

PDRF 2017

Title

Developing a Quality Passive Digital Panel

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1) Introduction

Accurately measuring the duplication of audiences between print and digital platforms is a frequent issue in readership research. This paper describes the creation of a world-leading innovation of a passive digital panel recruited via face-to-face interviewing. Passive data from this panel is integrated with the core data collection of print readership. This is a critical component in the quest to measure full platform reach for publishers' brands.

Audience Measurement for Publishers (AMP) is the new audience measurement system in Great Britain, as described at the 2015 PDRF conference (Page 2015). Like its predecessor the National Readership Survey (NRS), AMP retains the tradition of high-quality random probability face-to-face interviews. What makes it stand out is its own digital panel. This is a core asset for allowing the development of new statistical techniques for integrating print readership and internet audience currencies.

This paper outlines the challenges encountered, learnings made and innovations developed in the process of building a single source print and digital panel. Development took place throughout 2016, with fieldwork commencing on the new AMP survey in January 2017. Our learnings continue as we collect early data and build the panel in 2017.

Each year we aim to recruit 5,000 participants to the panel from the 35,000 completing the main survey. They install the app on all eligible digital devices they use to access the internet and are tracked for 28 days. Our target is that 30% of those eligible agree to participate and 22% install on all devices. At this point in our development we are trying to maximise agreements and installations. A major part of the project is the joint development between Ipsos and comScore of a piece of software that is easy to install and passively monitors visits to publisher sites and apps. Called the "AMP App", it is described in this paper.

Recruitment is crucial to the success of the panel. Personal contact by field interviewers is vital in this. Interviewers have received extensive training on both recruitment and installation. We have developed detailed materials to help both interviewers and participants.

After six months of live recruitment, we now have a large number of installations to analyse. We report on success by platform, number of devices and panel demographics.

The AMP Survey

AMP is the successor to the GB National Readership Survey (NRS) and will be launched as a readership currency in February 2018. Interviewing commenced in January 2017. Apart from many changes to the face-to-face CAPI survey, the introduction of a passive digital panel is a major methodological addition. We carry out 35,000 interviews every year and from these, we attempt to recruit 5,000 to join the panel by installing the AMP app on all their eligible devices.

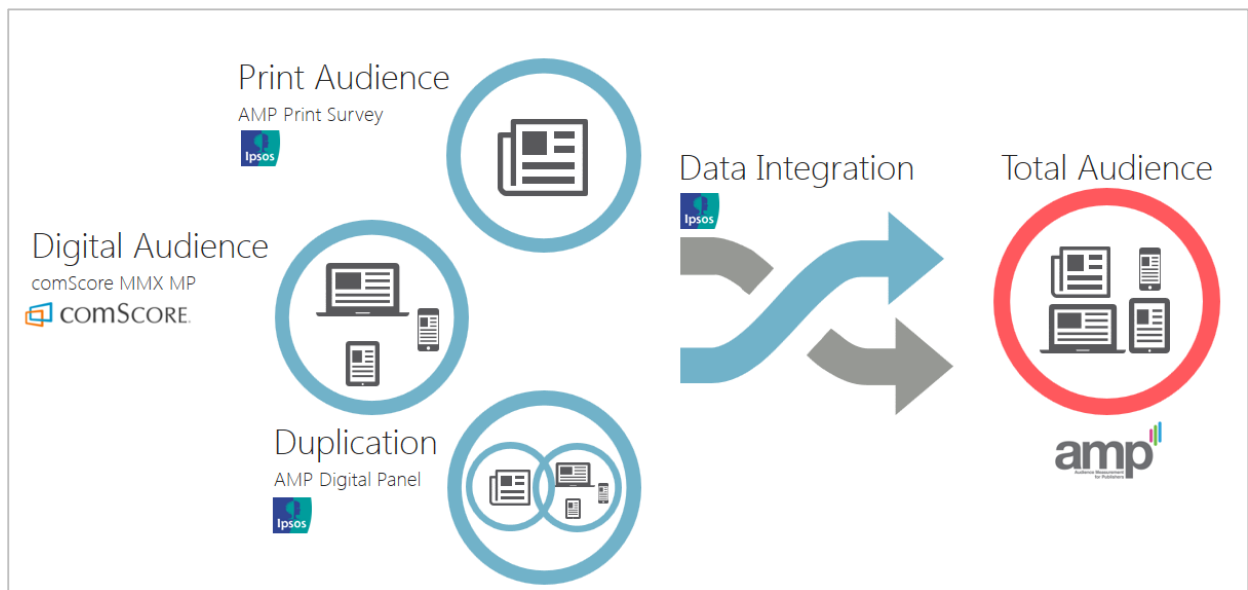
The overall objective of the AMP Measurement System is to provide the total audience for publisher brands across all touch points. Print readership is produced from our face-to-face CAPI survey weighted to the adult population. Digital audiences come from the comScore UKOM multi-platform outputs which are weighted to the same population targets.

The primary purpose of the AMP Passive Digital Panel is to provide better insight into the duplication between print and digital audiences of publisher titles. This insight is captured via a single source solution with:

- Print readership collected via CAPI interviewing.
- Digital readership captured passively using the same pool of survey participants.

The core measure produced from the panel is an estimate of how much more (or less) likely a print reader of a particular brand is to also read any of its digital versions. The output from the panel is then fed into a ‘data integration’ process that will allow us to more accurately reflect this overlap. This takes account of the panel being a subset of all survey participants. We also integrate comScore official audience estimates to ensure the total digital audience is calculated and matches official industry approved estimates. A visual representation of the audience calculation process is shown in figure 1.

Figure 1 – Key components of the AMP total audience calculation system



2) An AMP App for collecting passive digital behaviour

Passive Measurement

Self-reporting has traditionally been used to capture media consumption and, when a good quality survey is used along with a large sample, it continues to be a good standard in media research. It does however have drawbacks, namely over or under-reporting of claims due to social desirability or simply difficulty in remembering. This issue is exacerbated in today’s cross-platform, multi-device world (Aoun, 2015; Gunzerath, 2012; Kilger & Boals, 2012). We also discuss our own findings in this area in another conference paper (Collins, Farrer & Ponomarev, 2017).

The use of passive measurement to capture digital consumption has grown greatly in recent years. Here passive measures replace or are integrated with traditional self-reporting. While passive measurement increases the accuracy and reliability of self-reported data, it brings its own challenges:

- It is costly and methodologically challenging to build a representative panel large enough for the task.
- Behaviours evolve in terms of platforms used. Our passive methods need to keep pace.

- The ever-changing technology imposes high demands on the metering software.
- Changes in data protection policies and societal concerns generally about data security add further layers of complication.

Furthermore, working with passive digital data and integrating them with self-reported data requires advanced statistical techniques (Pellegrini et al. 2015).

Panel recruitment

The current interview is administered in-home by interviewers using a Windows tablet where the screen is shared between interviewer and participant. The current average interview length including recruitment is 30 minutes.

Within the interview, participants are asked about their print and on-screen readership habits as well as internet use and ownership and use of different digital devices.

Panel recruitment takes place at the end of the face-to-face interview after eligibility is determined. Eligible participants have used at least one of the following devices to access the internet in the last 3 months:

- Computer (Windows or Mac, home computer) – personal use.
- Smartphone (iOS/Apple or Android) – personal use.
- Tablet (iOS/Apple or Android) – personal use; main use in multiple person households.

For eligible participants, the interviewer briefly describes the panel and asks the participant if they would like to join. The skill of the interviewer is very important at this stage. They have already persuaded the participant to complete the survey and conducted a long interview. Full recruitment scripts are used and marketing materials have been developed to describe both the importance of the task and the simplicity of the installations.

Participants can agree to join by:

- Installing the app immediately, with the interviewer talking them through the task. One of the main advantages of the interviewer contact is that they can help facilitate the installation so completion is quick and simple and involves no real work for the participant.

OR

- Later if not convenient for the participant after a 30-minute interview or if not all devices are available at the time.

OR

- There is also the option of the interviewer helping to install some devices with others installed by the participant later. They will hopefully have seen how easy the installation is thereby giving confidence on the self-installs.

For those refusing to participate, the main reasons include: not enough time, lack of interest in the project, privacy concerns and issues around sharing devices with other family members who would not approve the installation. Our aim is to have participants install on all of their eligible digitally enabled devices. Those who indicate they are willing to install on some but not all of their devices are not recruited.

Those who agree to join the panel are asked to confirm that the devices listed earlier in the interview are all working and can be connected to the internet. This helps ensure that we get the app installed onto the appropriate devices and that the installation process is as smooth as possible.

Participants give their contact details so that we can follow up with them regarding their devices and installations. This includes an email address as well as mobile and landline phone numbers.

For those devices that are working/connected to the internet, the interviewer guides the participants through the app installation or provides them with clear instructions on how to do this later. The task is quick and an experienced interviewer will generally complete a successful installation in 5-10 minutes on each device including admin.

We ask participants to remain on the panel for 8 weeks. We use data for the first 4 weeks (28 calendar days) from the date of installing the app on all devices. The remaining time is used to help validate continuing activity in that the app is still collecting location visits.

Device verification

Participants who agree to join the panel are asked to confirm that their eligible devices are working and can be connected to internet. This check question was added into the interview because some interviewers were coding installations as failed with typical comments as follows:

- “device too old and not working”.
- “device broken and in repair”.
- “device belongs to aunt, in different house”.

These are not installation failures as such but rather demonstrations that the device is not suitable to be included on the panel despite the earlier claim.

Interviewers are advised to code a device as not eligible if it belongs to one of the following categories:

- Work device, i.e. belonging to employer or place of work (we ask separately for work computer installs).
- Belonging to someone else.
- Broken/in repair.
- Never used.
- Cannot be connected to internet.

Devices that are identified here as not working are no longer considered eligible for the panel and installation is not attempted. This is currently the case for 13% of computers that participant agreed to register (10% of agreed primary computers and 25% of “other” computers), 3% of agreed smartphones, and 7% of agreed tablets.

These checks ensure that only devices that are truly working and functional are counted as eligible and become a part of the panel.

Participant follow-ups

Each day, contact information for recruits is downloaded from the CAPI interview onto a central process data server which extracts and transfers new contact information onto our bespoke panel management database with front-end portal. This gives Ipsos field interviewers and central telephone call-centre teams access to installation and contact details.

Follow-ups are to verify complete installs and occur in a number of phases:

- Those not fully installed on all devices are followed up initially via automated email 24 hours after the CAPI interview.
- The field interviewers manage their recruits in the first three days after the CAPI interview. They use the portal to understand whether all of their agreed eligible participants have installed the app onto the required devices. If not, they can call the participant and ask for the installation to be completed.
- After three days, those that are still incomplete are sent an automated email as a reminder. We have also introduced an SMS reminder for smartphone installs.
- After a week, the management of follow-ups shifts to a central telephone help-desk team who are trained in the requirements of the survey. Protocols for attempted calls are followed so a number of call attempts are made at different times to speak to the participant and, if necessary, to walk through the installation.

Panellist incentives

Participants receive a shopper reward gift card as an incentive that can be redeemed in a range of High Street stores. This is credited within 24 hours of them successfully installing the app onto all devices. Those installing later have their incentive credited

automatically once confirmation has been received that all devices are installed. Participants are sent an email notifying them when the gift card is credited.

The incentive amounts are £10 for 1 device, £15 for 2 devices and £20 for 3 or more devices. We have looked at different incentive levels and to-date, one that recognises the longer time required to install on multiple devices has produced the best results.

Monitoring compliance of panellists

Once participants install the AMP app on all their devices they become members of the AMP passive digital panel. We monitor device compliance by looking at websites visited or apps used over time. Daily data-feeds from comScore inform of “activity” as follows:

- On computers, the AMP app installed checks once a day whether the comScore cookie is still present on the device. Every time this check happens, we receive a record that this computer is “active” for that particular day.
- For mobile devices, we are only able to determine activity based on visited websites. Therefore, mobile devices are considered “active” if they visited any comScore-tagged website on a given day. comScore tags cover approximately 80% of web traffic in the UK.

We may be missing out on activity from some participants who visit non-tagged websites and those who only use their mobile devices for purposes other than accessing the internet.

Activity is required in the first four weeks after installation though we ask participants to install for eight weeks. A lack of activity of more than two weeks is followed up via email with telephone follow-ups used for longer periods of inactivity. We use up to the eight-week collection period to follow-up those with low activity.

Occasionally, we may pick up later activity on less active devices as confirmation that the device is still active.

Unique panellist ID

Each participant agreeing to join the panel has a unique 12-digit panel ID generated from within the CAPI script. This is used by the interviewer and participant on all materials and installations to ensure each device has the same unique ID that can be attributed. Until the software and cookies are permanently removed, the install task ensures the unique panellist ID is listed in the comScore database whenever a site is listed on a panellist device.

The Ipsos AMP App

The Ipsos AMP App is a cookie-based and device/ advertising ID-based “tracker” app developed by comScore:

- For computers, once the app is installed, it checks whether a common comScore cookie is present in the device, and if it is not, it saves it there, and then links it to the panellist ID. This is done automatically for every browser on the computer.
- For mobiles, the app pairs the user’s mobile browser cookie with the device or advertising ID and with the unique Ipsos panellist ID. This allows web and app usage of the panellist to be tracked and analysed together. Unlike computers, different mobile browsers used on the same device need to have a repeat install of the software on each browser.

Thereafter, whenever panellists visit a comScore-tagged website from our list of newspaper, magazine or other websites of interest, the panellist ID is collected. It is identified in the comScore database of all tagged visits and details collected including the full URL and length of visit.

AMP app installation

To install the app, participants go to the AMP website at amp.ipsos.com (see example mobile screenshots in Figure 2). The site URL is the same but the installation differs for computers and mobile devices.

- On computers, the app is downloaded and installed. It is actually a small piece of software. During installation they register with the unique panellist ID, give their device a name and agree to the Terms and Conditions.
- On mobile devices (iOS and Android smartphones and tablets), participants fill in this information on the AMP website and are then redirected to the respective app store, i.e. App Store for iOS and Play Store for Android (Figure 3). Registering in this way ensures that browser activity is captured. A further step is needed to ensure use of apps is also monitored. Participants need to install and open the app on their device and then click on a button on the homepage. The function of the button is to link the panellist ID to the device ID, which is necessary to capture usage of publisher apps.

Once the AMP app is installed (Figure 4), participants do not have to perform any other actions. The role of the app is simply to check that the cookie is still on the device and if not, for example if participants delete their cookies or reset their advertising ID, it saves a new cookie onto the device, linking it to the panellist ID. If participants delete the app but do not delete their cookies, we are still able to monitor their visits to the publisher websites and mobile apps. After the completion of eight weeks on the panel, participants are sent an email advising how to delete the app along with the associated cookies.

Figure 2: The AMP website

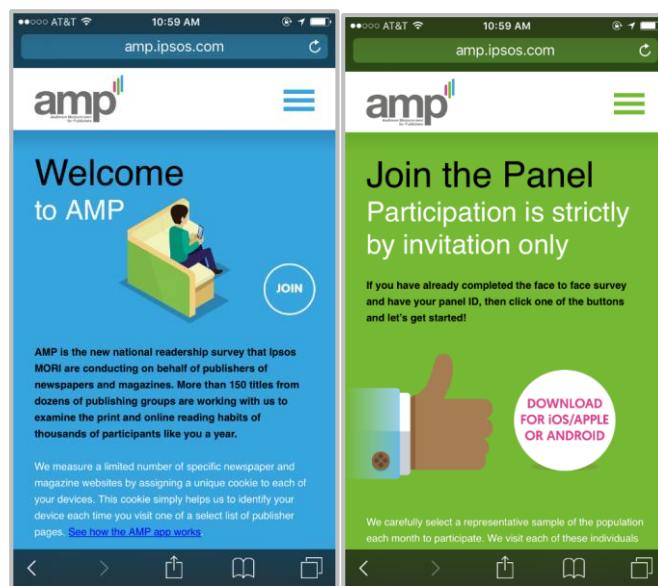


Figure 3: AMP app installation screens

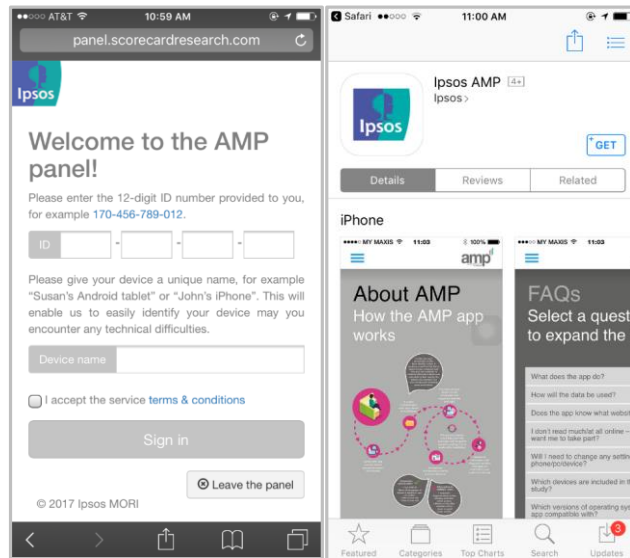
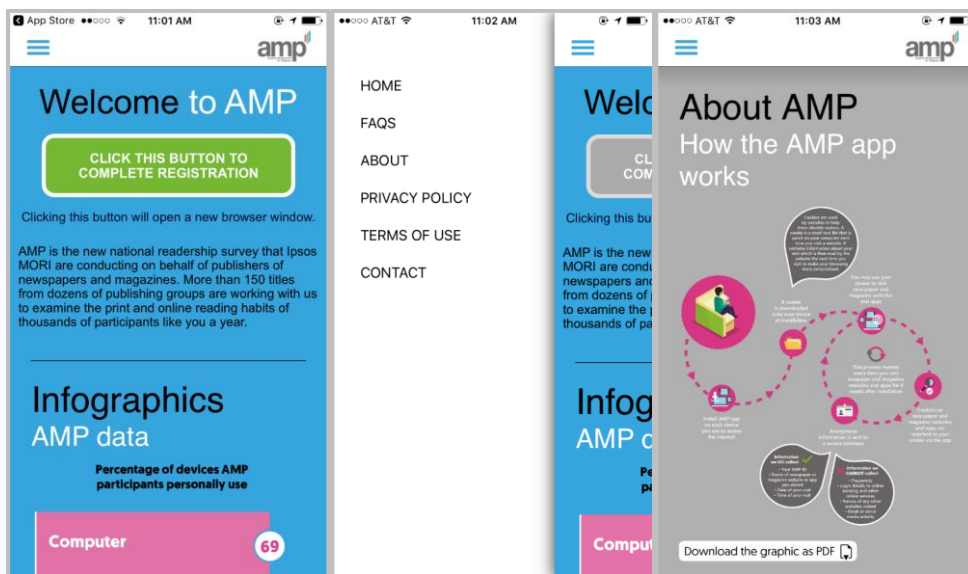


Figure 4: AMP app



3) The AMP panel in 2017

Eligible participants and devices

Eligible participants are those who are eligible for the digital panel recruitment because they reported, during the interview, that they accessed the internet in the last three months and that they use one or more of eligible household devices (Windows or Mac computer/laptop, iOS or Android smartphone and tablet).

Eligible devices are those that eligible participants claim belong to the household, are working and in use, and are used by themselves. In the case of tablets, the participant needs to be the primary user of the tablet.

Panel Recruitment

Panel recruitment was first tested in February 2016. At this stage we were also piloting a new AMP survey as well as trialling recruitment and installation of the AMP App. Interviewers were trained for the task via general group face-to-face briefings. A second full-scale pilot was carried out in September 2016 and again the full installation process was tested. In between pilots, we were still carrying out recruitment so interviewers could build up experience in what is a very non-standard interviewing task. Throughout 2016, interviewers built up their experience of the digital panel recruitment and installation task.

From January 2017 and the start of AMP fieldwork, around 2,900 CAPI interviews are being completed each month with all eligible participants receiving a recruit attempt.

Targets were set for agreement and installation rates at the start of the survey. They were estimated based on our experience from other recruitment based tasks, though no face-to-face installation task of this type has ever been attempted in the UK to benchmark against. The target for agreement rate was set at:

- 30% of eligible participants agreeing to join the panel.
- 25% installing on at least one device.
- 22% installing on all devices.

Based on current participant eligibility rates which, in Jan-June 2017 are 78%, this will recruit approximately 5,000 panellists each year from the 35,000 total AMP interviews.

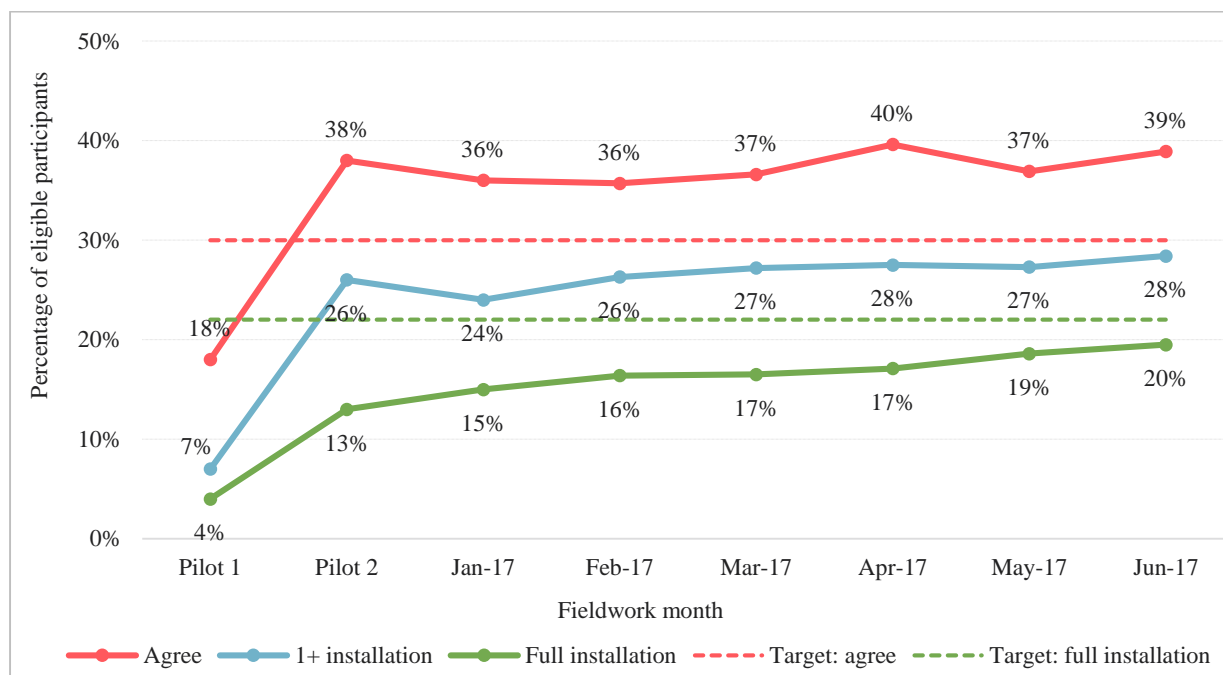
Figure 5 shows the AMP panel recruitment results during the 2016 test pilots and in the first six months of 2017. In the first AMP pilot, we achieved 18% of eligible participants agreeing to join the panel. Via thorough training and interviewers becoming settled in the requirements of the task, this has been increasing and reached 38% agreeing to join at the time of the second pilot in September 2016. On AMP 2017, the agreement rate started at 36% in January, reaching 39% in June.

The most important measure is completed installations and in particular of all device installations. This has been increasing over time as the installation task, our recruitment approach and the skills of the interviewers all develop:

- The proportion installing the app on at least one device was at 7% in the first pilot, reaching 26% in the second pilot. January 2017 live AMP fieldwork saw this rate at 24%, reaching 29% in June 2017.
- Similarly, the full installation rate started at only 4% during the first pilot, climbing to 13% during the second pilot. The full panel proportion was then 16% on AMP January 2017, reaching 20% in June.

Whilst there is still space for improvement particularly for full device installations, agreement and install rates have improved during 2017. We comment on the skill levels of interviewers generally on recruitment later in this paper.

Figure 5: AMP panel recruitment 2016-17– Agreement and install rates



Data source: AMP Pilot 1 2016, AMP Pilot 2 2016, AMP January – June 2017

Installations by device

In addition to the main indicators outlined above, we also monitor installations by device type and by the number of devices a participant uses.

A summary of installation success overall and by device is presented in table 1 for January-June 2017 fieldwork. In this period, we completed 17,212 CAPI interviews. 13,404 (78%) of these were eligible. 37% of participants agreed to join the panel, 27% installed on at least 1 device and 17% installed on all devices.

When looking at devices, 13,404 participants had 29,888 devices, an average of 2.2 per participant. When looking at the 2,298 participants installing on all devices, the average number of devices dropped to 2.0.

There are though variations in success rate when considering the different device types, with 12% of computers, 20% of smartphones and 16% of tablets being successfully installed.

There are small differences between iOS/Apple and Android devices, with iOS/Apple smartphone and tablet showing higher install rates.

Table 1: Success of installations – participants and devices

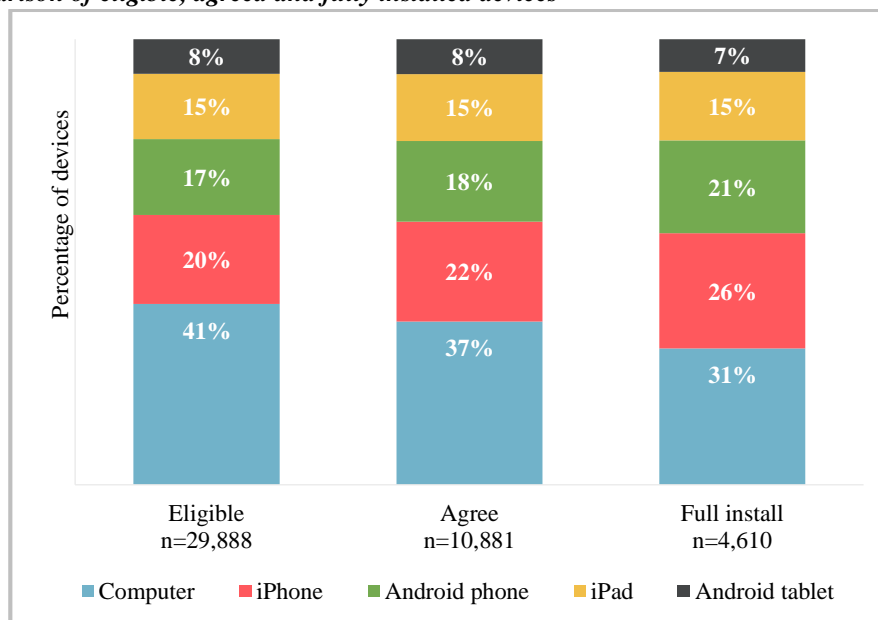
AMP 2017	Eligible	Agree	1+ install	Full install
Participants	13404	37%	27%	17%
All devices	29888	36%	22%	15%
Average devices per participant	2.2	2.2	1.8	2.0
Computer	12134	33%	15%	12%
Smartphone (any)	11055	40%	29%	20%
Tablet (any)	6699	37%	23%	16%
iPhone	5973	41%	31%	20%
Android phone	5082	39%	28%	19%
iPad	4374	37%	24%	16%
Android tablet	2325	37%	21%	15%

Data source: AMP January – June 2017

Figure 6 shows the comparison of device types across eligible, agreed and fully installed devices. Computers are under-represented on the full panel, while smartphones are over-represented. Tablets appear in similar proportions across eligible and install groups.

- 41% of all eligible devices are computers. This is lower at 37% for those agreeing to join and of those with a full install, only 31% are computers. There are barriers to agreement and installation that are resulting in larger drop-out rates for computers compared to other device types.
- Conversely smartphones are easier to install. Looking at iPhone and Android combined, 37% of eligible devices, 40% of those agreeing and 47% of devices belonging to those on the fully installed panel are smartphones.

Figure 6: Comparison of eligible, agreed and fully installed devices

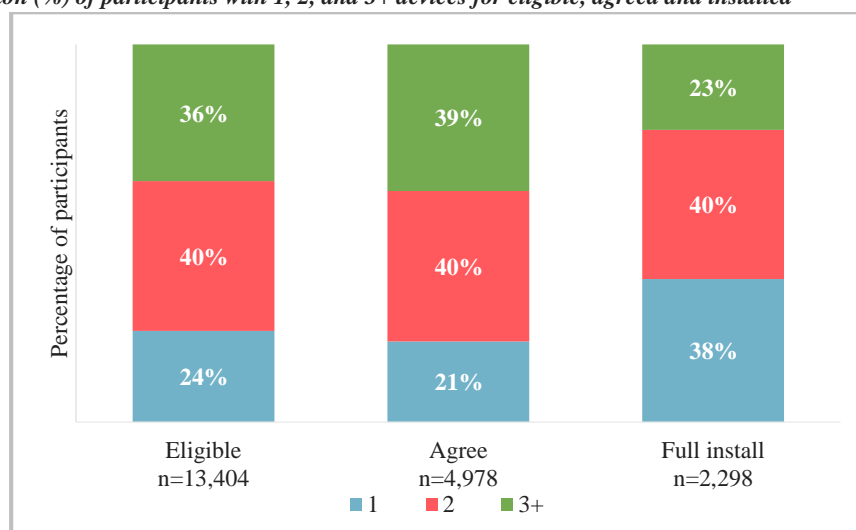


Data source: AMP January – June 2017

Figure 7 examines the number of devices for participants who are eligible, those agreeing to join the panel and those completing installations. Participants with one device are over-represented among installations, making up 24% of those eligible and 38% of the full panel.

Conversely, participants with 3 or more devices are under-represented on the full panel making up 36% of eligible participants and 23% of full panel. However, they are agreeing to the task (39%) so the challenge is completing the installation on all devices.

Figure 7: Distribution (%) of participants with 1, 2, and 3+ devices for eligible, agreed and installed



Data source: AMP January – June 2017

Device activity and compliance

We monitor AMP panellists’ device activity and contact those where no activity shows for one or more of their devices. We need to measure activity for 4 weeks after installation.

Some panellists may genuinely not be using their device and consequently be showing as inactive in our data. They are still compliant though and therefore included in the study. We need to verify this. We use a system of email and phone call follow-ups to contact panellists with inactive devices to find out whether the device is still functional and in use, or if they lost, broke or replaced it, deleted their cookies and our app, or if they are simply not using it.

Based on these follow-ups, the majority of panellists who have inactive devices and whom we have contacted confirm that their devices are working, but they simply have not been using them online. For verification, we ask those who say the device is working to visit our AMP website to confirm that the device is functioning. An email is sent with a link to click on that takes the panellist to the site. This contact triggers an activity and they then appear in the daily activity log from comScore. Thus compliance is confirmed. Table 2 shows confirmed activity and compliance following verification by device:

- 88% of computers show activity across 4 weeks with 92% estimated as compliant after verification.
- 73% of smartphones are active and we estimate 85% to be compliant after verification.
- 67% of tablets are active, with 88% compliant after verification.

We find that panellists with more than two devices tend to regularly use only one or two of them. Therefore, those with more devices are often found to be compliant despite not having all devices active. Many participants do not use their computers, smartphones or tablets to access the internet in the collection period, so they do not show in the data as active. Our compliance checks verify this. It is only by installing the app onto these devices that we are able to verify this lack of activity.

Table 2: Activity and compliance by device, January – June 2017

AMP Jan - Jun 2017	Number installed	Number active	% active	Number compliant (est.)	% compliant (est.)
Computer	1623	1422	88%	1493	92%
Smartphone	2805	2058	73%	2384	85%
Tablet	1264	846	67%	1112	88%
All devices	5692	4326	76%	5009	88%

Data source: AMP January – June 2017

4) The AMP Panel representing the total population

One of the main challenges of passive media measurement is the representativeness of the panel (Kilger and Boals, 2012; Pellegrini et al. 2015). The AMP survey is based on a random probability sampling methodology with all participants that fulfil panel eligibility criteria invited to join the panel. The AMP panel is, overall, well-balanced, and it is also weighted to correct for any imbalances in demographics, readership or device usage.

It is actually possible to calculate a panel response rate for the AMP panel that is representing the total population with confidence limits that take account of all sample biases. As a rough guide:

- The response rate for interviews achieved on the main AMP survey for Jan-June 2017 is 46%.
- The response rate for panellist recruitment and installing on all devices is 17%.
- The panel response rate is therefore $46\% \times 17\% = 8\%$.

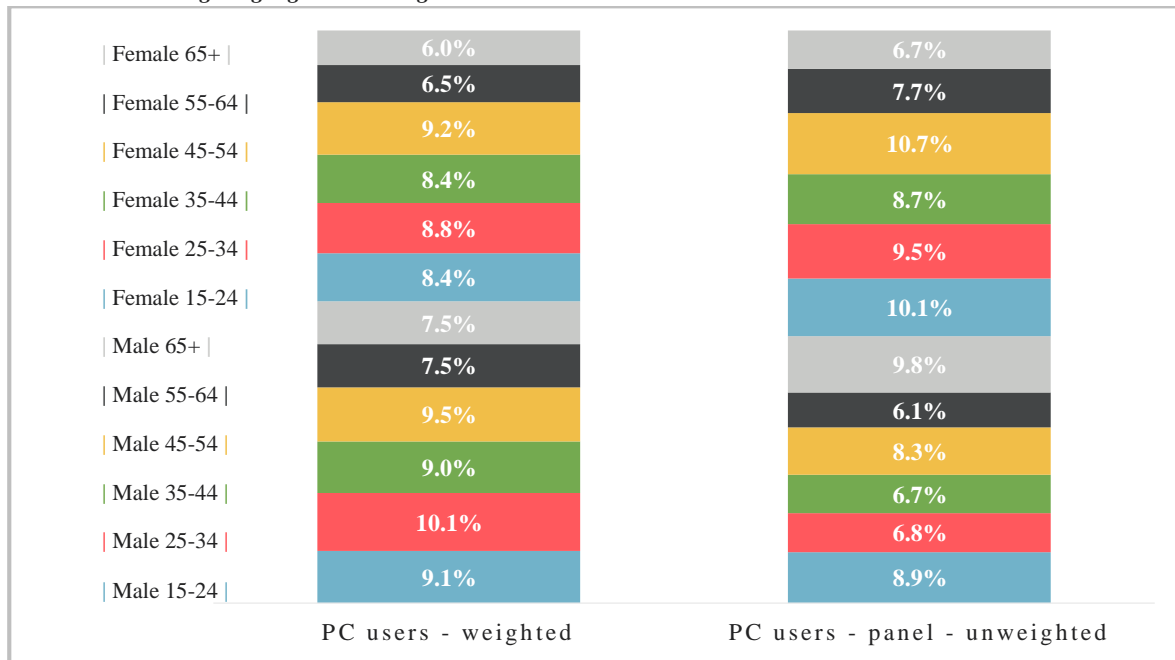
This compares well with other quality panel measurements such as the BARB Viewing panel where similar response rates are reported albeit against a different recruitment selection and installation process.

Figure 6 shows that computers are under-represented on the panel while smartphones are over-represented. Figure 7 then shows that participants with three or more devices are under-represented on the panel.

Figures 8 – 13 show the make-up of the panel separately for computer and mobile installs. The charts examine the panel’s profile for gender, age, newspapers and magazines readership. The panel profile is compared to the population. All data are based on AMP January – June 2017.

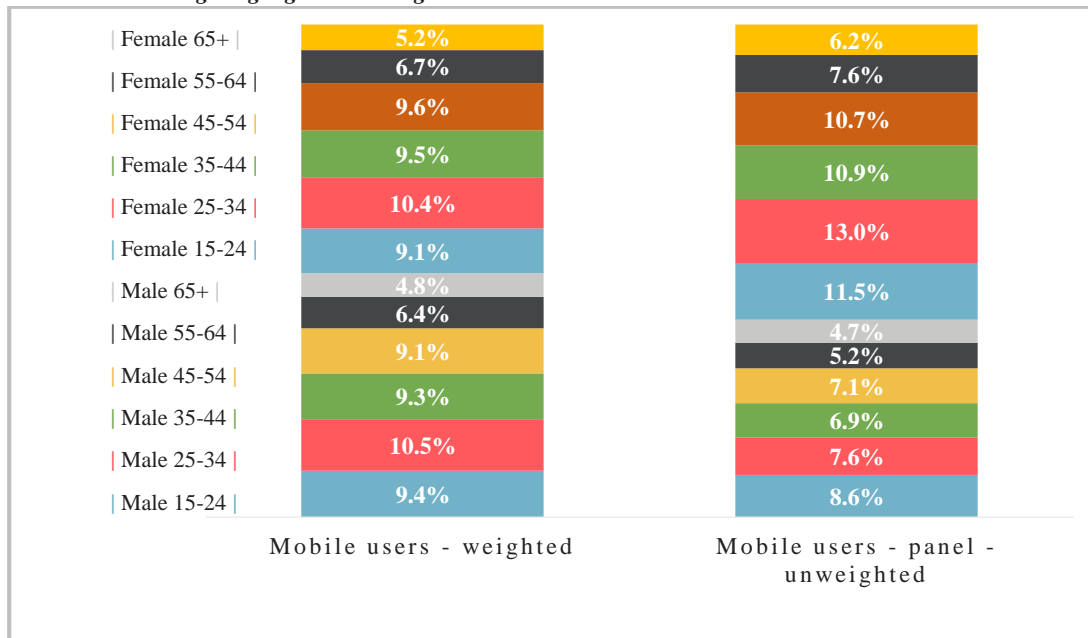
- Younger women (15-24) and older men and women (65+) are over-represented on the computer panel while younger men (25-44) are under-represented (Figure 8).
- On the mobile panel, women aged 15-44 are over-represented while men aged 25-54 are under-represented (Figure 9).
- Both computer and mobile panels are well-balanced in terms of the frequency of newspaper and magazine readership with non-readers being under-represented the AMP panel compared to the population (Figures 9 – 12).

Figure 8: PC Panel Weighting – gender and age



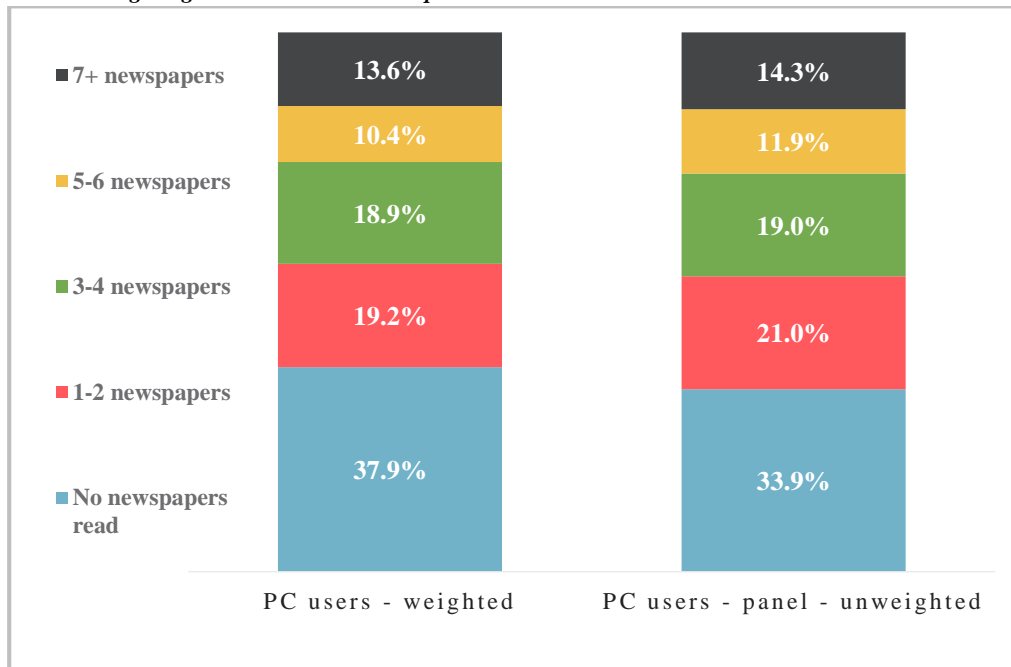
Data source: AMP January – June 2017

Figure 9: Mobile Panel Weighting – gender and age



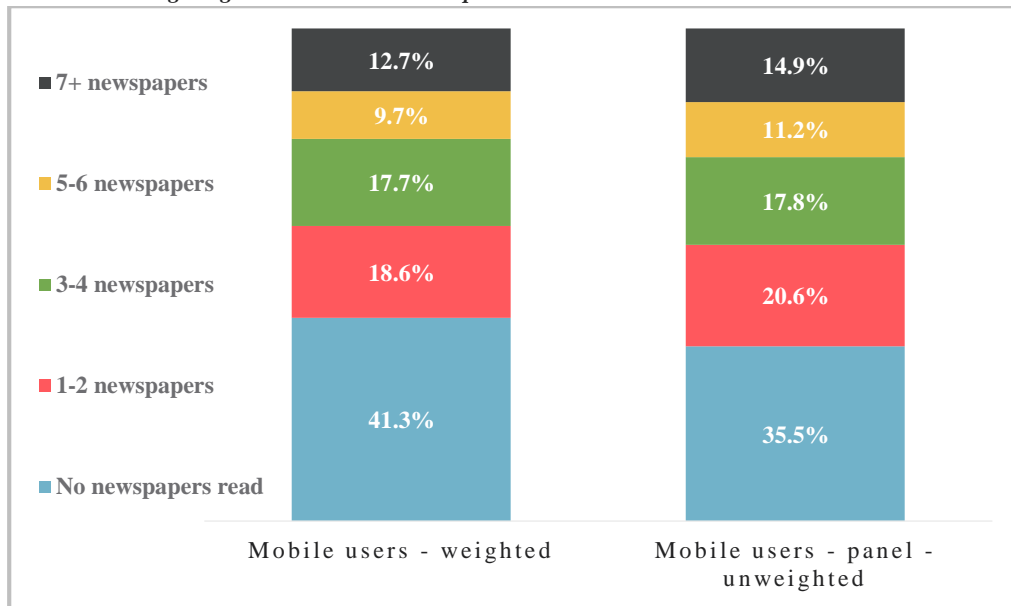
Data source: AMP January – June 2017

Figure 10: PC Panel Weighting – newsbrand readership



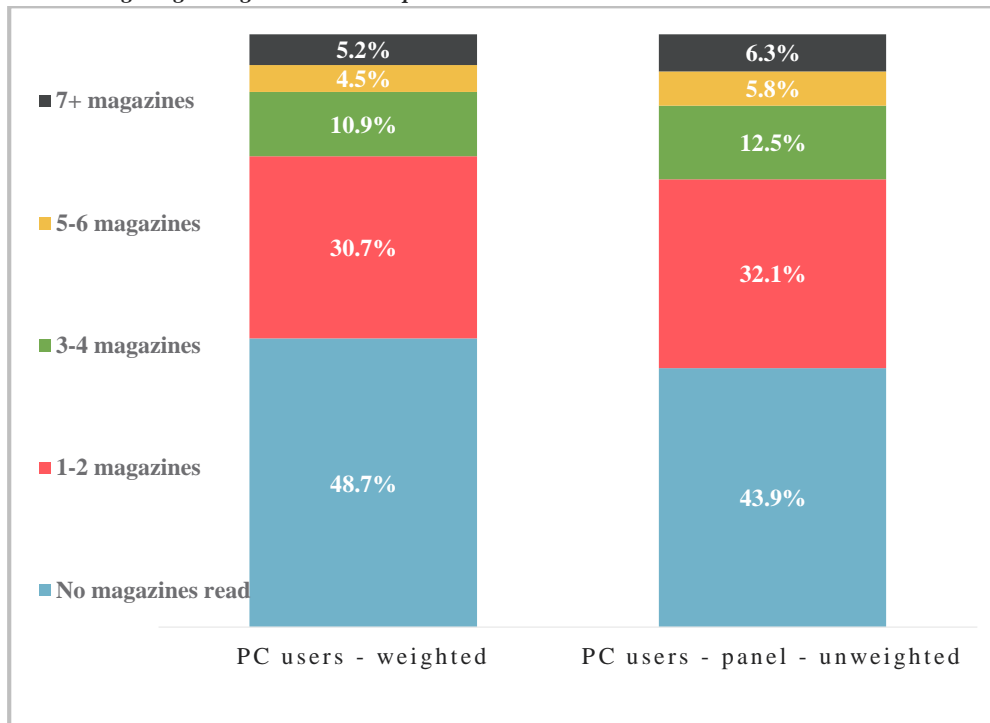
Data source: AMP January – June 2017

Figure 11: Mobile Panel Weighting – newsbrand readership



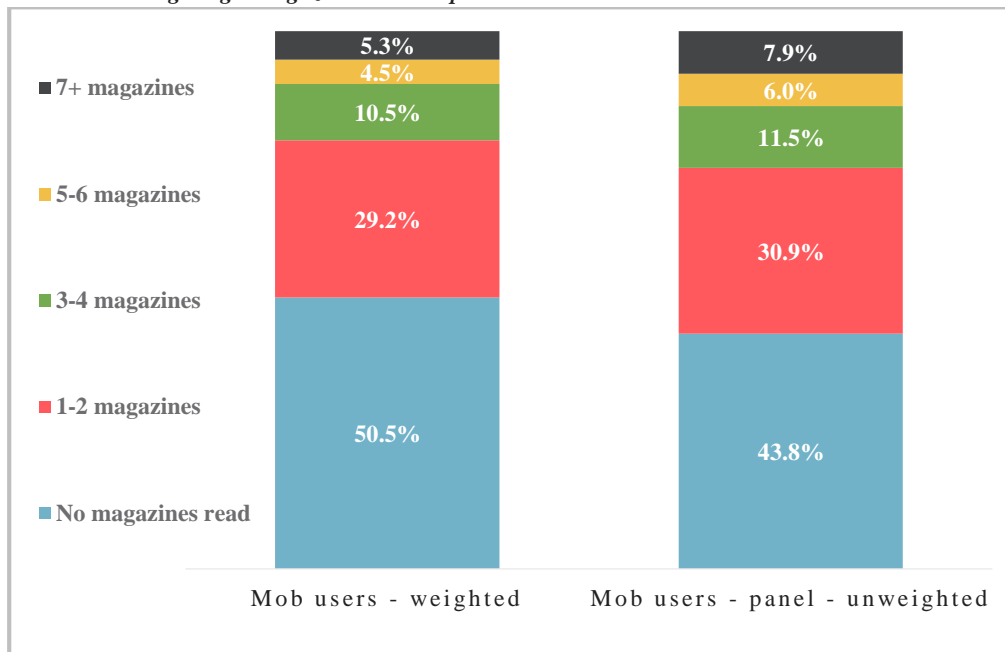
Data source: AMP January – June 2017

Figure 12: PC Panel Weighting – magazine readership



Data source: AMP January – June 2017

Figure 13: Mobile Panel Weighting – magazine readership



Data source: AMP January – June 2017

5) Survey development challenges

As with any new project, we have encountered a variety of challenges since AMP's early days. We have been able to learn from them and improve the panel, bringing it to its current shape where we are now close to our overall target for installation rates. Here, we discuss in more detail our learnings regarding the AMP app, developing our field interviewers, our panel monitoring system, and installations on specific device types.

The AMP App

As discussed earlier in this paper, the Ipsos AMP App is a cookie-based and advertising ID-based "tracker" app developed by comScore. It has gone through a number of iterations since it was first developed in late 2015. While the first version of the app for Android devices was successfully deployed for installation via the Google Play Store in early 2016, the iOS version was not accepted into the Apple App Store until December 2016. Initially, it therefore had to be installed via the enterprise programme, which required participants to change the settings on their devices to allow the AMP App to be 'trusted'. These additional steps meant not only that more time was needed for the installation, but they also caused a certain level of concern from both interviewers and participants, making completion of iOS installations challenging.

There were two main problems with the app that got it rejected from the App Store: (1) The app did not have any content and when installed on a smartphone or a tablet, while there was an AMP app icon on the screen, clicking on it opened a browser with a "thank you for participating" message rather than opening the app pages as generally happens with other apps. (2) When a participant clicked on the app icon and the browser opened, the panellist AMP ID was linked to the device ID, but the participant was not informed about this.

We therefore revamped the app to give it content and make its functions more transparent, utilising pages from the AMP website that provide information about the project and the app. Once the app opens, participants see a button on the homepage that they need to click on to link the panel ID to the device ID, and they are told exactly what is happening. The AMP app in this format was quickly accepted into the App Store, making the installation process easier for the start of 2017 AMP fieldwork.

Apart from the challenges with acceptance into the App Store, we have improved app troubleshooting. At the start of the project, we identified situations that interfered with the app installation, along with the steps needed to correct this. We provided this information directly to the interviewers via various communication channels and during training sessions, and we also included it in the installation guide. Later in 2016, we improved the error message warnings that the app displays to provide sufficient detail so the participant is able to fix the problem themselves. This helps ensure the installation is completed successfully. There are three frequent reasons for installation problems:

- When cookies are disabled on the device, the initial registration of the panel ID and device name will not be allowed. When installation is attempted on a device with disabled cookies, participants see an error message, asking them to enable cookies on their device and carry out the registration again.
- When "ad tracking" is disabled on the device, i.e. the participant had opted out from interest-based ads, the second part of the installation when the app links the panel ID to the device ID will not proceed. Participants see an error message, asking them to change this setting on their device and reinstall the AMP app.
- When the AMP app is installed using one browser but then opened via another browser, the second part of the installation when the app links the panel ID to the device ID cannot be completed. This is mostly a problem for iOS where Chrome is used for installation but Safari is the default browser that opens the app. When this happens, participants see an error message asking them to repeat the installation using the same browser that opens the app.

Lots of work has been put into improving the AMP App, and it was therefore in a great shape for the start of live AMP fieldwork in December 2016. Nowadays, the app is regularly reviewed and updated when needed, responding both to user feedback as well as ensuring it is compatible with the latest technology and operating systems.

AMP interviewers

Interviewers are central to the AMP project as they carry out the main face-to-face interviews, recruit participants for the panel and aim to guide them through the app installation. There are currently 220 interviewers trained on AMP, and approximately 140 work in any given month. Whilst many of these are experienced interviewers who have worked on AMP and NRS for years, there are also interviewers who have joined recently. Due to the complexity of the survey, interviewers usually have worked on other surveys before starting work on AMP.

The AMP panel recruitment and the app installation are very different tasks compared to the usual interviewing. Interviewers not only need to be able to “sell” the panel to the participants, but also need to understand the technical aspects of how the app works and how it is installed. Individual devices and set-ups can often be very different. We have devoted a great deal of resource to interviewer training and education from the start of the project.

In addition to providing interviewers with supporting materials to be used during the interview, explaining the app and guiding through the installation, we have run numerous briefings and training sessions focussing on different parts of the task:

- Face-to-face briefings ahead of the first AMP pilot in January 2016. We learnt from their experiences at trying out the install task on various devices within the briefings. Comments received from interviewers helped shape a lot of our written materials.
- Webinars in March 2016. These were mostly outlining how the AMP panel recruitment had worked in the pilot and how they should practise installations on a variety of different scenarios to gain experience.
- Face-to-face AMP app training sessions in summer 2016. We purchased a set of test devices, all types that are compatible with the AMP app, and carried out workshop sessions where interviewers had a chance to try the app installation on every device. Feedback from these sessions suggested they were very helpful, and they also helped reveal gaps in interviewers’ knowledge and the great differences in the levels of understanding and ability across the interviewers.
- Webinars/face-to-face briefings in August 2016. We organised webinars to help prepare interviewers for the second AMP pilot. There were also mop-up face-to-face briefings for interviewers who had not worked on the first AMP pilot and those who wanted more information. These briefings again included a hands-on workshop where interviewers had a chance to install the app on various devices.
- Face-to-face briefings in November/December 2016. These were held ahead of the start of live AMP fieldwork and, as previous sessions, included hands-on app installation workshops.

Interviewers working throughout 2016 received 5 full training sessions to help develop their skills. In addition to AMP app training, we concentrated on shifting the interviewer mind set from seeing the panel recruitment as an add-on to making sure it is as an integral part of the AMP interview. We believe this was successful with the start of live AMP fieldwork in 2017.

Some interviewers picked up the new tasks of panel recruitment and app installation fairly quickly and are achieving great results. Others have been struggling and even with ongoing support do not reach the targets. Some interviewers have been working on AMP/NRS for many years and achieve large numbers of interviews but find the new technical aspect of the AMP panel very challenging. For a small number of these interviewers, we have developed an alternative panel recruitment route where they still ask participants to join the panel, but the actual app installation is then handled via our call centre who call participants to take them through the task.

While some bespoke, one-on-one training and mentoring had been happening throughout 2016, we formalised this in 2017, pairing struggling interviewers with those who do well to provide them with training and mentoring. Furthermore, we launched a bonus scheme in Quarter 2 2017 rewarding interviewers in various categories, such as the best installer, the biggest improvement, or the best region.

Table 3 shows that we have seen good improvement in interviewers’ performance during 2017:

- The proportion of interviewers with low agreement rates fell by 10% from 36% to 25%.
- Similarly, the proportion of interviewers with low 1+ installations fell by 10%.
- The proportion of interviewers with low full installations decreased by 13%.

Table 3: Interviewer improvement in 2017

	Quarter 1 2017	Quarter 2 2017	Change - Q1 to Q2
Interviewers with 10+ interviews in the quarter	163	147	-
Agree <25%	36%	25%	-10%
1+ install <20%	54%	44%	-10%
Full install <15%	60%	47%	-13%

There is still progress to be made with some interviewers and we are continuing to evolve the 1:1 mentoring process to identify individual interviewer issues.

AMP panel monitoring system

Another challenge on the AMP project has been designing a panel monitoring system that is comprehensive and effective. It needs to be used in the office, by interviewers and their supervisors. In summer 2016, we deployed our AMP portal, a bespoke panel management and monitoring system. Since its initial development, numerous functions and reports have been added, making it a comprehensive and indispensable tool.

As described earlier, a system of follow-up emails and calls aimed at improving installations and compliance is managed via the AMP portal. The portal is also used for a variety of tasks (see figure 14 for example screenshots):

- Daily monitoring of the AMP panel using a great number of measures and indicators.
- Answering helpdesk queries and recording communications with participants.
- Compiling panel reports for management purposes.
- Analysing interviewer performance.
- Paying participant incentives.
- Exporting reports and data tables.

A separate section has been created for interviewers, allowing them to see their participants, monitor where installation was or was not completed, and follow up with those who have missing installations. Recently, we expanded the interviewer section to include information for interviewers such as monthly changes to the script and important messages, installation guides and motivational videos from their peers.

Almost 2/3 of our interviewers use the portal for follow-ups, with around 40% being regular users. This is below our target and we are looking at further promotion of the site to encourage active use.

Figure 14: AMP portal

The screenshot displays the AMP portal interface, which is divided into several sections:

- Top Navigation:** Includes 'Dashboards', 'Reports', 'Device Install Help', and a search bar for participants.
- Interviewer Details:** Shows 'Interviewer Name' and 'Region'. It contains two charts: 'Interviewer Progress' (a line graph showing progress over time) and 'Interviews' (a bar chart showing the number of interviews per interviewer).
- Comms Dashboard:** Features a 'Communications Summary' table and a 'Phone Calls Summary' table. The 'Phone Calls Summary' table is as follows:

Number of Reasons	Number of calls	% of all calls
1	1221	83.75
2	112	3.95
3	60	1.94
- Interviewer Table:** A large table listing interviewers with columns for 'Region', 'Completes', 'Eligible', 'Agree', 'S Full Install', 'R Full Install', '% Agree', '% Agree to reg now', '% Full install of eligible', and '% Full install of agree'. The total row shows:

AA	4181	2282	1065	586	474	39	41.2	14.7	43.6
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- Dashboard:** Contains a 'Summary table (participants)' and a 'Measuring apps' table. The 'Summary table (participants)' is as follows:

Description	Sample	% Actual	% Target
Total Sample	41601	-	-
Eligible for Panel	32463	78 %	78 %
Agree to join the Panel	10965	33.8 %	35 %
Agree to register all devices now	5715	52.1 %	70 %
Agree to register all devices at least 1 later	5220	47.6 %	-
Installed at least 1 device	7770	24 %	25 %
Agree to reg all now and installed at least 1	4942	86.5 %	-
Installed all devices	4759	14.7 %	22 %
Installed all devices now	3500	61.2 %	-
Installation fail	1463	4.5 %	-
- Measuring apps Table:**

Device Type	Total Installed	Do NOT have MOBILE_APP_RUN	% do not have MOBILE_APP_RUN
Android Phone	3038	1017	33.5
Android Tablet	1033	486	47
iOS Phone	3899	1622	41.6
iOS Tablet	2254	969	43
Android Phone (FP)	2015	629	31.2
Android Tablet (FP)	706	319	45.2
iOS Phone (FP)	2456	955	38.1
iOS Tablet (FP)	1500	609	40.6
All Devices	10224	4054	40
All Devices (FP)	6677	2465	37.0
- Participant Details:** A detailed view of a participant's information, including 'Point Number', 'Full Name', 'Field Region Code', 'Date Recruited', and 'Date All Devices Installed for Reports'.

Work computers

During the AMP interview, we also find out whether participants have a work computer with unrestricted, or almost unrestricted, access to internet. We then ask those who have work access if they will install the AMP app onto their work computers as well.

There is a different installation task on work computers as we know that in most instances the participant would not be able to install the App software onto their device. Instead, we have developed a simple registration task via our AMP website. By entering a panel ID and device name on a registration page, an AMP cookie will then be saved into their computer.

While this process is much quicker and easier compared to the standard computer installation, there are two disadvantages: (1) the cookie is only saved onto the browser that is used for the registration, so if participants use a different browser, we cannot see this, and (2) if the participant deletes their cookies, we will no longer be able to monitor their website visits unless they reinstall.

While 14% of participants who are eligible for a work computer installation agree to join the panel, only a few participants actually register their computers. Going forward we plan to increase our effort to expand our work computer panel.

Personal computer installations

While the overall performance of the panel has improved over time, personal computers continue to be the most challenging device to recruit onto the panel. As shown in table 1, only 15% of eligible computers have the app installed compared to 29% of smartphones and 23% of tablets. Furthermore, comparing the eligible, agreed and fully installed devices in figure 6, computers make up 41% of eligible devices, 37% of agreed devices, and just 31% of fully installed devices.

Based on feedback from interviewers, participants are reluctant to install the AMP app on their computers during the interview because the computers may be switched off and often stored in a different room, possibly a bedroom. Participants do not want to go through the extra effort to complete the installation during the interview. Furthermore, interviewers have reported that participants tend to be more protective of their computers, compared to mobile devices. They often have “private and personal” information saved there.

Additionally, the app installation may be seen as more intrusive on a computer than on mobile devices. Participants need to download a file and install the app as they would any other program. Sometimes windows warning messages may appear warning them of the potential dangers of installing software.

Participants who do not install the app on their computer on the day of the interview receive an email with their panel ID and a link to the AMP registration website. If they still do not install the app after a week, they will receive a call from our call centre. In fact, more than half of our follow-up calls are due to missing computer installations. Despite all these efforts, computers remain the least successfully installed device. We are exploring ways of improving install rates, possibly utilising the “work computer” installation method described above.

Participants with 3 or more devices

The panel is skewed towards participants who have and use only one device, as we struggle to get participants with three or more devices to install the AMP app on all their devices. Figure 7 shows that participants with three or more devices make up 36% of eligible, 39% of agreed and 23% of full panel.

While this is somewhat understandable, as it is more difficult to install the app on three devices than on just one, we continue to look for ways to improve this. For example, we have trialled offering substantially higher incentives for participants with full installation of three or more devices (£50). There was no impact on the number of full installs.

We are generally gaining their agreement to take part in the task in equal numbers to those with 1 or 2 devices. It is the installations that are under-delivering.

6) Conclusion

In this paper, we have discussed the challenges and opportunities encountered during the development of the AMP digital panel. The panel is a fundamental part of AMP, the new audience measurement system in Great Britain. It provides us with a unique opportunity

of accurately integrating print readership and internet audience currencies via single source collection involving passive measurement of digital activity.

The digital panel is recruited as part of a high-quality, face-to-face, random probability survey. This is the first time this approach has been attempted. The high participation rates are due to the rapport that interviewers build during their visit. We can calculate a response rate that is comparable to other recognised media audience measurement panels.

The panel has improved immensely on both agreement to participate and installation onto all eligible devices. This is down to a number of factors:

- The AMP app has continuously been improved, making it easier to install and more user friendly.
- Interviewers have been provided with training, mentoring and support as needed.
- A large proportion of interviewers have improved their panel recruitment skills.
- Interviewers started treating the panel recruitment as an integral part of the AMP interview rather than just as an “add on”.
- The supporting materials for interviewers and participants have been reviewed and updated substantially.
- Regular monitoring of the panel helps ensure any drawbacks are identified early.

We continue work on strengthening the panel particularly in the areas of 3+ device installs and computer installations.

We are on track to achieve our targets for an annual 5,000 quality passive digital panel.

Data from the panel then allows us to calculate a true duplication between print and digital readership for AMP panellists. Working with panellists’ print readership obtained from the face-to-face survey and their digital consumption as recorded by the app, we calculate how much more (or less) likely print readers of a particular brand are to also read any of its digital versions. While this information is not input directly into the reported data, it is used for adjusting these print-digital relationships as obtained from the fusion of AMP survey data and comScore digital data. These advanced statistical techniques present a new method for integrating print readership and internet audience currencies that will measure full platform reach for publishers’ brands.

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