in Istanbul in 1991, the number of panel households increased to 220, and in 1992, 110 more households from Ankara joined the panel and the total number of households reached 330. In the tender organized by TİAK and attended by international companies in the same year, AGB Anadolu, the company that will provide TV Audience Measurement service, was selected and the number of panel houses and provinces was increased within the framework of the contract made with TİAK. TNS Turkey - Kantar Media won the Television Audience Measurement Tender opened by TİAK on 15 October 2009. Currency data shared with the sector since September 2012 has been produced by Kantar Media.

How Does the Television Audience Measurement Work in Turkey?

TİAK A.Ş. provides Television Audience Measurement to the sector through contractors. In accordance with the regulation[16] published by RTÜK on 17.10.2012, the company performing Establishment Survey and Audience Measurement for Television Audience Measurement Service must be different companies. TİAK A.Ş. service contracts have been signed with different companies for these two stages of measurement.

[16] https://www.rtuk.gov.tr/assets/Galeri/Haberler/yonetmelik.pdf

For Establishment survey, contracts have been signed with ANAR, GENAR, DIYALOG and VTE, respectively.

Since 2012, the installation and management of the Panel and the comparative measurement and reporting of television channels have been carried out by Kantar Media.

3.1 Scope of Audience Measurement in Turkey

I. Scope of Measurement

Within the scope of the study, the TV viewing behaviours of the viewers in 40 provinces that represent Turkey are followed. Panel households are selected from households with at least 1 working TV in all urban and rural settlements of the covered provinces. The data of the study are compiled from the TV viewing of the individuals 5 and over 5 years old residing in these households and the guests visiting these households.

II. Sampling Method

Sub-universe of candidate panel candidates is formed by "multi-stage, random sampling" method, one of the probabilistic sampling methods. In order to estimate the values of the universe, a Data Collection Research is carried out at the first stage. The target groups are stratified according to the universe values obtained from this study and the panelists are invited to the panel randomly from among the layers.

III. Sample Size

Within the scope of the measurement, the overall results are reported through the monitoring of ~ 14,000 household members living in ~ 4,200 households and ~ 550 guests visiting these households. The data announced for different target groups (20 + ABC1, etc.) in the relevant month are defined by the average number of people in that target group per month and these subgroup samples are shared with the results of the sub-groups examined.

IV. Data Processing Method

Passive observation, which is the most effective practice in behavioural measurements, is used as data collection method. All the views of the panelists in their homes are collected by a device called a peoplemeter placed in the households, which works together with TV systems. When the panelists are watching, they ensure that the data is matched with the

members of the household by using the keys allocated to them in the specified remote. Raw tracking data is compiled for daily reports and necessary analysis with the Instar Analytics application developed by Kantar Media. It is also published via Instar Analytics to all subscribers approved by TİAK A.Ş.

V. Execution Time

The data collection process continues 24 hours a day, 7 days a week. Based on the collected data, daily, monthly, etc. As standard reports are created, reports in desired time periods can also be received by including the previous day's data after 10:00 every day, following the stages of monitoring and data production applications. Monthly data includes a cross-sectional data obtained from all monitoring of the relevant month. The period (month) the published data belongs to is included in the title of the related table.

3.2 Stage of Audience Measurement in Turkey

I. Establishment Survey and Panel Universe

Establishment Survey (ES) is a field study based on the establishment of the Television Audience Measurement Panel, adding new households, and sustaining it with the targeted sample size. The sampling method used in the Establishment Survey is the "multi-stage, random sampling" method, one of the probabilistic sampling methods. It is the basis for the Television Audience Measurement service. The research has three main objectives:

- To determine the distribution of population characteristics required to set up the panel and other variables that affect TV viewing behaviour in the household (TV Number, Broadcasting Type, etc.) (Universe Values),
- Updating the universe estimates in the measurement system by following the trends of these variables,
- To create a database that will select the digits to be added to the panel and the new ones to be selected instead of the ones leaving the panel from among the pool surveyed.

In case the existing panel households leave the panel, the substitute households can be selected from the address pool created through ES.

All addresses that constitute a source for the ES are obtained from TUIK without exception. The number of addresses taken from TUIK for each ES is approximately 136,000.

According to the population rates of 40 provinces, it is expected that approximately 136,000 addresses are received from TUIK and 44,000 surveys can be completed.
Establishment Survey is carried out in accordance with RTUK Regulation. In this way, it is possible to achieve healthy universe and panel control targets for dynamic variables that may differ over time, and to obtain a constantly updated potential panelist address pool for the panel. In addition, according to the current RTUK Regulation, a panel house can stay in the panel for a maximum of 7 years. Regular ES is required to find new ones to replace the households that leave from the panel as a result of the forced turnover that are valid for households completing their 7th year.

In accordance with the RTUK Regulation, the measurement company cannot perform ES. It is carried out by a field research firm which determined at the end of the company selection process managed by the Board of Directors. The periods of the Database Research conducted in the previous periods and the names of the contractor companies that carried out the research are shown below;[17]

2012 ES - TNS (Kantar Media) / Installation of Panel
2014 ES - ANAR RESEARCH
2015 ES - GENAR RESEARCH
2016 ES - DİYALOG RESEARCH
2018 ES - VTE RESEARCH
2019 ES – Partial ES/ DİYALOG RESEARCH
2020 ES - GENAR RESEARCH

Weighting of ES:

For the ES to fully reflect the population values shown by the official statistical values of TUIK, weights are made on the households that can be reached and the individuals living in these households. Weighting is done with the Rim Weighting method.
RIM Weighting[18] : This is an iterative procedure. RIM comes from the acronym for Random Iterative Method; Rim weighting is useful when you know some characteristics of your target population

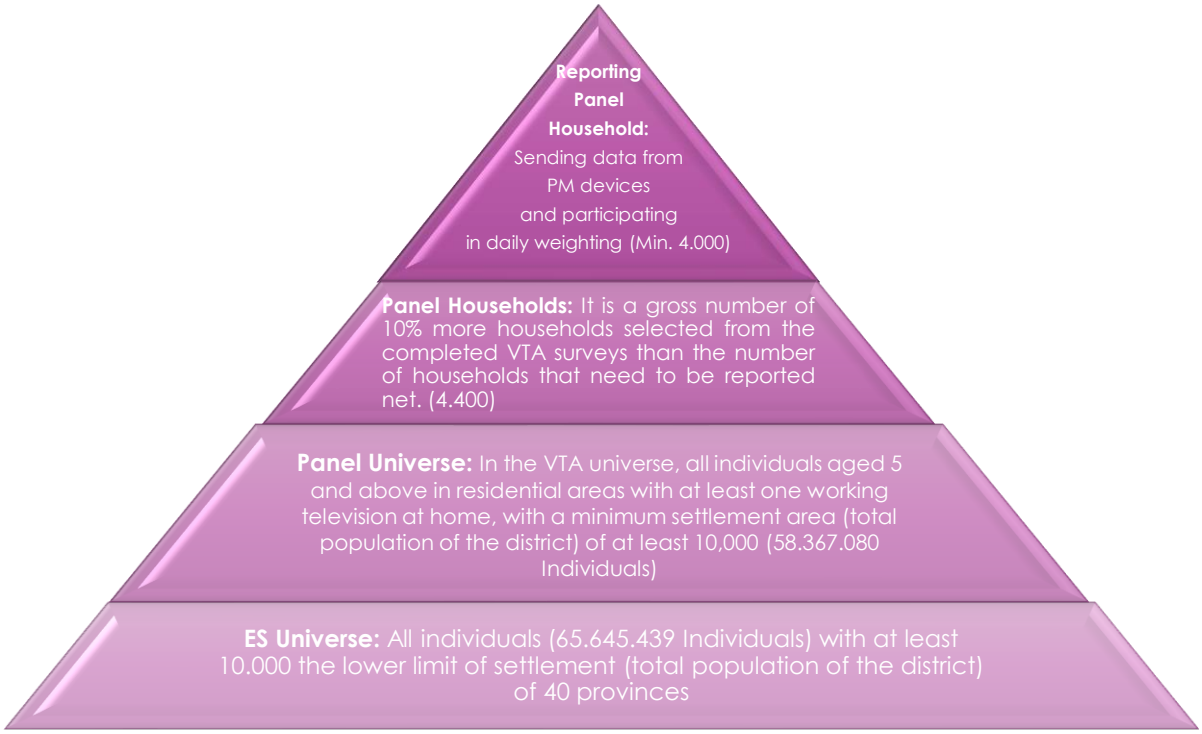
[17] http://tiak.com.tr/sss
[18] https://www.researchgate.net/publication/311523051_A_better_rim_weighting_algorithm

In ES weighting, the following 5 population statistics, which can be obtained from TURKSTAT, are used.

- Age & Gender
- Household Size on Household
- Household Size on Individual
- Education

After the weighing process, a single weight is assigned to each household and individual in the ES. The sum of these weight coefficients ensures that ES is fully compatible with TUIK population statistics based on the variables listed above. After giving weight to ES, the universe values of the variables that cannot be obtained directly from TUIK statistics but are answered within the scope of the research and are important by the sector are also calculated. After the obtained values, there are filters to be applied on the ES data to switch to the Television Audience Measurement Panel Universe.

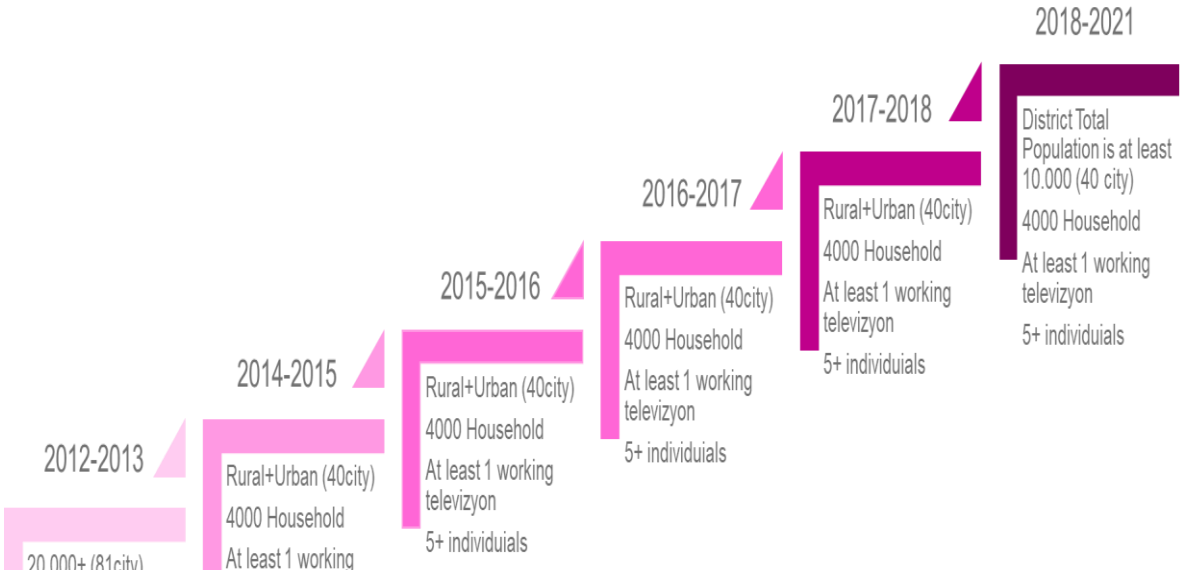
Figure 13.From Establishment Survey to Reporting



The definition of Television Audience Measurement Panel Universe:

TIAK TV Audience Measurement Panel Universe; It includes all households that have at least one working television in 40 provinces where the measurement is made, and all individuals over the age of 5 living in these households, with the lower limit of settlement (total population of the district) 10,000.

Figure 14. TİAK Panel Universe Definition and Universe Figures



	Universe (000)				
Targets	2012-2014	2014-2015	2015-2016	2016-2017	2018-2021
Individuals 5+	48.376	55.723	56.933	57.279	58.367
Households	13.780	16.137	16.896	17.096	17.728

TİAK A.Ş. Television Audience Measurement Panel Universe Figures[19]

		2012 ES		2014 ES		2015 ES		2016 ES		2018 ES	
		(IND/ # 000)	(%)	(IND/ 000)	(%)	(IND / 000)	(%)	(IND / 000)	(%)	(IND/ 000)	(%)
	5+ Individual	48,376	100%	55,723	100%	56,933	100%	57,279	100%	58,367	100%
SES (Social Economic Statue)	SES AB	5,488	11.30%	5,974	10.72%	7,362	12.93%	8,760	15.29%	8,957	15.35%
	SES C1	11,646	24.10%	11,491	20.62%	13,372	23.49%	13,378	23.36%	14,699	25.18%
	SES C2	17,111	35.40%	17,973	32.25%	19,840	34.85%	18,615	32.50%	19,896	34.09%
	SES DE	14,131	29.20%	20,285	36.40%	16,359	28.73%	16,526	28.85%	14,815	25.38%
Household Size	1-2 HH Size	5,615	11.60%	7,573	13.59%	7,970	14.00%	9,014	15.74%	9,673	16.57%
	3-4 HH Size	21,896	45.30%	23,023	41.32%	23,761	41.74%	23,625	41.25%	24,172	41.41%
	5+ HH Size	20,865	43.10%	25,127	45.09%	25,202	44.27%	24,640	43.02%	24,522	42.01%
Reception Type	Satellite	39,644	81.90%	50,327	90.32%	50,337	88.41%	54,632	95.38%	55,633	95.32%
	Cable	1,670	3.50%	1,914	3.43%	3,418	6.00%	1,638	2.86%	2,032	3.48%
	Only Terrestrial	7,062	14.60%	3,482	6.25%	3,178	5.58%	1,009	1.76%	702	1.20%
TV Sets	1 TV Set	31,726	65.60%	41,520	74.51%	42,390	74.46%	39,927	69.71%	40,890	70.06%
	2+ TV Sets	16,650	34.40%	14,203	25.49%	14,543	25.54%	17,352	30.29%	17,477	29.94%
Gender	Female	24,141	49.90%	27,953	50.16%	28,513	50.08%	28,750	50.19%	29,313	50.22%
	Male	24,235	50.10%	27,770	49.84%	28,420	49.92%	28,529	49.81%	29,054	49.78%
Age	5-14	8,803	18.20%	10,157	18.23%	9,788	17.19%	9,918	17.32%	9,975	17.09%
	15-24	8,843	18.30%	9,523	17.09%	10,129	17.79%	9,848	17.19%	9,781	16.76%
	25-34	9,683	20.00%	10,097	18.12%	10,389	18.25%	10,158	17.73%	9,878	16.92%
	35-44	7,800	16.10%	9,134	16.39%	9,370	16.46%	9,635	16.82%	9,988	17.11%
	45-54	6,150	12.71%	7,266	13.04%	7,387	12.97%	7,479	13.06%	7,852	13.45%
	55+	7,097	14.67%	9,546	17.13%	9,870	17.34%	10,241	17.88%	10,893	18.66%
Working Status	15+ Working	14,632	30.20%	16,926	30.38%	18,006	31.63%	18,536	32.36%	19,045	32.63%
	15+ Non-Working	24,941	51.60%	28,640	51.40%	29,139	51.18%	28,825	50.32%	29,347	50.28%

[19] http://tiak.com.tr/evren-degerleri

II. Panel Design and Panel Recruitment

Establishment of the Television Audience Measurement Service begins with the initial Database Survey. The households interviewed during the research process are potential participants for the new panel. Therefore, the design used in ES research must be consistent with the design used in the panel.

Sample Size: In the TV audience measurement panel, there are at least 4000 clearly reported households. To guarantee net 4000 households in reporting, the gross panel size was increased by 10% to 4400.

Structure of Panel: The TV panel will consist of the combinations of TUIK's NUTS zones and 9 geographic zones, called sub-panels, consisting of three metropolitan cities. Each sub-panel is defined according to the geographical region to which it belongs. Panelist households represent their geographic area with panel control variables such as Socioeconomic Status (SES), Broadcast Type, Household Size and Number of TV Sets in a Household.

The 9 panel / regional structures reshaped based on the definition of NUTS 1 administrative region, which divides Turkey into 12 regions, are shown below.

Panel
Ankara
Istanbul
Izmir
Aegean (Ex Izmir)
Black Sea
Central Anatolia (Ex Ankara)
South and East Anatolia
Marmara (Ex Istanbul)
Mediterranean

TV Panel is a panel consisting of private independent residences with TV, distributed in 9 panel regions and 40 provinces in proportion to the universe, excluding the provinces that do not have a panel house. Private freestanding dwellings are defined as one or more rooms that are used as residences, with access to or from a kitchen.

Panel Recruitment and Panel Control Variables: The geographical distribution is not the only consideration that should be considered when creating a panel. To represent the changing television watching behaviours of different individuals in the universe, the panel must represent the universe demographically.
Maintaining a representative panel consists of two stages.
First, in the initial setup phase, it is necessary to ensure that the panel is compatible with the goals set by Establishment Research. Second, since both the universe and the panel change over time, it is of great importance to ensure representation by keeping both structures up to date.

If a particular feature affects the viewing ratios, it is certain that it should be treated as a panel control. However, if a demographic feature does not appear to affect viewing rates, it can be ignored. For example, there is no reason to believe that owning a kitchen item will change views and patterns; however, the type of streaming platform can clearly change the viewing behaviour and rates. Therefore, in order to make sure that the monitoring panel accurately reflects the monitoring habits of the universe, it is necessary to make sure that the panel is controlled by the factors that affect the viewing rates the most.

Panel control variables can be any variable whose population characteristics are known, but it is important to select the measurement variables that affect TV viewing. Secondly, the variables to be reported can be selected as panel control variables, but almost all these variables will be variables that affect TV viewing behaviour.

CHAID analysis is mostly used to determine panel control variables. In this analysis, the viewing level, which has 2 or more categories, is used as the dependent variable, and all the demographic information obtained by VTA as the independent variable. The analysis shows the clustering of the independent variables in the form of trees. As a result of this analysis, there is a set of independent variables that can best estimate the viewing level.
CHAID [20] method (Chi-square Automatic Interaction Detection) is a type of AID (Automatic Interaction Detection) method, which is a method used to analyse structural

[20] https://www.researchgate.net/publication/324744253_Chi-Square_Automatic_Interaction_Detection_Chaid_Analysis_for_Home_Quality_Status_Segmentation/link/5adfdf3d458515c60f63ce36/download

linkages among variables in a data segment (Fielding, 1977). The CHAID result is a decision tree or dendrogram based on the Chi-square test constructed by repeated group separation into two or more branches beginning with all data. (Ture, et al., 2006). The original CHAID algorithm (Chi-square Automatic Interaction Detection) was introduced by Kass (1980) for the nominal response variable. However, CHAID has been extended to the ordinal response variables (Magidson in Magidson&Vermunt, 2006). For more details the stages in the CHAID method are described in the following algorithm:

The stages of CHAID method analysis are as follows (Kass, 1980):

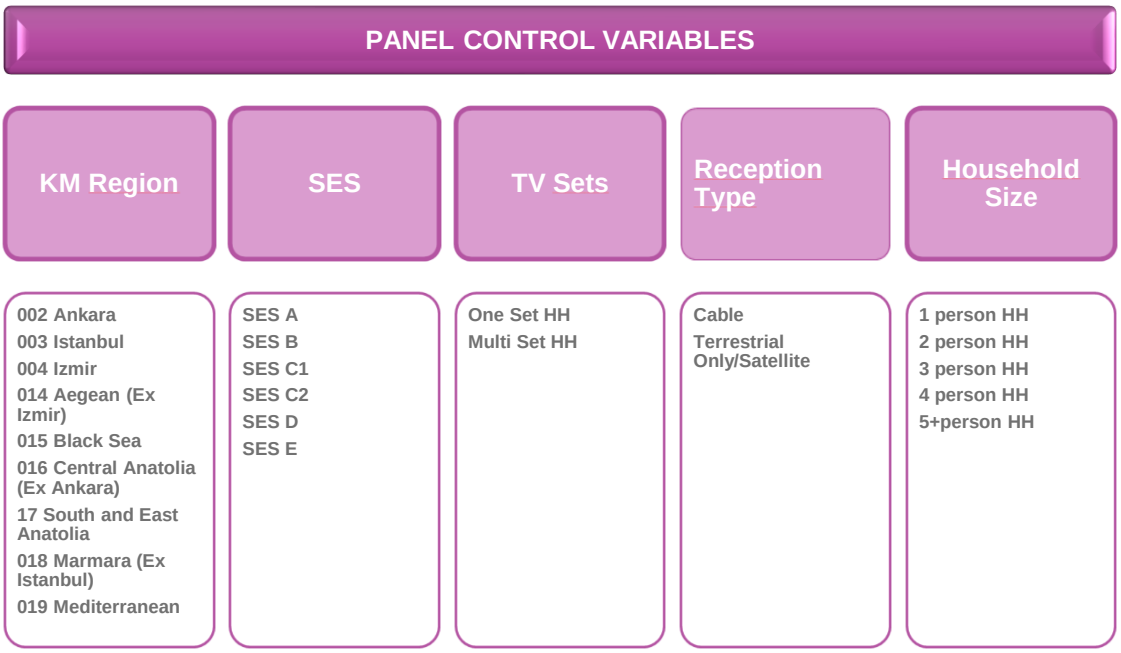
1. For each explanatory variable, cross tabulation is made between the categories of explanatory variables with response categories.

2. From each cross-tabulation obtained, compile a 2xd sub table as possible, d is the number of response variable categories. From the table look for the category pair of explanatory variables that have the smallest test number. If it is not real, combine these two categories into one mixed category. If the number of categories is only two and the test results are not real, then the variable does not need to be involved again in the model. Repeat this stage so that the smallest test table of the 2xd sub table pair category (mixed category) explanatory variable goes beyond the critical value.

3. For each mixed category that contains three or more categories of origin, look for binary separation that has the largest test number. If there is to make that separation and go back to stage 2.

4. Calculate the real levels for each new cross-tabulation and note which one has the greatest test number, call it the best-known tabulation. If this number is greater than the critical value, divide the data by that category.

5. Return to stage-1 to do the division based on unselected variables



In Turkey, there is a two-stage control system in order to have a balanced panel with universe and to be able to report.

1. Panel Balance (Quota Control)

Panel balance reports: It is a quota control operation performed on the basis of household-based panel control variables. One Proportion Z is made according to the test statistics. When recruitment of household setups from Establishment Survey to panel, household prioritization is made using the same scores.

One Proportion Z Test: The One Sample Proportion Test is used to estimate the proportion of a population. It compares the proportion to a target or reference value and also calculates a range of values that is likely to include the population proportion.

The tolerances of the target values are determined according to the Z Test 99.99% (Z value 3.29) confidence interval. Z values are calculated according to the formula below.

$$z = \frac{\hat{p} - p_o}{\sqrt{\frac{p_o(1 - p_o)}{n}}}$$

2. Weighting Performance (Exact Matching with Universe)

It may not be possible to have a perfectly balanced panel despite the efforts to harmonize the sample rates for panel control variables with the population ratios. The weighting

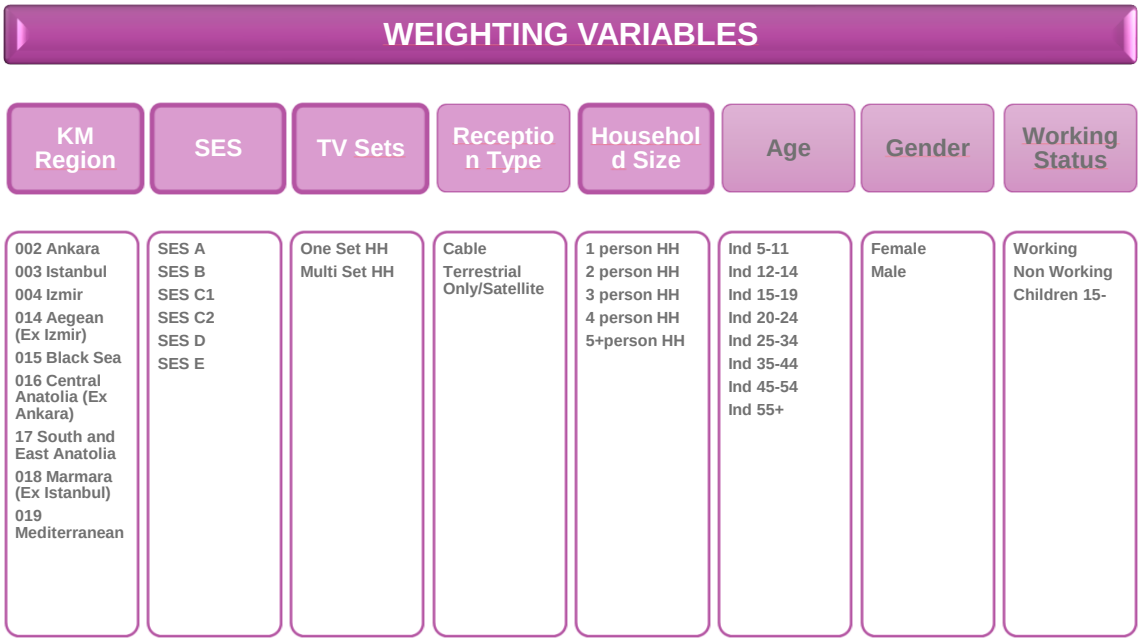
performed to reduce the effect of bias on the basis of panel control variables is done to reduce the effect of double unresponsiveness encountered during both ES and adding households to the panel as much as possible. It helps to eliminate the effect of improbable sampling design that the panel has due to the nature of the work and provides results that are compatible with the universe profile.

Weighting variables consist of the variables that are mostly used in daily reports and that affect the viewing habits. Panel control variables should also be included in the weighting variables.

- It is a daily process. It is ensured that 58.367.000 people are represented by weighing approximately 14.000 people every day.
- Each person is expected to represent an average of 4,000 people.
- Any person on the panel taking a high weight depends on their demographic characteristics. For example, if individuals living in a household of 1-2 people are less in the panel compared to the universe represented, they can take high weight. This is important for the representation of demographics. However, the results of the weighting need to be controlled and it is ensured that 1 person does not have a high representation power by the following criteria.

Effective Sample Size: When the relationship between sample and population is examined, it is the smallest sample value for which this relationship is statistically significant. This criterion, considering all the categories (Rim / Cell) used in weighting; compares a simple random sample of theoretically equal size with a weighted sample.

Panel weighting performance metrics: Weight Range, Weight Outliers, Number of Iterations, Convergence Level



III. Panel Operation Management

The panel operations department exists to:

- Install and service the meter equipment.
- Manage the incentive programme system.
- Maintain panel members' commitment to full participation in the service.
- Enforce quality control process to provide high quality data
- Maintain the accuracy of the database information held about each panel home.
- Provide the security of TV Panel data

The panel management system within the Kantar Media AtriaPro software will provide all the support functions needed for efficient panel operation.

AtriaPro Quality Control and Panel Management System [25]

The collection of monitoring data files is carried out using the information processing system named Comtel, which provides panel and data management together. The high level of compliance of the panel members with the panel requirements is monitored by the AtriaPro system to ensure that the tracking information is correctly entered by the household. AtriaPro has detailed technical information about the whole television environment in the household (brand of TV devices and their location in the household,

video recorders, cable, and satellite receiver/top box -STB- information, etc.). The brands and locations of all equipment are registered in the system.

The AtriaPro system that is used in the collection, editing and production of monitoring data, is also used for panel management and performs all data processing stages from data taking to data editing, weighting, quality controls and database creation.

GPRS/GSM modems are used to collect data and fixed lines are used in locations outside the coverage area of GPRS/GSM.

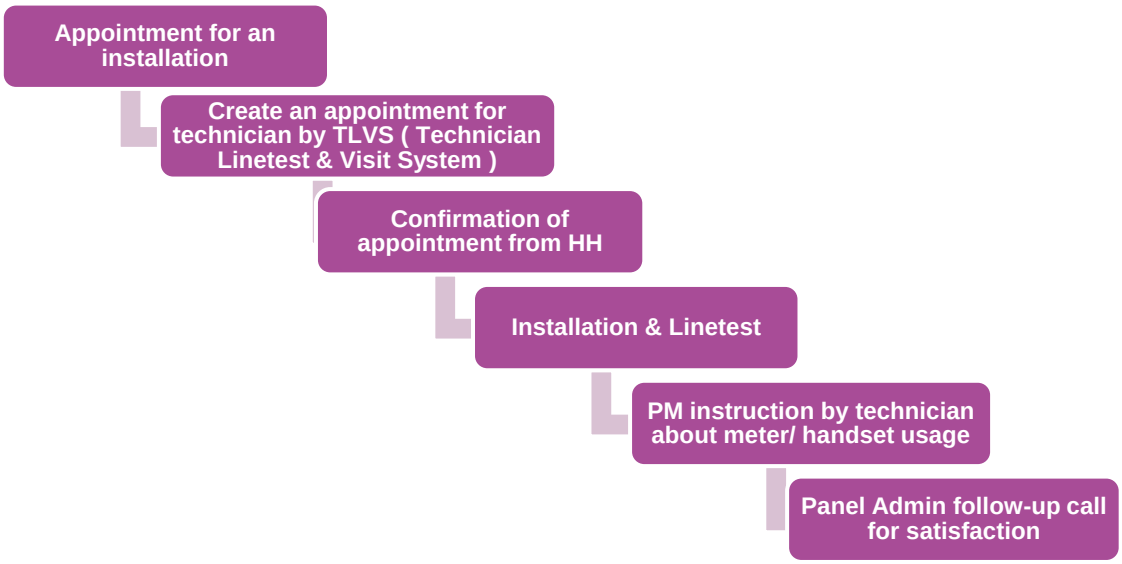
Quality control issues cover the topics below:

- Compliance levels
- Normal or abnormal viewing behaviours
- Data quality
- To ensure that the viewing estimates accurately represent the total population, the most recently reported panel undergoes a rim-weighting procedure to correct for minor demographic differences.
- After verification and processing of the data with the Comtel system, the data files are prepared to be uploaded to the Instar Analytics system, which is the Kantar Media audience analysis system.

After the data collection, the reports of Atria Pro are used to technic and behavioural controls.

Recruitment Process:

- Panelists are recruited by telephone and F2F interviewers using a call script. Recruitment is done according to a Priority List to achieve best panel balanced. Households must be obtained from Establishment Surveys.



Quality Control Process:

The reason for creating work orders is to automatically detect the households with data detected to be problematic according to the quality control standards in the panel and to allow the panel management team to act. Work orders are used to identify repetitive household and individual behaviours in a consistent and scalable manner that may affect data quality.

- The Work Orders and summary reports are produced from AtriaPro every day and panel homes are called by checking these reports and viewing data.

- The Work Orders include technical problems (Data connection errors, gsm problems) and home behavioural problems (Meter / handset usage, excessive viewing) The homes are contacted according to these faults for remedial action.

- The technician will visit a home if meter or handset has a technical problem

Drop Out Process:

Drop Out reason can be household requests, data quality, security problems and technical problems.

Also, enforced panel turnover policies are usually one of the reasons of drop out. Maximum panel life, or minimum panel turnover. According to RTUK regulations maximum panel life will be at most 7 years and minimum turnover rate per year is %15.

IV. Collection, Processing and Forming of Audience Data

Television audience measurements are studies conducted to determine television viewing behaviour and answers questions such as 'Who is watching?', 'What is being watched?', 'How long / When is it being watched?' Audio matching technique is used to determine which TV channels are viewed in panel households. PeopleMeters record the audio signatures of the channel at 5-second intervals. By the keys assigned to the households in handsets which are connected to PeopleMeters, the people who are watching TV are defined. PeopleMeters are installed to all TVs in the panel home and every PeopleMeter has separate handset.

TNS 5000 Series PeopleMeter[21]

TNS 5000 Series PeopleMeter has some features such as data storage, data capture and GSM / GPRS communication that eliminate the need for extra cable.

Both the 5000 Series PeopleMeter and Audio Matching are currently the systems selected by BARB for the new Television Audience Measurement that has started in the UK in January 2010 and have proven themselves in many services around the world.

The measuring device used in households where single device installation is sufficient is supported by the following modules:

- Receiver with display and remote control: It has an independent processor. It manages all interactions with panel members and guests.

[21] http://tiak.com.tr/tv-izleme-olcumu/panel-islemlerinde-kullanilan-teknik-altyapi

- Module / modules that determine whether the TV and other related devices are used, and which channels are watched.
- Central processor and memory: Responsible for data storage and communication management.
- Telephone modem: A 9600 b.p.s. GSM modem that enables the measurement device to communicate via GPRS technology or a 2400 b.p.s. modem used with a conventional telephone line.
- Power source

In homes where more than one PeopleMeter installation is required, the main PeopleMeter is used together with the slave device. The main PeopleMeters also have modules that receives data from slave devices installed to other televisions in the same household.

The viewing data of the panel home, which is collected through PeopleMeter and stored throughout the day, is automatically transferred to the data production collection center of the measurement company every night at certain hours. Then reporting and analysis processes are started.

After the panelist's viewing data are recorded on the PeopleMeter, audio signatures which are created automatically every day are received to the data center via GPRS.

Audience data is generated with the advanced sound matching system (AMS) by matching the audio signatures from households and reference site signatures created on the Kantar Media reference system servers.

Audio Matching:

- The sample of audio signatures from the broadcasters are taken.
- These signatures are stored with the timestamp in PeopleMeter;
- Kantar Media keeps the reference data from all measured channels.
- During data processing, audio signatures taken from panel homes are compared with reference data which also includes time stamp.
- Lineer TV viewing can be matched with reference data by timestamp.

With the enhanced Audio Matching system, audio signatures which belong to channels that are watched by a panel home are continuously taken and stored in the PeopleMeter. There

is a central Reference Pool in the office of the research company and audio signatures of all channels to be reported are collected in this reference site. The samples taken in the reference site are always in high frequency.

There is a back-up reference site at a different location to protect signatures against power failure or errors caused by the broadcaster or the cable system used to collect samples of all queried channels. After the data collection phase is completed, the audio matching data collected from the households is sent to the Kantar Media data processing center every night, where it is matched with the reference samples taken from the channels in the central Reference Pool to determine which TV channel was watched at which time. Audio Matching, as a channel detection method, can be used in both analogue and digital broadcasts.

TV Monitoring:

TV Monitoring is the process of the 24-hour broadcast streams of TV Channels for advertising (spots, banner ads, social ads, promotional ads, tele markets, sponsor ads) and program details with millisecond granularity, labelling, classifying them according to industry standards and using them in TV Audience Measurements reports.

While monitoring, it is ensured that programs, spots, and banner ads are recorded separately by using different characters.

Time Shifted Viewing:

Time Shifted Viewing is that a household watches a content at a different time from broadcast time on a television. In case the broadcaster broadcasts the program on the same day after the end of the program or in the following days depending on the broadcast stream, it is not the scope of Time Shifted Viewing.

Lineer: Watching the broadcast live.

VOSDAL (Viewing On the Same Day As Live): Watching the broadcast time shifted on the same day as live.

7-Days Time-Shifted Viewing: Watching the broadcast time shifted in 7-days period.

Consolidated: Lineer + VOSDAL + 7-Days Time Shifted: It refers to the total viewing of VOSDAL and time shifted in 7-days period.

V. Reporting of Audience Data

Kantar Media reports the minute-by-minute TAM data and TV spots and programs at 10:00AM. For TIAK's second membership model which is for 15 minutes excel based reported channels, TV monitoring data is reported at 12:00PM

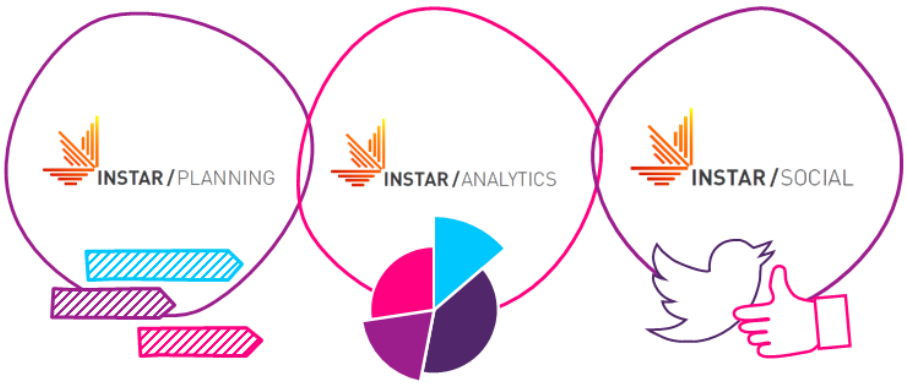
Kantar Media processes data collected in the TAM survey so that the results are representative at both the individual-and household levels. Data is weighted so that it considers changes in the daily panel composition. Kantar Media produces daily, weekly, monthly, and annual pre-defined reports on TV consumption. Data content and access are determined by TIAK.

Data is delivered via https server located in Kantar Media Istanbul office. Instar Analytics, previously named Infosys, servers installed at client side will be set up to take data automatically twice a day. The first delivery includes full time subscribers' audience and monitoring data at 10:00AM while the second one is the program and spots data of 15 minutes subscription channels at 12:00 PM.

Instar Analytics:

Instar is a suite which contains Kantar Media client software, planning, and analysis tools. Kantar Media Instar software enables users to gain insights through analysis tools and assists them with planning; thereby helping they make the correct business decisions surrounding programmatic, content, media, time slots and advertising spend to optimise their media strategies.

The Instar suite is made-up of three distinct applications – each with a designated application to help broadcasters, advertisers or agencies make the very best use of their audience planning, analysis, and appreciation data.



- The first release of the software called InfoTV; was launched in Spain and China in 1996.
- It was being used in 6 different countries under the name InfoSys in 2000.
- Instar Analytics has been used by Kantar Media since May 2008.
- Instar Analytics is used by more than 8.500 users in more than 800 companies
- Currently, Instar Analytics is used in 29 different countries.
- The software developed by Kantar Media: world-class Analysis Software
- Channels reported on Quarter hour (15 mins) basis can only receive programmes and spots duration reports via Instar Analytics.

Television Audience Measurement – Basic Metrics

Rtg(000)

Average number of viewers per minute. The Rtg (000) value of a program or time is obtained by adding the number of viewers per minute and dividing it by the total duration (in minutes) of the program or time period**.**

Rtg%

Calculated by proportioning the average number of people per minute to the target audience population selected. In the example below, Rtg(000) is 26.407.000. The Universe value of Individual 5+ target is 58.367.000 people.

Share

It is obtained by proportioning the average number of viewers per minute in a given time period to the average number of viewers per minute of Total TV in the same time period.

In other words, it is the percentage of total audience. For example, the fact that the X program has a share of 65% means that 65% of the television viewers watch the X program during this program, while the other 35% watch the other channels. This variable can be applied for channels, schedule, and time slots.

Universe

It is the total population of a particular audience / category. It can also be defined as the population represented by the research.

Sample

The number of individuals / households in the panel that was reported.

4. A PRACTICE OF CROSS MEDIA MEASUREMENT IN TURKEY

Cross Media Audience Measurement for Google Turkey

Google Turkey wants to understand the incremental reach that YouTube puts on the traditional TV broadcasting which is delivered through Satellite, cable, or IP platforms. TV channels in Turkey broadcasts some of their contents over their YouTube channels as live or VoD pieces to gain additional audience from the marketplace.

Agencies make their cross-media campaign plans over some assumptions as there isn't any currency cross media measurement in Turkey yet. Agencies are distributing their budget among traditional and online media channels to increase their reach in the desired specific target groups.

Having a cross-media campaign measurement study will shade a light on the exact effects of different media channels on the reach and frequency metrics of the cross-media campaigns.

Main TV Measurement in Turkey is provided by Kantar. The data is collected from a 4400 TV measurement panel homes and reported at 10AM daily to the industry. TİAK, the TV JIC, is the owner of the panel and the data produced. Existing TV audience measurement includes live and 7 days' time-shifted viewing activity, which covers both the household members and the guests who visit the panellist homes to represent the population's guest viewing.

4.1 Scope of the Project

The project's main scope is to measure both the traditional TV and YouTube viewership of sample campaigns and video contents via a mobile panel. The aim is to reveal and understand the incremental reach that YouTube Ads would generate on top of the traditional TV viewership. Furthermore, the project would have the potential to identify both traditional TV & YouTube's audience profile since advertisers care about different generations' behaviour in different demographics and ownership status, which potentially affect the consumption types and amount.

A mobile panel consists of 1.500 individuals aged 20+ Android users living in provinces selected from the NUTS1 level, including the major metropolitan cities, i.e., Istanbul, Ankara, and Izmir.

During the test period of two months, ten ads and five video contents have been measured.

4.2 Methodology

Panel:

- Adults 20+, living in İstanbul, Ankara, İzmir and other major cities in NUTS1 Level, n= 1400 (daily avg.)
- Quota sampling, quotas were set according to distribution of quota variables in TAM panel
- Twentify is the panel partner
- Panel was active between 1st of October & 5th of December

Measurement Methodology:

- Kantar Audio Watermarking technology
- Reality Mine as a Technology Partner
- RealityMine's SDK integrated into Twentify's Bounty App

Data Process:

- **Panel Balance** Control Region, SEC, Gender & Age variables
- **Weighting** Data is weighted on daily basis using the "RIM - Random Iterative Method" according to the distribution of Age, SEC, and Gender for each region,
- **Panel Stability and Correction Factor** A beta distribution is used to calculate correction factor according to stability figures for each campaign

Twentify[22]: Twentify is a consumer research company allowing brands to collect growth-focused insights by reaching more than half a million consumers around the world. Using Twentify's mobile consumer panel, brands can learn their target audience's behaviour and thoughts, and receive feedback on their products, marketing and brand initiatives.

[22] https://www.twentify.com/

Bounty app, used by 850,000+ consumers worldwide, enables to gather direct feedback.

Limitation of the Panel:

- Android Devices Only
- Panellists' compliance in the Bounty App

1st Party Data – Metering software

The most granular and high-quality behavioural data is collected through metering software. Meters are deployed in the form of an app which we ask respondents to download and install on their devices. Twentify's panelists will carry the metering software on their mobile devices. Kantar has its own audio watermarking technology which can detect embedded watermarks in the Ad creatives and contents. Kantar also partners with RealityMine for metering services.

Kantar and its panel partners recruit panellists who:

• Accept our T&Cs

• Install the meter app on their device
• Configure VPN internet connection
• Receive an incentive to keep the app installed

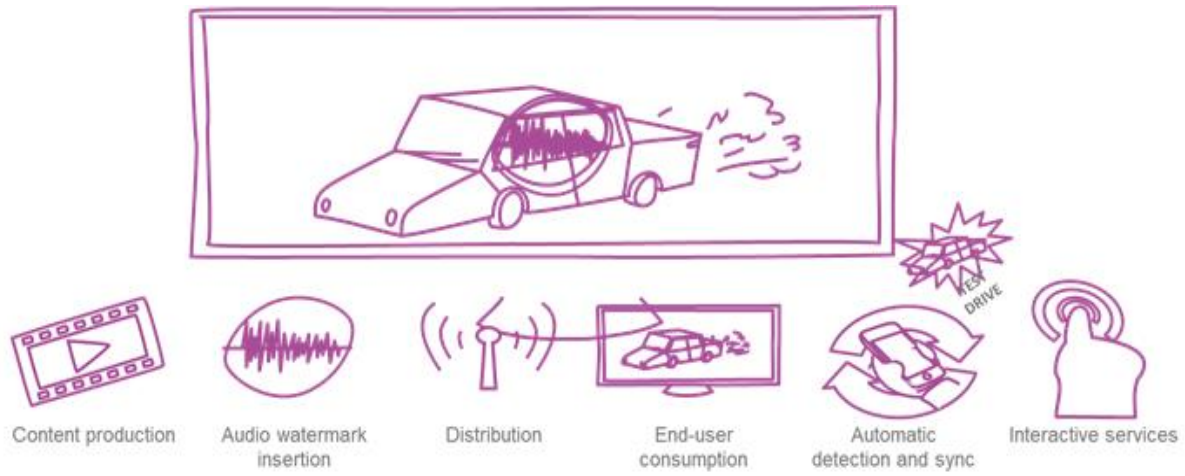
4.3 Data Collection

Because the most granular and high-quality behavioural data would be collected through metering software, meters were deployed in an app that respondents were asked to download and install on their mobile devices.

Kantar has its audio watermarking technology, which can detect embedded watermarks in the Ad creatives and contents. Kantar also partnered with RealityMine for metering services as they offer the most reliable, robust, and effective meter software. Panelists might expose to the content on the device which has metering software or on the other ones.

Audio watermarking technology

How does it work?



Audio Watermarking is a signal processing technology that hides information in the audio essence itself. The watermark is persistent, robust against audio processing, and inaudible.

1. The watermark is inserted in the head-end of the broadcasters by dedicated equipment
2. The watermark is detected by the meter installed in panelist households
3. The meter periodically uploads panelists' logs to a back-office system for consolidation.
4. The backoffice consolidates the data retrieved from all the panelists and generates the audience reports.

Audio watermarking technology What are the benefits?

- Applicable for simulcast; Watermarking allows a unique identification for each media
- Applicable for multi-languages; Watermarking allows a unique identification of each audio tracks
- Supports and enable the differentiation of all transport modes; DTT, DSL, Cable, Satellite
- Supports and enable the differentiation of any all-distribution modes; Linear, Catch-up TV, VoD, PVR, TV on Mobile
- High scalability: One new watermarking embedder for one new TV channel to be measured
- Evolutive to Real Time ratings

4.4 Universe & Panel Sample Size

The research universe is individuals aged 20 and over and living in 40 provinces (except the residential areas with a population under 10,000). The total population figure of the study is 43.363.068 individuals.

The fieldwork had started on 1 October 2020 and was finalized on 5 December 2020. Of the 3,337 individuals who participated in the panel for at least one day, an average of 1,400 panelists per day was included in the final analysis after the quality checks.

4.5 Panel Balance Control & Weighting

Panel universe balance was controlled for the variables of Region, Socio-Economic Class (SEC), Gender, and Age.

Notably, there were difficulties in persuading the 45+ and C2, DE SEC groups to join the panel and retain them.

Data is weighted daily using the "RIM - Random Iterative Method" according to the distribution of Age, SEC, and Gender for each region.

4.6 Panel Stability and Correction Factor

Due to the high turnover rate encountered in short-term online panels, the conventional reach calculation formulation might end up with overestimated results. Thus, a correction factor that considers the panel distribution during the campaign, which is a beta distribution, was calculated and applied to all target audiences and YouTube and TV platforms for each campaign.

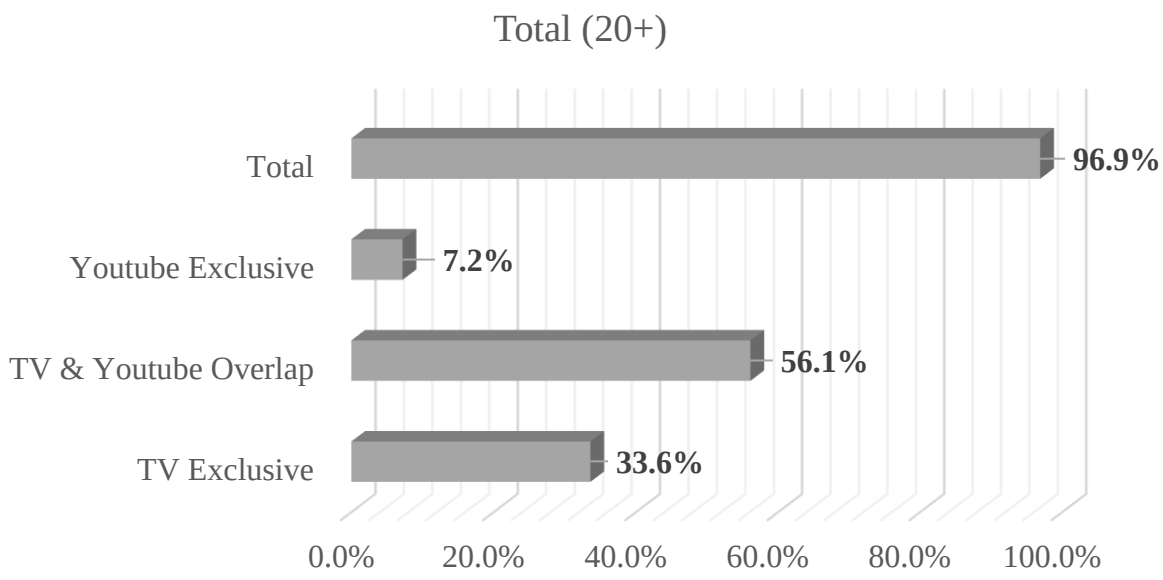
4.7 Cross Media Reach Results for All Campaigns

I. Cross Media Reach by Platform

YouTube has reached 63% of all 20+ Turkish population in total and 7% exclusively. Even after TV has reached

90% of the 20+ population, YouTube still achieves a solid 7% exclusive reach on top.

Figure 15. Cross Media Reach Total (20+)

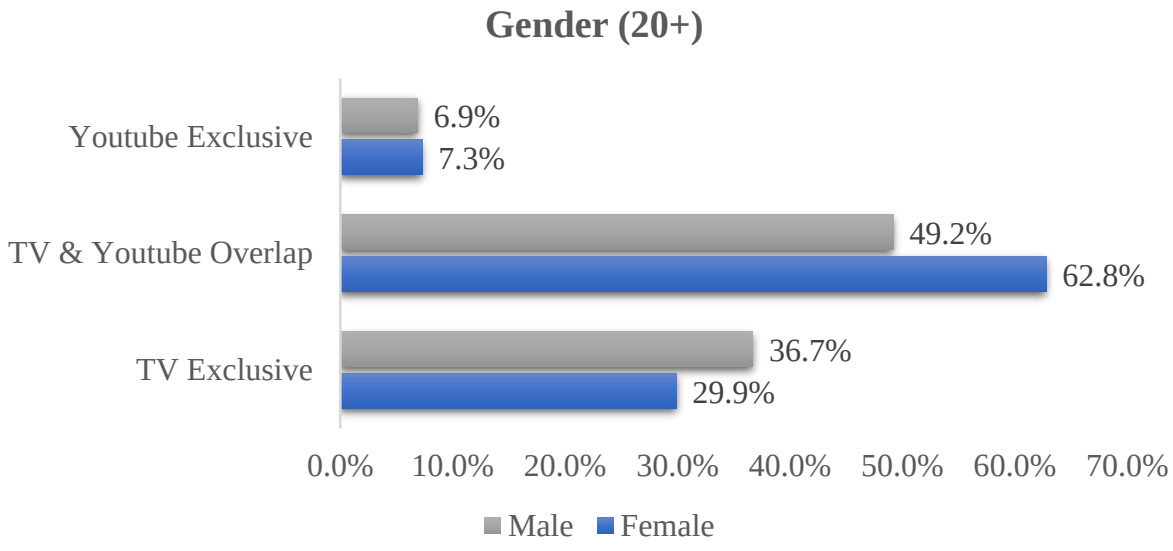


Total TV reach is 89.7% and Total Youtube Reach is 63.3%.

By Gender:

YouTube has reached 70% of all 20+ Female population. YouTube has 7% of incremental reach, like the overall results, in the gender breakdown also.

Figure 16.Cross Media Reach Gender



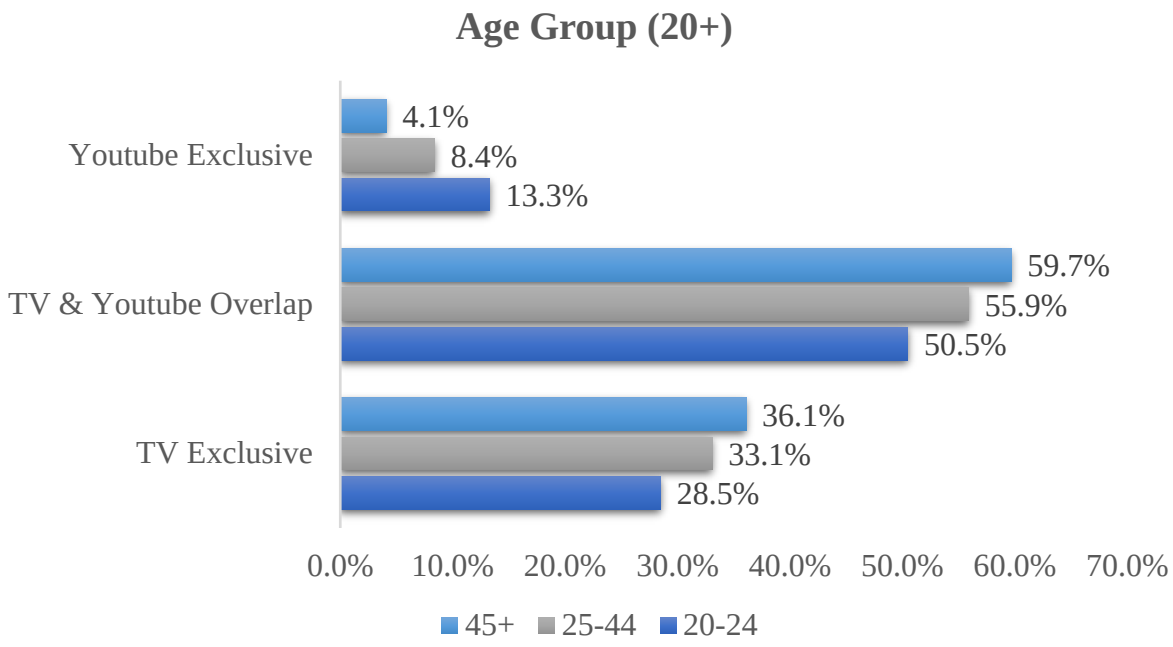
Total TV reach for female is 92.7% and male is 85.9% .

Total Youtube reach for female is 70.1% and male is 56.2%.

By Age Group;

13% 20-24 age group has only been reached by YouTube exclusively.

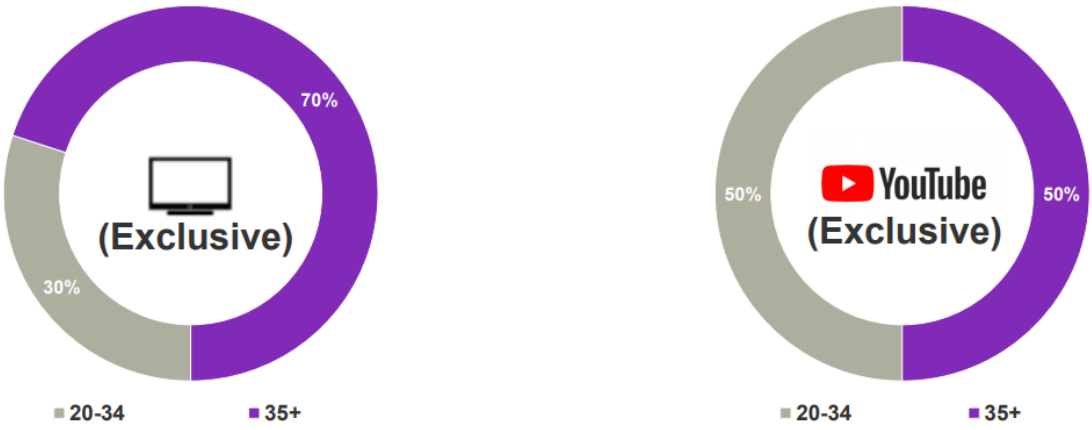
Figure 17. Cross Media Reach Age Group



Total TV reach for 20-24 is 78.9%, 25-44 is 89.0% and 45+ is 95.9%.

Total YouTube reach for 20-24 is 63.8%, 25-44 is 64.2% and 45+ is 63.9% .

Figure 18. Cross Media Reach Age Comparison on TV & YouTube

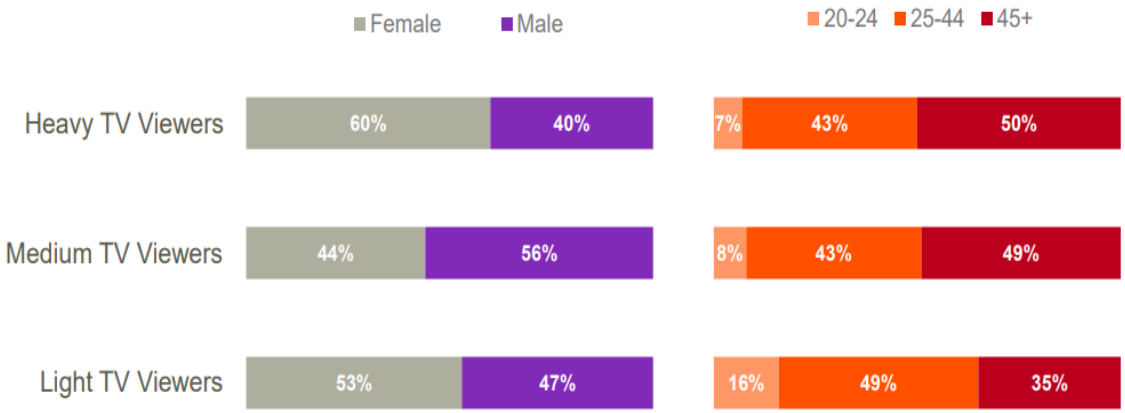


YouTube audiences were more heavily weighted to the 20-34 demographic than TV viewers while still 50% of

YouTube Exclusive reach generated by the 35+ age group.

II. Profile of HML Segments

Light TV viewer profile skews to the younger age groups with a 65% of all viewers are between the 20-44 ages.



20% all light TV viewers were only reached by YouTube exclusively.

- YouTube campaigns have reached 63% of all 20+ Turkish population and 70% of all 20+ Female population during the 2 months research period. Even after TV has reached 90% of the 20+ population, YouTube still achieves a solid 7% exclusive reach on top.
- 20% of all Light TV Users were only reached by YouTube exclusively.
- Top 33% of TV Viewers (Heavy TV users) generates min. 70% of total GRP during the 8 weeks of research period.
- Respondents reached by both TV and YouTube, generated significantly higher total and spontaneous awareness thanks to the synergy effect between the platforms.

CONCLUSION

Television watching is now a "practice" that goes beyond just a certain activity, namely television viewing behaviour. Therefore, we see that recent audience research tries to grasp the media culture that surrounds the audience, rather than focusing on the audience watching a particular program (Alasuutari 1999: 6). In other words, it is now essential for audience research to grasp television in an extreme media context without forgetting what it is (Evans 2011; Simons 2014).

Internet technology, which allows us to put smartphones, tablets, laptops, television, and radio in the same basket and describe them in relational way, can also qualify the audience as a top title.

However, here too, it will be necessary to present and measure different and cross-use forms that occur in different devices in context. What we are trying to describe is the cross-media audience. In media ecologies that are likely to continue to expand with new articulations, the audience may be a concept that we need to reconsider with every new device or technology.

Audience measurement needs are changing because of significant changes in the media environment, including new technology and competition, and shifting audience behaviour. People increasingly use tablets and smartphones to access media content, and there is a broader range of media and technology services than in the past, including different broadcasters' and subscription on-demand services.

Changes in audience behaviour are particularly pronounced among younger people. According to cross media measurement results, young people is more active on online environment. When the profiles of the viewers are examined, it is seen that women are more concentrated among YouTube viewers. In terms of age distribution, watching YouTube seems to be more popular among young people. Only 50% of YouTube viewers are in the 20-34 age range, while 70% of traditional TV viewers are 35 years old and over.

It is not yet determined whether this difference between the two platforms will widen over time and what kind of result will be encountered when other platforms are included in this measurement. However, the important thing is that anything that cannot be measured cannot be sold, so the investment tools that will begin to shape the future will change by

determining the measurement in these channels and by determining who made it and following the trend in time.

The number of devices that people can watch TV on is proliferating, with tablets and Smartphones coming very much to the fore. In a multi-platform world, understanding and measuring viewing across consumption platforms is critical. A new integrated total media audience measurement solution to measure viewing, listening and reading audience consumption across all the devices should be the next phase of audience research.

The new solution will enhance the measurement and reporting of each medium, delivering both enriched data for planning and trading and a design that equips us with cross-media measurement capacity in the future.

- Deeper, consumer-centric insights to understand consumers and the role of the many entertainment and information options in their lives.
- A futureproof, open system with complete flexibility, enabling the industry to expand measurement through additional devices and platforms as audience behaviors change and evolve.
- Cost efficiencies: increasing the cross-media output and reducing individual costs for each currency by aligning panel

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