

USING MOBILE RESEARCH APPS TO MEASURE READERSHIP

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1. Introduction

Global mobile advertising expenditure is forecast to double to \$3.3bn in 2011 and rise to more than \$20bn by 2015¹. In contrast, conducting research via mobile phones has been around in the UK for ten years or so, yet its development has been slow and it currently accounts for less than 1.5% of market research industry revenue. But things are starting to change. Feature rich mobile phones are becoming more available and more affordable with over a quarter of British adults now having a smartphone, rising to nearly half of all teenagers². Furthermore, in February 2011 we saw that for the first time ever, smartphones are outselling personal computers³; and 25 million iPads were sold in the first 14 months of their availability and 14 billion applications (apps) have been downloaded in less than 3 years⁴. The iPhone has led the way in usability and has created the mobile app revolution. It is a revolution not just affecting consumer behaviour, but also media behaviour. Just under one in ten (8%) of the British population have viewed a newspaper or magazine via a tablet, e-reader or app in the last 12 months⁵. The door is now open for researchers to create engaging and rich research opportunities and combine passive and active techniques to capture 360 degree views of participants' media, consumer and travel behaviour.

In this paper, we describe a pilot Ipsos MediaCT conducted with The Economist magazine during July and August 2011 where we deployed an on-device meter onto 196 subscribers' iPhones, iPads, and iPod Touch devices. The mobile research app passively measured the software and services used on the mobile devices. Thus, we were able to collect behavioural metrics on the use of mobile web and app properties, specifically including apps belonging to publishing houses for newspapers, magazines and periodicals. These results have been supplemented with survey research comparing reader behaviour across different platforms, including print, and therefore provide input to a discussion around the merits of different approaches to measuring readership and the role of new techniques such as on-device metering.

2. Readership metrics on mobile devices

Let us first consider what we mean by mobile research. There are a number of options open to researchers to measure readership on mobile devices. These are summarised below:

- 1) **Face to face, telephone or online surveys:** stated or declared behaviours recorded via face to face, online or telephone research techniques are well established. The benefit of this, perhaps more traditional approach, is that it is possible to get a near universal coverage of the population when drawing a sample, in particular for face to face interviewing. One drawback is we are relying on respondents to recall what they have been reading. As newspaper and magazine titles become available on more and more digital platforms, a question mark exists as to whether readers are able to provide reasonably accurate recall data for all the different touchpoints where they come across and engage with media properties.
- 2) **In-app surveys:** it is possible to launch surveys within the newspaper or magazine mobile application. Again this method of data collection is relying on declared behaviours to provide data on readership. However, we are capturing the data "in the moment" and therefore, potentially, it may be a reasonably accurate approach.

¹ <http://www.gartner.com/it/page.jsp?id=1726614>

² Ofcom Communications Market Report: UK (August 2011)

³ IDC (February 2011)

⁴ Apple WWDC Keynote (June 2011)

⁵ British National Readership Survey (Q2 2011)

- 3) **In-app analytics:** companies like Flurry, Omniture and Webtrends provide in-app analytics for app developers and their clients. These data provide detailed information about what goes on inside an app, which pages are being visited and for how long. However, the data collected are limited to the publisher's app alone. What we miss is what is happening with usage of competitor apps on the same device, and what other media the reader is consuming.
- 4) **Census level mobile log file data:** the current industry standard for mobile audience measurement is to fuse census level network centric log file data with panel based demographics to provide a currency for mobile media. This is appealing as it provides census level data for mobile web usage. However, the approach has its limitations as it only accurately measures website usage data which passes across the gateways and switches of cellular networks. Usage of web browsing via wi-fi can be modelled, but not captured, in the same data set. As the data are collected from the network and not from the device itself, the approach struggles to capture metrics on branded mobile applications and get an accurate read on engagement with application and website properties on a device.
- 5) **On-device meter:** an on-device mobile meter provides a full 360 degree view of how media are consumed on mobile devices. It provides a wealth of contextual data including for example location, movement, music being played while reading, apps used directly after the readership session, mobile web and app usage. A drawback of this approach is that often it struggles to pick up in-depth metrics within apps. The meters in existence today mostly work with http (internet links) data only, although it is possible to pick up data throughputs and make inferences in that fashion.

It is the last of these options, the on-device meter, which we explore further in this paper.

3. Using an on-device meter to measure readership of The Economist

During July and August 2011, Ipsos MediaCT worked with The Economist and their subscriber lists to recruit a sample of 196 readers who had each already installed The Economist app on their mobile device.

3.1. Recruitment

Our panellists were recruited using The Economist subscriber lists where appropriate permissions had been given. The publisher was responsible for the initial contact with its subscribers via email. In the email, subscribers were asked if they would like to participate in the panel for a period of one month. An incentive of £10 or \$15 was offered, which was to be redeemed at the end of the study period. Overall, around a 5% response rate was achieved, which was in line with previous exercises of this type.

The meter provided by Zokem⁶ is uniquely able to capture usage data on apps and web browsing on the Apple platform. It is available on iTunes and can be downloaded directly from the store and installed on the device; it can also be loaded directly via a dedicated link onto the Apple device. During the recruitment process we used both methods and actually found the direct load procedure provided higher response rates.

We noted two main barriers to participation:

- 1) **Privacy concerns:** we provided a comprehensive privacy agreement and reassurances about what data the meter was collecting. Despite that, and perhaps unsurprisingly, email feedback from non-participants indicated that there were reservations about installing the meter and having their phone activities monitored.
- 2) **Technical issues:** some people seemed to experience issues in the download and installation process and a small number reported battery life issues. The direct load procedure seemed to improve the download process, and Zokem have improved battery drain issues significantly over the past 12 months.

⁶ Zokem, recently acquired by Arbitron and now trading as Arbitron Mobile, provides custom and syndicated mobile research panels, plug-and-play mobile media measurement tools and software building blocks for mobile device tracking to the leading companies in the marketing research, wireless, Internet, media and marketing industries. www.zokem.com

As we were using subscriber lists from The Economist, attention was paid to data protection and legal issues around sharing data between Ipsos, Zokem and The Economist to ensure all the correct procedures were followed and complied with relevant regulations.

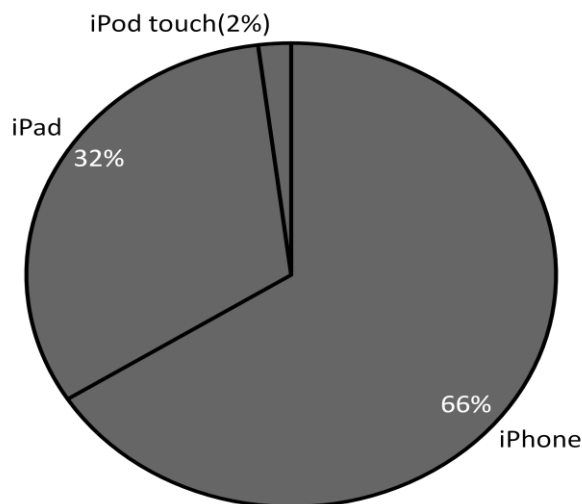
3.2. Technical considerations

At the time of the pilot, we used the metering technology (Zokem Media Tracker™), provided by Zokem, which works on Apple devices running the iOS4 operating system. In other words, iPhone 3 devices could not be included in our sample. However, iPhone 3GS, iPads, and iPod Touches that have been upgraded from iOS3 could be included. Apple's iPhone 4 and iPad2 were all compatible with the mobile on-device meter we used. The meter also works on Android, Symbian and Blackberry operating systems, although this functionality was not required for this project.

3.3. Sample profile

The 196 devices we measured were split out according to the pie chart below (figure 1) with a reasonable mix of iPhone (smartphone) and iPad (tablet) users, plus a small number of iPod Touch users. The sample comprised a mix of subscribers from around the world including Australia, Brazil, China, Costa Rica, Finland, France, Germany, Greece, Hong Kong, India, Italy, Japan, Malaysia, South Africa, Spain, Taiwan, Thailand, UK and USA. At a later analysis stage, the demographics from The Economist subscriber lists will be matched to the metered data set to provide a fuller demographic profile.

Figure 1: Device platform distribution (n=196)



4. A 360 degree view of on-device application usage

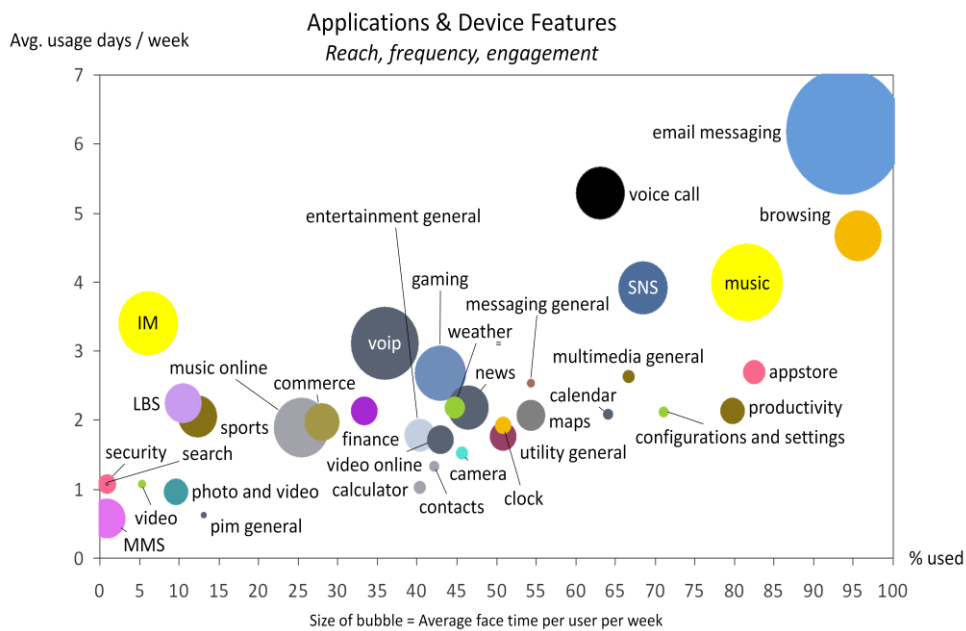
As stated above, the on-device meter approach enables us to provide a 360 degree view of the on-device application usage. The method allows us to look at all applications used, as well as mobile web browsing behaviour. Working with Zokem, we pulled together 3 key metrics for measuring mobile application and web-based property usage.

- 1) **Reach:** the percentage of users that use each application over a given time period; in our case 3 to 4 weeks.
- 2) **Frequency:** the number of days per week on average the application or web property is used.
- 3) **Engagement:** the amount of time the application or mobile web page is on the front screen of the device and is active. We can infer that this is the amount of time the end user is looking at the application or is engaged with it. Another term commonly used for this is “face time”.

On this basis, we are able to plot the usage of the devices' different applications or web properties. Below, we have profiled the usage of all the different on-device applications and features. As this includes some iPad and iPod Touch users, not all respondents made voice calls or used standard phone features. As may be seen in figure 2 below, nearly all in our sample used their device for email or web browsing. To put this into perspective, on average, users are spending around 500 minutes per week with email messaging applications. This compares with news and information applications, which are being consumed by end users on average for 50 minutes per week.

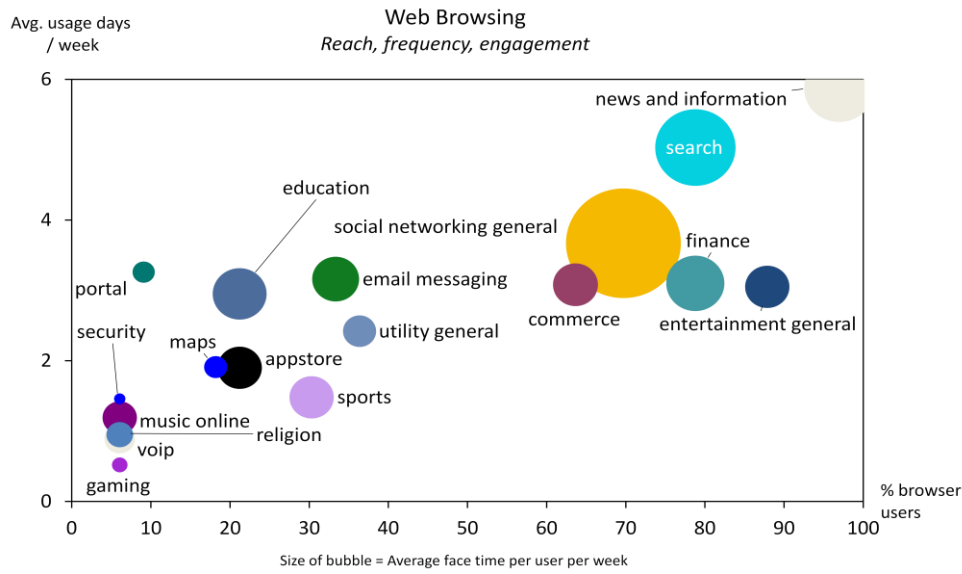
For the purposes of this paper we have analysed data from the first 115 panellists that signed up to the trial, as we have 3 weeks or more of passive data to report on. We have only therefore looked at data in aggregate across all types of mobile devices. The remaining 81 panellists had only been on the panel for a matter of days at the time of writing, however, subsequent reporting will include the full 196 sample and data split out by device type e.g. iPad and iPhone.

Figure 2: Reach, frequency and engagement of applications and device features n=115, minimum 3 weeks' data



Similarly, we can also run this analysis to look specifically at web browsing and the amount of time spent with different web properties. The chart below (figure 3) shows the corresponding output for mobile web properties. We have used a different engagement figure here (number of hits per week), although we could analyse this by face time. Perhaps unsurprisingly, this group of mobile device users from The Economist subscriber lists can be categorised as “news junkies” and are frequent visitors to news and information sites on their mobile devices, spending a total of nearly 2,000 minutes (33 hours) per week on these sites.

Figure 3: Reach, frequency and engagement of web browsing n=115, minimum 3 weeks' data



Specifically for The Economist’s mobile app across the fieldwork period, the average amount of time users spent with the app across all devices was 88 minutes. So we see that The Economist’s app was relatively more engaging than news and information apps in general (50 minutes). Of note, most of these readership sessions were on the tablet rather than the smartphone.

Figure 4: Reach, frequency and engagement – The Economist mobile app

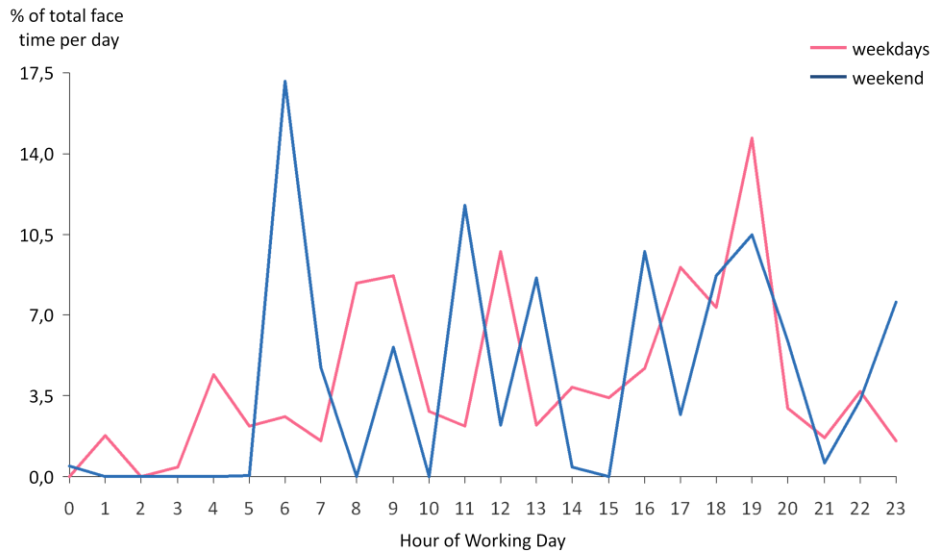
	The Economist mobile app
Reach	23%
Frequency	2.65 days per week
Engagement	88 minutes per week

Base: 115 The Economist app subscribers during August 2011, with min. 3 weeks' data

Overall, we were able to record that around one in four subscribers read The Economist over our 3 week trial period. And those that did so read it on average 2 to 3 days per week and for around 1.5 hours per week (figure 4). The frequency of reading was in line with other news and information based applications.

As well as producing aggregate data for readership of The Economist on smartphones and tablets, we can also look at trends by daypart and the differences between weekday and weekends. Again, these are behavioural data, in other words actual time spent with The Economist. As may be seen in figure 5 below, prime time for app readership is the evening between 6pm and 8pm, and in particular on weekdays. There is an early morning peak on weekends as well, while during weekdays between 8am and 9am, readership rises coinciding with commuting times.

Figure 5: The Economist app usage by daypart n=115, minimum 3 weeks' data



As well as reviewing information about how readers are using the app on their mobile device, we can also collect contextual information based on other software and services The Economist readers are using. It has been reported that over 55% of UK smartphone owners now participate in at least one other media activity, like watching TV or reading books, less often since they bought the mobile device⁷.

An interesting example of other software used in our passive data is the music player. The mobile meter we used is able to detect which music artist is being listened to on the mobile device and provide a calculation for total playtime. Below, we list the somewhat eclectic top 10 music artists by playtime among our sample of The Economist readers. We noted Amy Winehouse's presence in our 'chart' and in other playlist and sales charts at the time immediately following her death, which occurred during our fieldwork period.

Figure 6

TOP 10 ARTISTS LISTENED TO DURING TRIAL RANKED BY PLAYTIME <i>n=115, minimum 3 weeks' data</i>	
1.	Lady Gaga
2.	Shakira
3.	Amy Winehouse
4.	Sigur Rós
5.	Silbermond
6.	Thee Silver Mt. Zion Memorial Orchestra
7.	Arcade Fire
8.	Eminem
9.	Michael Bolton
10.	Coldplay

⁷ Ofcom Communications Market Report: UK (August 2011)

5. Comparing passive data from on-device meter with data from survey sources

Having discussed some of the metrics available passively from the mobile devices of a sample of The Economist subscribers, we now go on to compare these to a number of different survey sources.

5.1. In-app survey comparison

In figure 7 below, we show data from an in-app survey conducted by The Economist with their iPad users in June 2011, a couple of weeks before our pilot of the on-device meter. The resulting sample size in this study provided a very robust 1,181 respondents to work with. Of note, the results from this survey-based approach compare favourably, and certainly within margin of error, to the results we observed in our on-device metering pilot. Around half of the sample stated they had spent between 30 minutes and 2 hours reading The Economist’s app; the average score was calculated as 104 minutes, which compares to the 88 minutes from our on-device meter (which was predominantly iPad reading).

Figure 7

How much time in total do you think you will spend reading The Economist this week by edition (taking into account all the times you look at it)? – iPad App		
	Total	
None	6	0.5 %
Less than 15 minutes	21	1.8 %
15 mins – 30 mins	67	5.7 %
30 mins – 1 hour	207	17.5 %
1 – 1.5 hours	276	23.4 %
1.5 – 2 hours	208	17.6 %
2 – 2.5 hours	175	14.8 %
2.5 – 3 hours	98	8.3 %
3 – 4 hours	62	5.2 %
4 hours +	61	5.2 %
Total	1181	100.0 %
Average (mins)	104.5	

Base = 1,181 (unweighted data)

5.2. Respondent level comparison of passive and claimed data

An important test to understand the accuracy of readership questions collected by questionnaires is to compare responses to a question such as time spent reading with actual behavioural data. The assumption here of course, is the behavioural data we are collecting, in this case from the on-device meter, is accurate. This seems like a fair assumption given the face time calculation used; that is, the time the publishers' app is being used and is on the front screen of the mobile device. In order to get to this, we deployed a question via a pop up on the mobile devices of the panellists in our study. The question we asked was as follows:

How much time in total do you think you have spent reading The Economist using the app on this device over the past 7 days?

- Over 90 minutes*
- 60-90 minutes*
- 15-60 minutes*
- 0-15 minutes*
- None, not read*

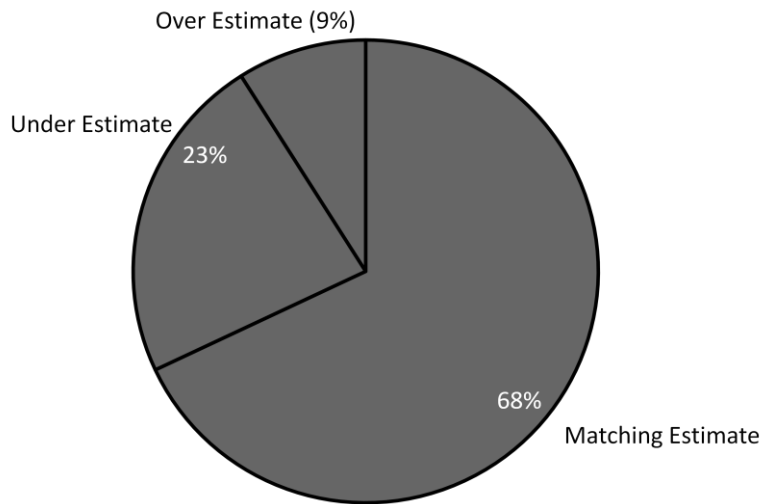
The response rate was not as good as we had hoped for with 22 responses from our 115 panellists at the time of writing. However, the results did provide some indicative insights.

Overall, 15 of the 22 respondents correctly recorded their reading time with The Economist, when compared to the corresponding passive data, using the scale in the questionnaire (figure 8). Of those whose claims did not match the passive data, they tended to be heavier readers of The Economist and actually underestimated their readership using the scale on the questionnaire.

The scale used was designed to reflect the time bands used in The Economist's own in-app survey. The Economist survey had listed more bands over the 90 minute mark, which were not included for reasons of screen size in the on-device poll administered in our pilot. It is possible, if we had included more bands, that these heavier readers would actually have been more likely to record a more comparable readership time.

In overall terms, the results provide evidence for having confidence in survey-based readership (recall) questions, using a time-band approach. Equally, this may also present a case for passive methodologies to replace survey-based methodologies in research, however, there are cost/benefit implications for this which we discuss later in our conclusions.

Figure 8: Accuracy of estimates of weekly readership of The Economist app on the device compared to actual data recorded by on device meter n=22 (small base)



5.3. Print readership survey comparison

As seen earlier, the time spent reading data from our passive meter compares reasonably well (88 mins v 104 mins) to The Economist's in-app survey data conducted around the same time, albeit with a different sample. We are also able to compare the quality of mobile reading data with that of print reading data from the British National Readership Survey (NRS).

The average time spent reading of The Economist is 70 minutes (NRS Q2 2011), which is around 30% shorter than the face time we observed for the corresponding mobile application for the title. Is mobile a more engaging platform for readers? Clearly, we cannot infer this here, particularly as one is a sample of subscribers and the other is not, but it certainly provides food for thought for publishers and it may in part explain why so much attention is being paid to mobile despite its relative infancy in the publishing marketplace.

6. Conclusion

We cannot ignore the mobile generation. Three in five teenagers admit they are "highly addicted" to using smartphones, compared with 37% for adults⁸. These statistics are thought provoking when we try to anticipate the make-up of tomorrow's newspaper and magazine reader landscape. Today, the numbers we are talking about as far as publisher mobile web and app readership is concerned is still relatively small compared with other media and so agencies are currently favouring getting a steer on the effectiveness of mobile advertising more so than the hard numbers for trading⁹.

Using mobile apps for surveys now have their place in the research eco-system and readership surveys are no exception. We have seen that one can collect passively a wealth of behavioural data, free from any apparent survey response bias, when using mobile devices – such as the when, where and how long, etc. – and so easing respondent burden on surveys. This is a big step forward for researchers.

⁸ Ofcom Communications Market Report: UK (August 2011)

⁹ <http://www.ipsos-mori.com/newsevents/blogs/mediactlightbites/773/The-Tablet-is-a-game-changer.aspx>

We have also seen that claimed data collected in questionnaires about readership behaviour is a reasonable reflection of actual time spent with publishers' apps. The majority of respondents, where we were able to record declared and actual (passive) behaviours, provided similar questionnaire responses for their weekly time spent reading estimates.

Finally, where does that leave us in terms of the merits of different solutions for measuring readership in the digital and increasingly mobile age? We list out five key learnings and implications from our study:

1. On-device metering provides a full 360 view of the usage of different applications, websites and services on the device. This provides contextual information around application usage and the ability to provide accurate data on multiple publishers' properties.
2. Response rates can be particularly low in terms of installations and a number of barriers exist. While the technical barriers are increasingly less of an issue, the willingness of respondents to accept monitoring on their device remains a notable barrier and requires further investigation.
3. For the purposes of monitoring multiple publishers' properties the on-device metering approach is an attractive option. Ipsos has launched, in partnership with Zokem, a syndicated offering with panels in the UK and France. The syndicated panel approach allows clients to benefit from shared efficiencies in panel recruitment and have access to longitudinal tracking data. Boosts for specific titles and publications may be required to obtain sufficient sample sizes depending on the title under consideration.
4. We believe the passive behavioural data collection approach can co-exist with traditional survey-based methodologies. With the passive approach delivering behavioural data and surveys used to collect more emotional and attitudinal data.
5. For quality of reading metrics, such as time spent reading, the survey approach still seems to provide a reasonably accurate measure, especially for a specialist title such as The Economist. For these measures, the survey approach is therefore still reliable. However, a decision on which approach to use will depend on the specific project objectives and a cost-benefit analysis of the available options.

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