
The Numbers Game

Measuring audiences
in the data age

Andrew Green

“A good decision is based on knowledge, not numbers.”

- Plato

Introduction

People who fear numbers are said to suffer from numerophobia or arithmophobia. There are even those who fear specific numbers like number 7 (heptaphobics) or number 13 (triskaidekaphobics).

Audience measurement is a discipline swimming in numbers and, with the emergence of Big Data to supplement or even replace more traditional survey approaches in many cases, now throws out even more numbers.

Such numbers are used to support media buying decisions, scheduling strategies and sales arguments. This means, of course, that they are often marshalled to back up arguments rather than to generate insights; a sales case must be made by a media owner for every possible client prospect and numbers be found that support that case. His competitors will use the same set of numbers in a different way to propose that, in fact, it is their medium that is most suited to the client.

Numbers can be made to support almost anything in the hands of a skilled practitioner, something Benjamin Disraeli, the 19th century British Prime Minister, was surely referring to when he talked about: “*three kinds of lies: lies, damned lies and statistics.*”

The emergence of digital media and the data that comes with it have made the job of sifting through these numbers to find ‘the truth’ more challenging than ever.



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**three kinds of lies:
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- Benjamin Disraeli



Opportunity Knocks

When a publisher makes the case to a marketer that it should advertise in one of his magazines, the argument will usually revolve around the magazine's 'fit' with the advertiser's target audience. If the marketer is selling *haute couture* clothing, for example, the publisher will point to how many upscale women read the magazine and how much they love it.

If a radio broadcaster wants to sell its advantages to a supermarket retailer, it may point out how many potential customers are listening to its stations in the run up to their shopping expeditions.

The audience statistics presented by these and other media are generated using statistical projections of sample-based surveys. It is important to note that they are not *counts*, but *estimates* of the number and kind of people viewing, listening to or reading the media content being measured.

It is also important to point out that they are not a measure of how many people see the *advertising* in any of these media; rather, they are a measure of *opportunities* to see or hear the advertising.

This may seem like a subtle distinction, but one of the reasons it is important is that the relationship between the measured opportunity to see advertising and likely exposure to the medium carrying the advertising differs between media.

For example, people reading a newspaper or magazine may not read every page and may not, therefore, have an equal probability of seeing an ad on page 5 or page 50 of the publication. The measurement treats them equally – as a 'reader'.

People who claim to listen to the radio for at least some part of the period between 7.00 am and 7.15am on a particular day will have differing likelihoods of hearing ads at 2 minutes or 13 minutes past the hour.

The following table summarises the difference in definitions of Opportunities to See (OTS) advertising in most audience measurement studies between different media:

Medium	Definition of Audience/Opportunity to See Advertising
Television [#]	Indicates that they are in the room with the TV set tuned to a channel at the time a commercial airs
Radio [*]	Claim to listen to a station during the quarter hour time period a commercial plays
Newspapers/ Magazines	Claim to read any part of a publication featuring an ad
Out of Home	Claim to or tracked as passing poster advertising frames
Digital	Initiated load of a webpage featuring a banner ad

[#] In some systems, panellists are also asked to confirm they are watching
^{*} Non-electronic measurement only. Passive electronic methods can measure exposure to audio content second-by-second





How Much is Enough?

Raw audience ratings or numbers are unlikely to be the only data used in planning or evaluating advertising campaigns. More subjective considerations such as editorial fit and the overall environment of the advertising are likely to play a role in decision-making.

The numbers themselves can be manipulated and analysed in different combinations to ensure the maximum number of target prospects are exposed to the advertising message within a given budget.

Media planners will try to determine what **effective frequency** levels they should employ in a campaign (i.e. ensuring people see a message often enough for it to sink in or cut through, but not so often that they become irritated). This is a notoriously difficult task to undertake with traditional media, given the wide variation in levels of media usage amongst people; but looking only at average frequency levels for a campaign can be misleading.

If, for example, a TV spot is placed in 10 different programmes over the course of a day, it is possible that some people will see only one of the spots, while others may see all 10. Over the course of a month, this effect is magnified, with some people seeing the message perhaps 3 or 4 times, while others might see it 30 or 40 times.

Getting Attention

Some audience measurement systems have tried to incorporate measures of attention or engagement into the mix. This can be done by analysing the existing audience data in certain ways or by collecting additional data from survey respondents.

An example of the first type of approach is to look at viewer or reader **loyalty**. If certain television programmes or publications have a high level of loyalty (we can measure whether people on a TV panel watch individual programmes regularly or occasionally and we can ask how often people read certain titles) a planner might surmise that they are likely to be more attentive to advertising in and around that environment.

Another possible measure of engagement is to look at **time spent**. This is directly measurable from a TV, Out of Home or radio panel and can be asked about in a readership survey. More time spent can indicate higher levels of engagement with a medium.

New Horizons

The arrival of digital advertising in recent years has, in many ways, changed the way planners and buyers look at audience measurement. The basic difference between traditional and digital audience measurement is that traditional measurement captures exposure to a **medium**, while digital measurement focuses on the **audience** itself.

For example, traditional television audience measurement is based around tracking television sets within a household and who is present when they are switched on. Readership measurement focuses on individual publications and who reads them.

What digital audience measurement seeks to do is to identify and track individuals as they surf the internet enabling them to be targeted wherever they go online (sometimes known as 're-targeting').

On the face of it, this is a major breakthrough. It means that the problems noted earlier of a message reaching some people infrequently and others too often can be more closely controlled. If we know which sites an individual customer prospect is looking at, we can ensure that they see a message as often or as little as we want.

Targeting is also improved. Instead of aiming at a broad demographic surrogate for our true target audience (for example middle-aged men for family cars or housewives for grocery staples) we can hone in on people who have shown interest in a particular product or service by examining their online behaviour or learn when they do their weekly shop and send them appropriate messages shortly beforehand.

If they have searched for a holiday, we can target them with related advertising messages; if they have looked at new kitchens, they can be specifically targeted with marketing for kitchen-related goods and services. This offers the promise to consumers of more relevant, interesting advertising being sent their way instead of things they will never buy or use.

All this, in turn, enables us to measure the return on our investment in advertising more quickly and more precisely. We can see how many people click on particular banner

ads and what actions they take all the way down to making a purchase. We can see which creative executions are working best. And we can see which people are more or less responsive to advertising at different levels.



New Problems

Unfortunately, the promise of digital advertising and digital audience measurement is far from being fulfilled. There are many limitations and caveats to the rosy picture painted above of more precise targeting, better measurement and improved ROI.

The first of these is the definition of 'audience.' On television, as noted above, people should be 'in the room' with the television set tuned to a particular channel (in some systems they also confirm that they are 'watching' the television when they indicate their presence in the room). Readers tell us about their reading of publications rather than specific pages within the publications. None of this is perfect of course.

But it is not much better for digital media. When internet users initiate the loading of a webpage on their devices, they are immediately logged as being in the 'audience' of that webpage. Advertising content in whatever form is downloaded to the page when it loads, or when it refreshes, giving them - in theory - an opportunity to be seen.

Measuring audiences in the data age

It is possible that users may mistakenly initiate the loading of a particular page or might be searching through several sites to find what they are looking for. In such cases, they will not wait for the whole page to load (or the ad) before they move onto another page. In many cases, the webpage will be larger than the screen being used to view the content (especially in the case of a mobile device). Advertising can be loaded on the non-visible part of the page which will never be looked at.

The Media Ratings Council in the USA, recognising this problem in 2014, set a 'viewability' standard for digital advertising which specified that to be regarded as viewable, at least half the pixels of an ad had to have been loaded into the viewable portion of the browser window for at least one second. Monitoring company Meetrics estimates that around 60% of banner ads in leading economies now meet these criteria and so can – assuming this is policed by the buyer or advertiser – be taken into account when planning or evaluating a campaign.

One second of potential exposure to an ad, of course, sets the bar very low...

Devices ≠ People

There is another challenge. The in-built audience measurement within the digital ecosystem actually tracks devices, not people. Although it seems obvious to assume that behind every device is a person, this is not always the case.

Juniper Research has estimated (nobody really knows...) that close to 10% of digital advertising spending worldwide is targeted at **bots** – set up by criminals to masquerade as real people who visit and click on websites. Advertisers tend to pay according to how many people they reach and are therefore being short-changed by many billions of dollars through this activity. Careful control and management can minimise the impact of fraud, but this 10% average will hide significant variation.

Another problem with equating devices with people is that many devices are shared and so there may be more than one person behind a device. **Cookie deletion** (cookies are

small pieces of software code downloaded onto a user's device when they visit a site so that they can recognise them when they return) means that even when the same person re-visits a website after an absence they may be counted as a new user, as the cookie installed on their device has been deleted by the user's security software. This limits the validity of campaign analysis over longer periods.

Not everybody is even reachable by digital advertising. Statista estimates that close to one third of U.S. internet users will **block ads** on their connected devices in 2018 and PageFair found that at least 11% of devices worldwide had installed ad blockers by the end of 2016, suggesting the number will be much higher by now.

Brand safety has loomed large in several cases recently. Because advertisers delegate much of their digital ad placement to automated ('programmatic') buying systems, which can only buy or not buy what they are told about, advertisers often find themselves appearing amongst content they would not choose to appear in. This can range from sexist, racist or extremist content to terrorist videos.

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- Source: Lumen Research

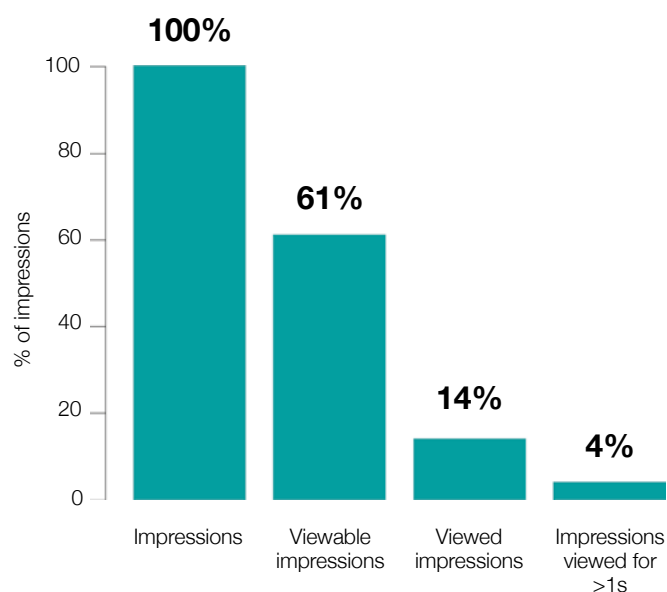
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At best, agencies can blacklist sites they do not want to appear in and/or whitelist those that are appropriate – but in such a fast-changing space, this is not easy to manage without the occasional mishap.

Finally, it is worth noting that small-scale research experiments carried out by eye-tracking specialist Lumen Research has found that most digital advertising is actually **invisible** to internet users. The company operates a panel of desktop computer users with special cameras fitted below the screens. The cameras enable an accurate and detailed record to be kept of exactly where the users' eyes are fixated on the screen when certain content appears.

When they examined banner ads appearing on websites their panel members were served, they found that 61% were viewable, 14% were at least glanced at but only 4% were looked at for a second or more.

Viewability and viewing rates beyond a second



Source: Lumen Research



Digital Deluge

Digital advertising generates a lot of data. Data on website traffic (website impressions), on website reach (unique users), the amount of time spent looking at pages, on the number of page 'views', the number of 'unique' (first time) page views, on the number of clicks, the % of views converting to clicks, the % of clicks converting to purchases...and much, much more.

In fact the Advertising Research Foundation lists almost **200** different digital advertising metrics which can be used to measure and analyse performance in its Digital Metrics Field Guide, <http://srappaport.com/the-digital-metrics-field-guide/>.

So for numerophobics and arithmophobics, the digital world is a very scary place. Audience measurement has always been an area defined by numbers. The fact that we have long measured *opportunities* to see advertising rather than actual advertising exposure has been cited as a weakness and limitation of the discipline – which it is.

But while most countries in the world now track peoples' presence in the room where a TV set is tuned to commercials rather than simply the programmes they air in, it is hard to envisage an affordable and scaleable way of measuring viewers' attention to what is on the screen, when they may choose to talk to their companions, check their mobile devices or make themselves a snack.

Equally, it is hard to imagine any sort of research approach which could measure exactly which pages in a printed magazine or newspaper are looked at in every issue. So measuring opportunities to see is likely to be the best that can be done. It is certainly technically possible – budgets permitting – to get a better handle on how likely these opportunities are to translate into advertising exposures. But it will probably not progress beyond that.

Many digital advertising enthusiasts have raved about how all these limitations have been swept aside by the arrival of the precise, targeted and built-in measurement generated by the internet. They have not. Digital advertising metrics have many limitations, not the least of which is that they also mostly measure opportunities to see rather than actual exposure.

As well as this, targeting people exclusively according to their online behaviour omits the very important fact that people lead off-line lives as well. They may, for example, research a product or service online and go on to buy it in a retail outlet. Or *vice-versa*.

But like traditional audience metrics, in the right hands they can be a very useful decision-making guide to planning and evaluating advertising campaigns.



The Future

At Ipsos, we believe the future of audience measurement is in combining – where possible – **passive simplicity** in our audience tracking and in the **appliance of science** to make sense of the data created by the passive systems.

As an example, our MediaCell technology allows us to capture peoples' exposure to any kind of audio-based media (radio, TV etc.) using the Smartphones they carry around with them as a normal part of their daily activity.

The phones (in which we install a special app) automatically detect an audio code inaudible to the human ear which tells us which radio stations or TV stations are broadcasting in the vicinity of the people carrying the phones. Another technology known as 'audio-matching' can also be used to identify audio sources.

The simplicity comes in the fact that we don't ask respondents to do anything they do not normally do (carry their phones, keep them charged and keep them connected) and neither do we ask them to remember anything – the phone does it for them.

The science comes in how we then process the data and turn it into TV and radio audience estimates.

An adaptation of the MediaCell app also allows us to track internet usage from any devices used by a respondent – again without asking them to remember anything or to do things they do not normally do.

We will not solve all the limitations of all the audience measurement systems; but this approach does address several issues facing audience measurement – like the impact of imperfect memories and curbs on how long people will agree to be engaged in answering questions.

The most important thing is for people to be aware of the limitations of all types of audience measurement and to take account of these limitations when using the data.

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