

How reliable is my audience? Coping with audience fragmentation

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INTRODUCTION

Faced with increasing penetration of digital television and increasing numbers of available digital channels, SKO, the JIC in charge of the television audience measurement in the Netherlands, decided to include 35 exclusively digital, thematic channels in their measurement. In August 2008, Intomart GfK started measurement of these channels in a pilot project within the Dutch TAM.

The pilot has two main objectives. The first is to find out if it is technically possible to measure the wide range of channels. Audio channel identification technology (EAM) is used to measure digital channels on television panel households, because they are able to register viewing behaviour through digital equipment. The second objective is to test whether an existing panel operation would be big enough to produce reliable figures.

The principal reasons to use a pilot to start measurement of the new digital channels, and not to simply include them in regular audience measurement, are threefold. You may consider that TAM measurement is expensive, the more so when taking into account the relatively low penetration of digital channels. The still very modest viewing time generated by these channels should also be considered.

While state of the art technology is available for the measurement of digital television, the major challenge appears to be to report reliably on the large (and still growing) number of digital channels. In this context, the techniques we use in reporting on regular channels can prove insufficient (with regards to the possibility of zero ratings) or economically not viable (as we would have to use larger panel sizes).

The big question that rose from our pilot project: when can a channel be reported reliably? This is a central question, not only for television audiences but also for the scattered media landscape in the digital era. In the wake of this, an important, new objective emerged: the development of a measure that objectively determines if a certain combination of a channel with limited audience and a relative small panel size matches up into report-able figures.

Both the technical committee of SKO and all the participants in the pilot have monitored whether exclusively digital channels can be reliably reported with the use of reach measures. While these digital channels have already been included in the regular audience measurement in the group tagged "other channels", no public insights into detailed figures per individual channel have as yet been released, nor have results in terms of reliability been published. We present the first results in this paper.

BACKGROUND

Channel Availability: More Choice

By the end of the 1980s, the television audiences in the Netherlands could choose between four channels from two major Dutch broadcasters. In 1988, they welcomed a new channel from the RTL Nederland group, as well as Kindernet and Eurosport. As in other European countries, the Public Broadcasters were the only channels available: Nederland 1 since 1951, Nederland 2 since 1964 and Nederland 3 since 1989.

In the 1990s, 14 new national channels were introduced. A number of regional channels also made an appearance. In this period, the Dutch TAM consisted of 30 channels.

In the last eight years, however, the number of channels has risen to 144. This number only includes channels established in the Netherlands, excluding regional and local channels. In 2008, the European Observatory counted 346 channels, including local and regional channels. When we include all the channels available to Dutch audiences, the total number rises to 437. Six percent of these channels are generalists; thematic channels represent almost 40% of the supply.

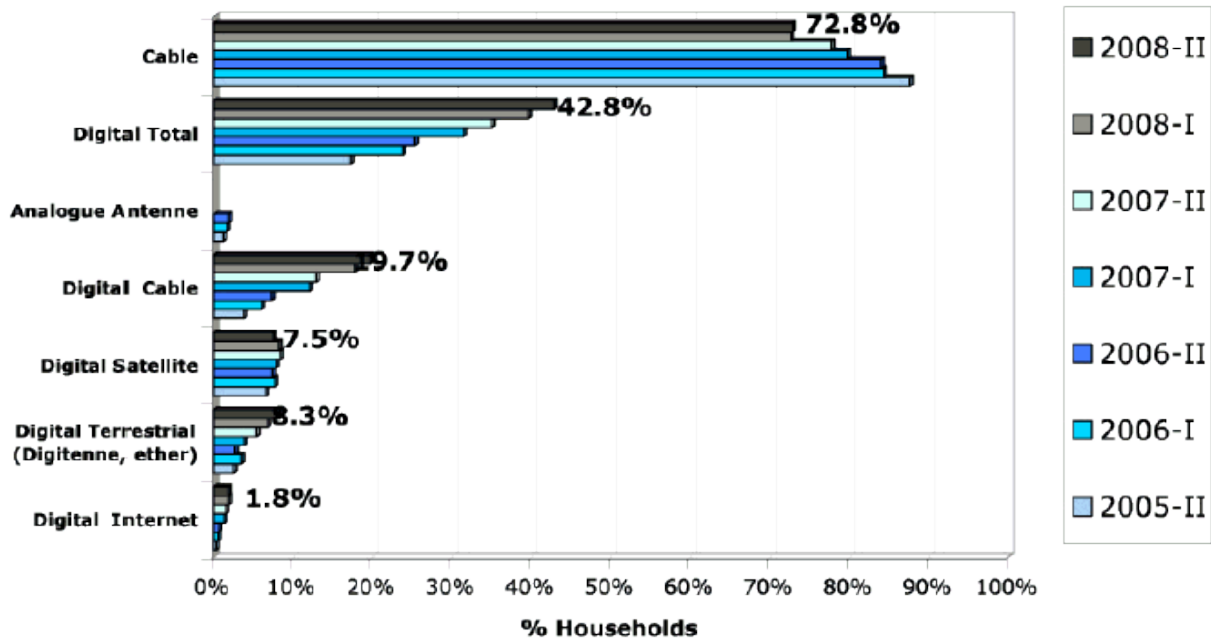
Digitalisation

Digital distribution is an important driver behind the increase in the number of channels. A minimum of 50 different channels are now included in standard digital television subscription packages of diverse cable operators, whereas analogue cable subscription packages traditionally offered a maximum of 35 channels. By subscribing to additional digital packages in the Netherlands, it is possible to receive more than 100 digital channels, some of them premium subscription channels.

The audiovisual landscape in the Netherlands is changing rapidly. Through the rapid increase in digital reception, digital, thematic channels are becoming available to a larger proportion of the population.

Traditionally, the Dutch rate of cable television penetration is among the highest in Europe. Eighty-five percent of the Dutch households had analogue cable reception in the first half of 2005. In the first half of 2008, 72% of the households still had analogue cable television. Coexistence of digital and analogue cable within households is unique to the Dutch television market.

The total penetration of digital reception increased from 17% in the second half of 2005 to 35% in the second half 2007. In the first half of 2008 digital reception increased further, reaching 40% of the households (see Figure 1).



Source: SKO ES 2nd half 2005 – 2nd half 2008

Figure 1: TV signal

In the second half of 2008, digital cable television could be found in almost 19% of the households. Eight percent of the households received a television signal through satellite and 8% had digital terrestrial reception, while only 1.8% of the households had a digital internet reception.

As a result of the growing penetration of digital television, The Netherlands faces an increase in the number of digital channels. These channels will have to be included in audience measurement. Subsequent section in the paper discuss how these new channels can be measured.

Fragmentation

Between 1990 and 2008, the average yearly market share of the four largest channels shrunk from 83% to 54%. Over the same period, the average viewing time increased from approximately two hours in 1990 to more than three hours in 2008. Since 2002 the average viewing time remained stable at just above three hours. This, in combination with an explosive increase in the number of channels available, has resulted in audience fragmentation (see Table 1).

	1990	1994	1998	2002	2006	2008
All day (02:00-26:00)	83%	77%	58%	53%	50%	52%
Prime time (18:00-24:00)	83%	76%	58%	57%	54%	54%

Source: 1990-2002 CKO, 2002-2008 SKO

Table 1: Share of viewing (top 4 channels)

There are a number of problems associated with fragmentation. They are related to the diminishing accuracy of published ratings by stable sample sizes and the increase in fluctuation for reported ratings (see Kirkham, 1996). This poses problems to the reliability of the results, especially when making prediction models, even for larger target groups. SKO has developed a methodology to deal with these reliability problems, as further explained in a later section of the paper.























SKO DIGITAL PILOT: PROJECT SET UP

There were two big questions that had to be answered before measurement of exclusively digital, thematic channels could take off: *Is our panel big enough? How large is the audience of these digital channels?* The answers to both questions would be instrumental in deciding if and how ratings of digital channels could be reliably reported. After calculating the costs for oversampling our panel with digital households, and discussing the possible outcomes for the channels, we decided to change our approach and to do things differently. We would not take the traditional path of starting with a long discussion on how to tackle possible issues, but we would simply begin the pilot and tackle any

issues as they came along.

Participants

Participants were found among the organizations that deploy channels already measured by SKO: MTV Networks, Discovery Channel Benelux, Dutch Public Broadcasting. Through cable and satellite companies, other channels (some UK-based) heard about the project. In the end, a total of 35 channels got involved in the pilot, with new channels still being added as we speak (see Table 2).

Chellozone	Zone reality	
	Zone club	
	Zone horror	
	JimJam	
	Extreme Sports Channel	
Discovery	Discovery Science	
	Discovery Travel & Living	
	Discovery World	
NBC	13 TH STREET	
	SCI FI Channel	
	Hallmark Channel	
NPO	Hilversum Best	
	HollandDoc	
	Sterren.nl	
	Humor TV	
	Opvoeden doe je zo	
	10TV	
	Consumenten TV	
	Cultura	
	Spirit24	
	/Geschiedenis	
	Journal24	
	Politiek24	
MTV	Nick Hits	












	Nick Jr.	
	TMF NL	
	TMF Dance	
	Comedy Central Family	
National Geographic	Nat Geo Wild	
E!	E! Entertainment	
History Channel	History Channel	
Xite	Xite	
Endemol	Misdaadnet	
NostalgieNet	NostalgieNet	
Car Channel	Car Channel	

Table 2

For two channels currently participating in the pilot, there are still some measurement problems due to extreme simulcast situations. There are two exclusively digital channels, 'NOS Journaal 24' and 'NOS Politiek 24', which presented a lot of audio simulcast with reference to public channels. This issue is under investigation. SKO will start reporting them from April 1st on.

Technical Setup

Intomart GfK was asked to set up Enhanced Audio Matching reference sites for the participating digital channels. It was decided that only one technique would be sufficient for the pilot, as channels were willing to take the risk of missing some measurement in the case of signal downtime. This part of the project was needed to determine if these channels could be measured technically. For most channels this turned out to be the case; the question whether we are technically capable to measure the channels could therefore be answered positively. However, registration was not enough. We needed to find out whether these channels had an audience and then decide if this audience was big enough to be reported reliably. To prevent discussion on levels of reliability *after* the ratings would become available, SKO decided to have a measure developed beforehand, at the start of the pilot project.

Reliability Working Group Technical Committee

A special working group consisting of SKO staff, people from our technical committee and people from GfK was formed to solve the reliability 'problem'. Subsequently, Adriaan Hoogendoorn, an independent statistician, was asked to work out the issues statistically. The household panel of the Dutch TAM would not be large enough to report second-by-second information reliably. We discussed our options in reporting ratings: either adding up the exclusively digital channels in a group or by working with larger periods of time.

While discussing the issues, the idea came up to step away from trying to report average rating or audience share for these smaller channels. In the end, it was decided to try to work with a model that would report reach figures for the exclusively digital channels.

Reporting Reach

By focusing on reach, we were able to work with larger percentages, making it easier to attain the reliability thresholds. However, because the measure reach is less granulated than the average rating, we decided to use stricter confidence intervals. The percentages reach to be reported had to have a maximal margin of 50% of the percentage found.

Project Timeline

The SKO Digital pilot was initiated in September 2008.

In May 2007, the technical committee presented to the SKO Board a first outline of the project for the measurement of digital channels within the SKO TAM. By the end of 2007, a think tank on reliability issues was created.

All panel households with digital recording or digital reception hardware were equipped with enhanced audio channel identification technologies (EAM). The technical board of SKO and Intomart GfK completed the proof of concept for the measurement of digital channels within the Dutch TAM.

In May 2008, 35 digital channels signed up for participation in the SKO Digital pilot. In August 2008, a shadow, proof of concept operation took place, with test results monitored by the technical committee.

September 1st 2008 marked the first measurement of the digital channels within the Dutch TAM. These channels were assigned to the channel group tagged "other". Since September 2008, a reach report is provided to the Technical Committee and all digital channels participating in the SKO pilot.

MEASUREMENT OF DIGITAL TELEVISION

This section deals with technical measurement issues. Intomart GfK is the supplier of the TAM operation and technology in the Netherlands.

Measurement Preparations

Since 2007, the number of panel households with some sort of digital television equipment has grown substantially. DVD recorders, HD recorders and digital set top boxes are examples of devices which are used for everyday television consumption. These devices have in common that they allow time-shifted viewing and new uses of the TV sets, like EPG and video on demand, influencing the measurement by video identification techniques. To cope with these developments, and the expected growth of digital reception, a new channel identification technique was developed.

Because digital devices can influence the video screen size, this new identification technique is based on audio sampling, called Enhanced Audio Matching (EAM).

In order to measure viewing behaviour in panel households with digital television equipment, the new technology had to be installed in the measurement devices in these households. By January 2008, all panel households with digital recording devices were equipped with EAM. By May 2008, EAM was installed in all panel households with set top boxes.

With the panel preparation ready, the next step in preparing the measurement of exclusively digital television channels in the TAM was the set up of reference sites. The audio signal of all participating digital channels was recorded for matching purposes.

Proof of Concept

With new audio matching technology, new digital television channels and new reporting requirements, a proof of concept study was needed. The questions that needed to be answered were based on the stability of audio reception from the participating television channels, the matching procedure and the possible impact on the Dutch television currency.

New reference sites were installed for the reception of the participating channels.

Two reference sites were needed, because not all of the participating channels were available through one cable distributor.

Since EAM makes use of the audio signal carried by the television channel, longer moments of silence in the television channel can influence the matching. In the proof of concept study, these moments were tested on matching quality. Further testing in the proof of concept study involved several matching criteria:

How to deal with several channels with the same audio at the same time? How to deal with measurement without interfering with the matching of the channels in the regular TAM?

After a proof of concept period of three months in which the reference sites were installed, test samples were collected and test matching was conducted, we began with the measurement of 35 digital television channels in September 2008.

Planning and Delivery of Results

As mentioned, September 1st 2008 marked the beginning of the measurement of the digital channels within the Dutch TAM. From this moment onwards, the participant channels were reported within the channel group tagged "other" in the regular TAM. Pilot participants received the first detailed results in October 2008.

The delivery of the results takes place in a monthly meeting between SKO and the participating channels. Next to standard target groups based on total individuals, gender and age groups, extra target groups were introduced for reporting within the pilot study.

These extra targets groups are aimed to report on panel households with the possibility to watch digital television channels. This means that these households are marked as 'digital households' if:

- A digital set top box is used for TV viewing (DVB-C: digital cable, DVB-S: digital satellite, DVB-I: IP-TV)
- A digital transceiver is used for TV viewing (DVB-T terrestrial digital).

Due to the fast growth in digital reception, these target groups vary with each reporting month. The penetration of this group for individuals 6+ in March 2009 was 45%. For all households, the penetration was 41%.

The results of the participating digital channels are reported once a month. The reporting period varies between a four-week period and a five-week period, depending on the month. Results per month, week, week days and weekend days are included, in order to give as much insight as possible.

Next to the reporting period, different time slots are included in the results: all day (02:00–26:00), morning (06:00–12:00), daytime (12:00–18:00), prime time (18:00–24:00) and early night (24:00–26:00).

In March 2009, SKO presented the first public results.

RELIABILITY: COPING WITH FRAGMENTATION

How Reliable are Ratings?

In this section, we will discuss methods to assess the reliability of audience ratings and audience reach. To establish the reliability of ratings, SKO developed the SCORE model in 1999 (see Den Boon and Wedel, 1999). The SCORE model provides us with a rule of thumb for the margins for summed and averaged ratings:

$$\text{Margin} = \pm 2 \sqrt{\frac{1 + C \cdot O \cdot (S - 1)}{S \cdot R \cdot E}}$$

where S is the number of ads (spots) in a commercial campaign, C is the within person correlation of viewing behavior, O is the overlap in the sample (which may be less than 100% due to attrition), R is the average Rating and E is the Effective sample size. We expected near zero ratings for the exclusively digital channels. The near zero ratings were expected to have large margins and would therefore not be reliable. The reach of the digital channels (e.g. daily or weekly reach) was expected to result in percentages that are higher than the ratings. Therefore we started with figuring out if the measured reach was usable for reliable reporting.

From a statistical point of view, the concept of audience reach is much simpler than average audience ratings. As far as reach is concerned, given a certain time span, a person either did watch the program (or the TV channel that day, or the advertising campaign, etc.) at least one minute or so, or the person did not watch it at all. This means that, essentially, reach is just a fraction of the population. When it comes to reliability, audience ratings are more complex, since they require averaging of individual viewing behaviour within a time span or summation over time spans or both.

Data Quality

The practical implementation of a TAM is crucial. Viewing figures can only be reliable if they come from a well organized data collection organization, where the sampling procedure, respondent recruitment, non-response handling, weighting adjustment and the construction of the key indicators are done properly and are under constant evaluation. If these practical conditions are met, then we may use theory of inferential statistics and sampling theory (Kish, 1965) in order to determine the reliability of viewing figures.

Two Levels of Reliability

In inferential statistics, a sample is used to make inferences about the population. In the Dutch TAM we use a people meter panel to estimate the unknown true viewing figures of the Dutch population. The quality of the estimates, i.e. the reliability of the viewing figures, is commonly quantified by a 95% confidence interval. Using a confidence interval we can state with large confidence – confidence at the 95% probability level – the range of possible values for the true viewing figure. The smaller the confidence interval, the more reliable the viewing figure.

Although confidence intervals may be intuitively clear, they are hard to communicate because every viewing figure requires two new figures: the upper and the lower boundary of the confidence interval. Therefore we will introduce two notions to state the reliability of a viewing figure.

- We regard a viewing figure as measurable, if the lower boundary of the 95% confidence interval is at least 0.0005. In that case the lower boundary of the confidence interval is (after rounding) 0.1% and we can be confident – at a 95% probability level – that the unknown true viewing figure in the population differs from zero.
- We regard a viewing figure as substantial, if the lower boundary of the 95% confidence interval is at least at least half the viewing figure under consideration (and also at least 0.0005). For example: a viewing figure of 1.6% is substantial if the lower boundary of the confidence interval is at least 0.8%.

For every target audience we are able to compute lower boundaries for viewing figures, in order to call them either reliable or measurable. This computation starts with the determination of the effective sample sizes of the target populations.

Effective Sample Sizes

The sample design of the Dutch TAM is complex, involving clustering (persons within households), oversampling (of certain regions) and weighting adjustment. The efficiency of such a complex sample design is commonly evaluated in terms of effective sample size.

The effective sample size is the size of a corresponding Simple Random Sample (SRS) that offers the same reliability as the sample design under evaluation.

Once we know the effective sample size, it is relatively easy to make the reliability computations. Since the sample design of the Dutch TAM is a 'weighted cluster sample', we obtain the effective sample size by taking both the cluster effect and the weighting effect into

account. The evaluation of the sample leads to effective sample sizes ranging from 65% to 85% of the actual sample size (see Table 3).

	(Raw) Sample size	Weighting effect	Cluster effect	Effective sample size
Total 6 years and older.				
All reception	2697	0.90	0.79	1773
Digital reception	801	0.89	0.78	518
Digital reception excluding digital terrestrial	646	0.89	0.78	422

Table 3: Sample sizes, weighting and cluster effects and effective sample sizes of target audience, grouped by reception

Confidence Intervals

Audience reach is estimated by taking the proportion of persons that watched. For a simple random sample, confidence intervals (C.I.) are commonly constructed using the Wald method:

$$C.I._{Wald} = \left(\hat{p} - z_{\alpha/2} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}}, \hat{p} + z_{\alpha/2} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} \right),$$

Where $\hat{p} (= x/n)$ is the estimated reach, i.e. the proportion of x successes in a sample of n individuals, and $Z_{\alpha/2} = 1.96$, a well known number when constructing 95% confidence intervals ($\alpha = 0.05$). However, the Wald method for confidence intervals is highly criticized in case of small proportions (see Agresti and Coull, 1999). Therefore, we will use Wilson Score intervals instead. Averaged over all possible combinations it is a very sharp method. The Wilson score interval is

$$B.I._{Wilson\ score} = \left(\hat{p} + \frac{z_{\alpha/2}^2}{2n} \pm z_{\alpha/2} \sqrt{\frac{\hat{p}(1-\hat{p})}{n} + \frac{z_{\alpha/2}^2}{4n^2}} \right) / \left(1 + \frac{z_{\alpha/2}^2}{n} \right)$$

For any combination of n (the sample size of the Simple Random Sample (SRS) and x (the number of persons that watched), we can determine the lower boundary of the confidence interval, and can compare it to 0.0005 (if larger, then the estimated reach is measurable)

and to $\frac{1}{2}$ (if larger, then the estimated reach is substantial). In order to evaluate if the audience reach of a certain program or campaign for a certain target audience is measurable (substantial), we find the minimal number of persons x that must have watched in the corresponding effective sample size of the target audience.

Table 4 shows the minimal number of viewers needed for given effective sample sizes, in order to obtain an audience reach that is either measurable or reliable. For an effective sample size of 1200, we need at least three viewers to obtain measurable reach, corresponding to a reach of $3/1200 = 0.25\%$. For any (raw) sample size that corresponds to an effective sample size of 1,200, we will use the 0.25% as a cut off value for measurable audience reach. In order to be substantial, at least eight persons should watch, which corresponds to $8/1200 = 0.667\%$, so that for any (raw) sample size that corresponds to an effective sample size of 1200 we will use the 0.667% as a cut off value for substantial audience reach.

Measurable		Substantial	
n	x	n	x
100 - 353	1	100 - 5000	8
354 - 1097	2		
1098 - 2041	3		
2042 - 3111	4		
3112 - 4272	5		
4273 - 5000	6		

Table 4: Minimal numbers of viewers x in a SRS of size n (between 100 and 5000) needed, so that the corresponding reach $p (= x/n)$ is either measurable or substantial, according to Wilson score interval

How Reliable is Reach?

Using the methodology explained above, we are able to define lower boundaries for any target audience, so that the audience reach is measurable or substantial.

We have constructed a table (see Table 5) that shows the boundary for reporting substantial audience reach. We have offered this table to all participants in the SKO Digital pilot to help establishing the reliability of reported reach figures.

Target description	Minimum reach criteria*	Reported reach	Reliable report?
Digital reception			(fill in)
Total 6 years and older	1.54%	3.00%	✓
Men 6 years and older	2.41%	1.05%	0
Women 6 years and older	2.60%	0.00%	0

Table 5: Reporting tool

RESULTS

Weekly and Monthly Reach

In March 2009, we published the first overall insights on the new group of exclusively digital, thematic channels within the Dutch TAM. Reported channels weekly reached an average of 14.5% of the Dutch population (six years of age and above) in the weeks 6 to 9 of 2009 (February 2009). In households with digital reception, the reach was 28.1%.

The reported digital channels reach 15% of all individuals of six years of age and above and 30% of all individuals in households with digital reception. In the four-week period, the total cumulative reach for the reported channels was 27.4% for the Dutch population as a whole and 48.5% for individuals in households with digital reception (see Table 6).

Average weekly reach	Reach% 6+	Reach000 6+	Reach% 6+digitaal	Cumulative 4 weeks reach	Reach% 6+	Reach000 6+	Reach% 6+digitaal
Total TV	96.8	14571	97.8	Total TV	98.4	14813	99.7
Totaal SKO Digital channels	14.5	2189	28.1	Totaal SKO Digital channels	27.4	4119	48.5
/Geschiedenis	0.9	142	1.9	/Geschiedenis	2.8	427	5.6
101 TV	2.5	384	5.5	101 TV	6.1	916	12.8
13TH STREET	1.4	211	2.9	13TH STREET	2.9	441	5.6
Car Channel	0.8	117	1.7	Car Channel	1.7	257	3.7
Comedy Central Family	1.5	225	3.3	Comedy Central Family	3.0	446	6.3
Consumenten TV	1.6	246	3.2	Consumenten TV	4.8	724	9.0
Cultura	0.5	73	*	Cultura	1.2	187	2.5
Discovery Science	2.2	329	4.7	Discovery Science	4.7	715	9.7
Discovery Travel & Living	2.0	294	4.3	Discovery Travel & Living	4.2	626	8.9
Discovery World	1.9	280	4.0	Discovery World	3.8	577	8.0
E! Entertainment	2.0	300	4.4	E! Entertainment	4.5	682	9.6
Extreme sports channel	0.7	103	*	Extreme sports channel	1.9	283	4.1
Hallmark Channel	1.9	284	4.0	Hallmark Channel	4.1	619	8.5
Hilversum Best	1.6	244	3.6	Hilversum Best	3.7	555	8.0
History Channel	1.5	230	3.2	History Channel	3.7	564	7.5
Holland Doc	0.9	136	2.0	Holland Doc	2.1	314	4.4
Humor TV	2.9	440	6.2	Humor TV	6.6	994	13.3
Jim Jam	0.5	80	*	Jim Jam	1.3	194	2.5
Misdaadnet	0.8	120	1.7	Misdaadnet	2.1	309	4.3
National Geographic Wild	1.6	236	3.4	National Geographic Wild	3.3	493	6.8
Nick Hits	0.9	136	2.0	Nick Hits	2.9	436	6.3
Nick Jr.	1.8	264	3.6	Nick Jr.	3.9	589	7.9
Nostalgienet	1.8	265	3.9	Nostalgienet	4.0	605	8.5
Opvoeden doe je zo	*	*	*	Opvoeden doe je zo	0.9	137	2.0
SCI FI Channel	1.3	199	2.2	SCI FI Channel	2.8	416	4.7
Spirit 24	0.7	110	*	Spirit 24	2.1	315	4.1
Sterren.nl	1.6	243	3.3	Sterren.nl	4.6	695	9.0
TMF Dance	0.9	135	1.8	TMF Dance	2.0	302	4.0
TMF NL	0.9	137	1.8	TMF NL	2.6	393	5.0
Xite	*	*	*	Xite	1.2	181	2.3
Zone club	0.4	68	*	Zone club	1.1	166	2.2
Zone horror	0.9	134	1.6	Zone horror	2.3	343	4.0
Zone reality	1.7	249	3.7	Zone reality	4.0	596	8.7

*not reliable

Table 6: Average weekly reach and cumulative four-weeks reach, all day (02:00–26:00) in weeks 6 to 9 2009.

What to Report?

The results for the individual channels in Table 7 confirm that the majority has a substantially reliable reported reach for a single week period and a four-week period. This is a very encouraging result, since it means that SKO will be able to report on a weekly or monthly basis.

	Totaal 6+			Totaal 6+ Digital		
	1 min	5 min	15 min	1 min	5 min	15 min
101 TV	✓	✓	✓	✓	✓	✓
Humor TV	✓	✓	✓	✓	✓	✓
Hallmark Channel	✓	✓	✓	✓	✓	✓
Consumenten TV	✓	✓	✓	✓	✓	✓
Hilversum Best	✓	✓	✓	✓	✓	0
Nostalgie.net	✓	✓	✓	✓	✓	✓
Zone Reality	✓	✓	✓	✓	✓	0
Discovery Science	✓	✓	✓	✓	✓	0
Discovery World	✓	✓	✓	✓	✓	0
Nick Jr.	✓	✓	✓	✓	✓	0
Sterren.nl	✓	✓	✓	✓	✓	0
Geschiedenis	✓	✓	✓	✓	✓	0
TMF NL	✓	✓	0	✓	0	0
Nick Hits	✓	✓	✓	✓	0	0
HollandDoc	✓	✓	0	✓	0	0
Discovery Travel & Living	✓	✓	0	✓	0	0
TMF Dance	✓	✓	0	✓	0	0
Comedy Central Family	✓	0	0	✓	0	0
NGC Wild (from 28-11)	✓	0	0	✓	0	0
13 TH STREET	✓	0	0	✓	0	0
SCI FI Channel	✓	0	0	✓	0	0
Extreme Sports Channel	✓	0	0	✓	0	0
Cultura	✓	0	0	0	0	0
Car Channel	✓	0	0	0	0	0
JimJam	✓	0	0	0	0	0
Xite	✓	0	0	0	0	0
Opvoeden	✓	0	0	0	0	0
Zone Horror	0	0	0	0	0	0
Zone Club	0	0	0	0	0	0
Misdaadnet (from 28-11)	0	0	0	0	0	0
Geloven / Spirit24	0	0	0	0	0	0

Source: SKO

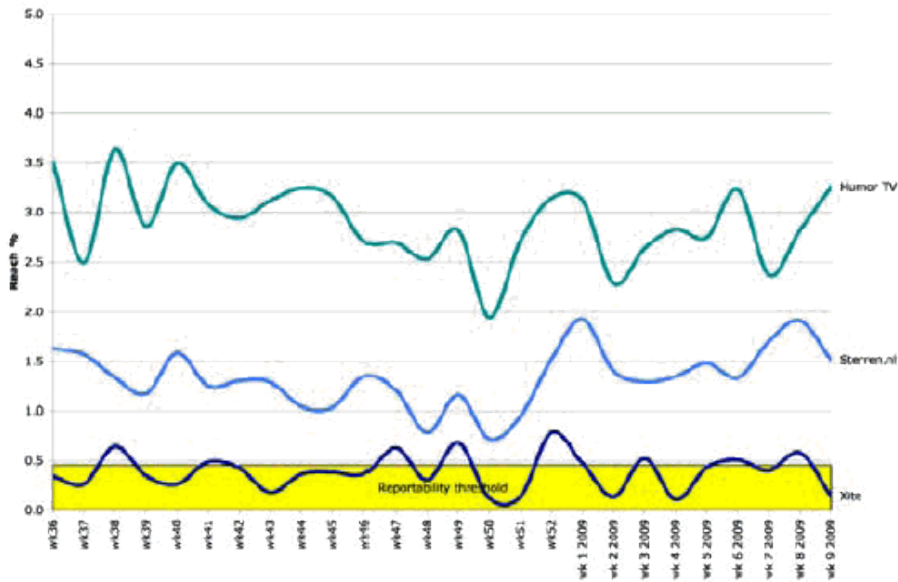
Table 7: Average weekly reach, all day (02:00–24:00) in weeks 45 TO 52 2008

Throughout the test period, we produce reports of daily reach for the participants. However, when reporting on a daily basis we encounter great differences in the reliability of the reported figures for the different channels. Only a very small group could meet our reliability criteria on most of the days.

We also considered whether other reach criteria could be applied to calculate reach for the pilot channels. We considered alternative reach criteria, with a minimum threshold of one, five and fifteen minutes of continuous viewing. Table 7 shows the differences between channels' reach reliability in an average week. A majority of exclusively digital channels can be reliably reported using a five and fifteen minutes reach definition. For external reporting, it was decided to use the minimum viewing criteria that regular Dutch TAM channels use in their reports: one minute.

Pilot Overview

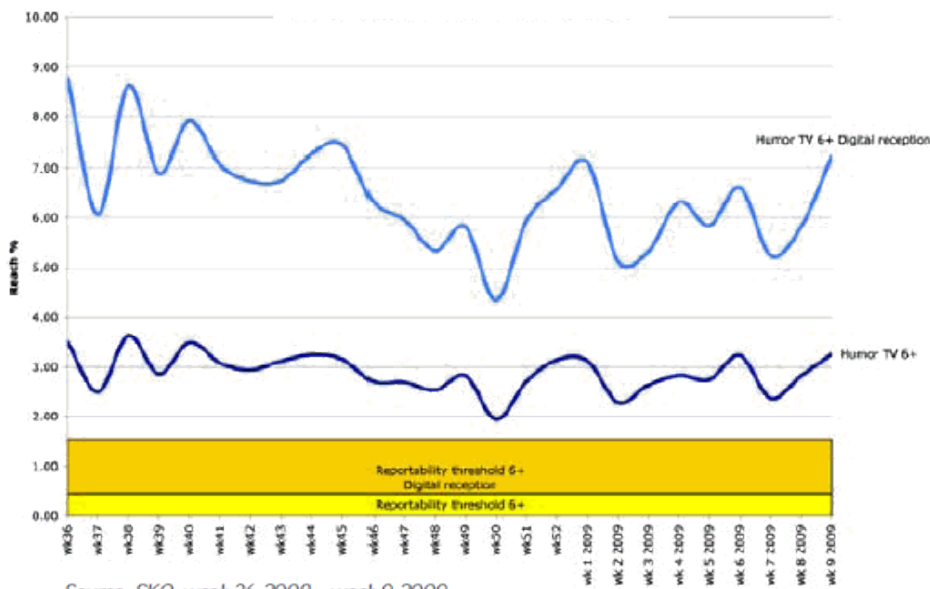
SKO has monitored the weekly reach of exclusively digital channels since week 36. Figure 2 shows the percentage of individuals of six years of age and above in the period from the start of the measurement up to February 2009. Channels like 'Humor TV have presented weekly reach figures of around 3%, whereas a number of other channels remained under the reliability threshold for several weeks.



Source: SKO, week 36 2008 - week 9 2009.

Figure 2: Weekly reach % . Total individuals 6 years and older

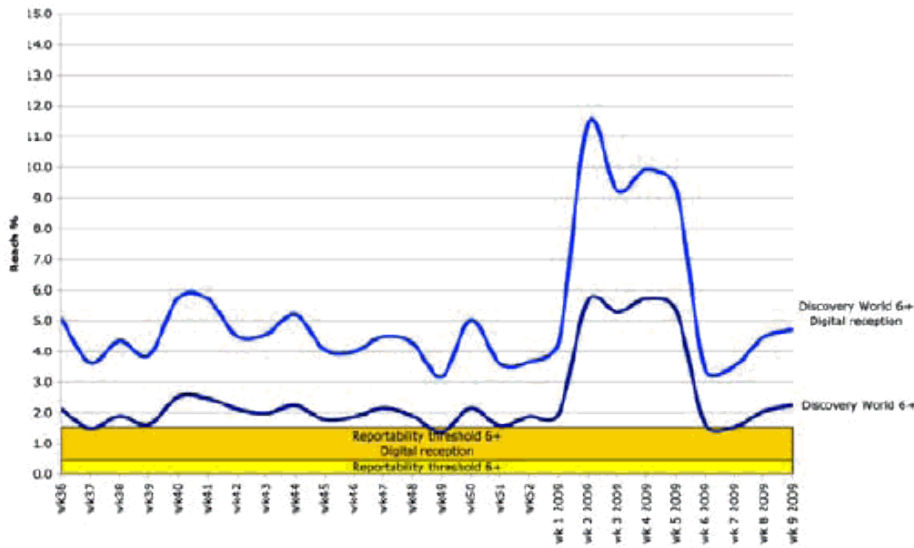
A look at the reach for 'Humor TV channel under all individuals and individuals in households with digital reception shows how this channel reached around 6 to 7% of the audience on a weekly basis (see Figure 3).



Source: SKO, week 36 2008 - week 9 2009.

Figure 3: Weekly reach % . Total individuals 6 years and older, total and on households with digital reception. Humor TV.

In Figure 4 we can see the audience reach of the Discovery World channel among all individuals and individuals in households with digital reception.



Source: SKO, week 36 2008 - week 9 2009.

Figure 4: Weekly reach %. Discovery world. Total individuals 6 years and older, total and in households with digital reception. Discovery world

From January 2009 to mid February (week 1 to week 6 2009) Discovery World was offered as free view on the window channel of one of the major cable distributors in the Netherlands. This window channel has a relatively low channel position. The effects in terms of weekly reach speak for themselves. As digital reception will grow, we expect a major number of thematic channels to meet substantial reach criteria.

Digital Thematic Audiences: Men and Women

Table 8 shows the cumulative four-week reach in the weeks six to nine 2009 for three thematic channels for the target group 'Men and women six years of age and above'. These figures are obtained among households with digital reception. Despite differences in reach levels, we can see how car channels reach fewer women, and Nick Hits reaches more women. We would expect the latter group to consist of mothers watching with the children.

Channel	13 TH STREET	Car Channel	Nick Hits	Reportability threshold
Man 6 years and older in digital households	5.23	4.9	5.4	2.4%
Women 6 years and older in digital households	6.03	2.4	7.3	2.6%

Source: SKO

Table 8: 4 Weeks reach % (weeks 6 to 9 2009) Nick hits, car channel and 13th street

THE FUTURE INTEGRATION IN THE TELEVISION AUDIENCE MEASUREMENT

The first stage of the project was finished the moment we were able to publicly report on the digital channels in March 2009. Now it was time to start thinking about the structural participation of these channels in our TAM organization and next steps.

Reach: Digital Channels Reports

Starting 1st of January 2010, structurally participation in the Dutch TAM is possible for exclusively digital channels. This is done by a special construction, solely made for this type of channel. The participation will not result in the channel being reported in the raw data (for now). There will be a special report made for channels that can only report reach. The method developed to determine if a channel can be reported reliably, as described earlier, has been approved by the SKO board. Only channels that can meet the demanded levels of reach are to participate, and to be reported.

Channels can become an SKO client or become a member of SPOT (organization of channels' sales houses) and automatically become a SKO member in the process.

GRP Model

The market for digital, thematic channels is in development. As a result, new business models are under discussion. This raises questions on how to use ratings to improve business performance. This leads to a new question: would it be possible to calculate total GRPs for specific (group of) channels? As yet, we do not have ratings for these channels to work with and individual spot ratings would not make much sense. How to deal with this? We think that this can be done by accumulating GRPs over a period of time. Let's say a channel might realize a total of four GRPs over one month and we know it is reliably reportable in terms of monthly reach. SKO believes that the same should be applied to a campaign that results in four GRPs on this channel.

This idea is now under statistical investigation, with more research planned. One rule that we are trying to prove is that if audience reach is substantial, then the corresponding audience ratings are at least measurable. Although we have not yet found a theoretical proof, it seems to hold for the practice in the Dutch TAM (the rule actually appears to be rather conservative).

CONCLUDING REMARKS AND NEXT STEPS

This paper has described a project aiming to respond to new developments in viewing behaviour in the Netherlands. An increasing penetration of digital reception has been accompanied by increasing numbers of channels available to Dutch audiences. Since average viewing time has been constant, the audience has scattered among the channels. In order to include exclusively digital channels in the Dutch TAM, a pilot was needed, to assert whether these channels can be measured, but most importantly to assert whether their ratings could be reported and what such a report would look like.

As mentioned, SKO is delighted to be able to report on these channels because they are of growing importance to the TV market. Exclusively digital channels will attract ever bigger audiences. After these first important steps, it is now time to transform the pilot membership into a structural measurement participation for the channels.

Application to Other Research

It is a good thing to have a reliability measure available that is not only applicable to measuring TV reach through a TAM panel, but can also be used to determine the reliability of TV channels with a smaller audience or analyze the use of new techniques. The ultimate goal, of course, is to be able to measure all TV behaviour, but for new markets and evolving technologies it might be necessary to begin with smaller satellite projects, measuring TV reach with small panels, without panels or with ad hoc samples.

Invitation to Use the SKO Measure for Reliability

SKO strongly believes in the cross medial use of the developed measure for reliability. Most media research has to cope with fragmenting audiences, many of them measured in panels with limited size. This is one of the main reasons for this public presentation of the work that has been done by SKO with the help of Adriaan Hoogendoorn. We hope that we can share our learnings with fellow media researchers.

REFERENCES

- Agresti, Alan and Coull, Brent A.* (1998). Approximate is better than "exact" for interval estimation of binomial Proportions. *The American Statistician*, Vol. 52, No. 2, May.
- Den Boon, Arie and Wedel,* (1999). *Vuistregels voor kijkcijfers: het SCORE-model*, Stichting tot Promotie en Optimalisatie van Televisiereclame, Amstelveen.
- EC European Audiovisual Observatory* (2008). *MAVISE – Database on television channels and television companies in the European Union and candidate countries.*
- Ephron, Erwin* (1997). Learning to live in Lilliput, the media land where small is beautiful: optimizing reach with low ratings and other thoughts on TV fragmentation. *ESOMAR, The Global Future*, Lisbon, July.
- Kirkham, Mike* (1996). Measuring the fragmenting television audience, *International Journal of Market Research*, Vol. 38, No. 3.

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