



# Understanding online behavioural advertising: User knowledge, privacy concerns and online coping behaviour in Europe <sup>☆</sup>



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## ABSTRACT

Online behavioural advertising (OBA) is a special form of targeted advertising. For OBA, it is necessary to collect data about online surfing behaviour, which is usually undertaken by installing 'cookies'. The use of cookies is heavily debated by policy makers in the US and Europe. Central to this discussion is whether users should provide informed consent prior to the installation of cookies. However, to provide informed consent, it is vital that website users understand the mechanisms of OBA and cookies. This study investigates whether the existing knowledge is sufficient, whether website users are concerned about their privacy, and how they cope with OBA, cookies and the requested informed consent. An online questionnaire ( $N = 2022$ ) was fielded briefly after new European cookie regulations were enacted. The results confirmed that the knowledge is still insufficient to obtain good understanding of this new advertising technique. In addition, the results showed that groups of Internet users did not differ in terms of knowledge, although they did differ in terms of privacy concerns. A comparison of privacy-concerned groups showed that a dual approach is needed in communicating about OBA, not only to inform but also to reduce worries, especially in older and less-educated groups.

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## 1. Introduction

Walking through a futuristic shopping mall in the movie *Minority Report*, Tom Cruise is addressed personally by advertising pre-set to his personal preferences and shopping behaviour, and hears, 'Hi, John Anderton, you could use a Guinness', and reads on the American Express billboard, 'John Anderton, member since 2037'. Although this scenario might seem futuristic, the advertising technique of targeting individuals based on their previous behaviour has become a common practice on the World Wide Web. Today, advertising often includes someone's name and picture, and it can be targeted to demographic characteristics or adjusted to previous website visits. For example, an Internet user who searches for flights to a specific destination in the world on an airline company's website in the evening, is exposed to an ad from this airline and to this specific destination when the Internet user checks the local weather on a weather forecast site the other morning. Adjusting advertisements to previous online surfing behaviour is called online behavioural advertising (OBA). Nearly all advertisers and advertising platforms are now using this technique to serve

online ads (eMarketer, 2013). For this form of targeted advertising, data must be collected, usually by installing 'cookies'. Cookies are small text files that are put on users' devices, such as notebooks or smart phones, to facilitate the functionality of a website (first-party, session or functional cookies) or to collect profile information for targeted advertising (third-party or tracking cookies). While advertisers stress the utility of OBA in terms of relevant advertising, the use of cookies is heavily debated by policy makers in the US and Europe because of its potential violation of the privacy of Internet users (Bennett, 2011). Central to this discussion is whether users should provide informed consent prior to the installation of cookies ('opt-in').

The Netherlands is an interesting European case with regard to the informed consent discussion because legislation has recently changed from an 'opt-out' to an 'opt-in' requirement. As a member state of the European Union (EU), the Netherlands follows the new EU e-Privacy Directive of 2011 in which it is stated that data storage by placing cookies is only allowed if the user has provided prior informed consent. The previous 'opt-out' possibility is no longer sufficient, nor are browser settings (Antic, 2012). This new legislation was enacted in June 2012, and it requires that website users have active control of their personal information online. Regulations in the US have the same aim as the European regulations. Principles provided by the Federal Trade Commission (2009) regarding the self-regulation of OBA practices also focus on consumer control over OBA. Exerting this control requires an understanding of advertising techniques and the role of cookies.

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Aim of this article is to gain a more profound insight into the status of this understanding of advertising techniques and the role of cookies. In particular, we aim to answer the question of how different groups of Internet users should be approached when informing them about OBA and cookies. To address this overall question, we first addressed the following three questions in this article. First, do website users know what OBA is? As this new legislation requires that website users have active control, it seems vital that they have knowledge about OBA and cookies to be able to exert this control. Second, to what extent are Internet users concerned about their privacy, and how do they feel about OBA and cookies? Answering this question would provide insight into whether Internet users worry like policy makers do or whether they hold the same optimistic view as online advertisers and could provide direction to educational programs and policy makers. Third, how do website users already deal with OBA? Policy makers attempt to protect users by introducing informed consent, but how do Web users deal with OBA and protect themselves? Do they accept cookies, avoid online targeted advertising, and protect their online privacy by, for example, adjusting their cookie settings? Answering this question would help to determine whether informed consent functions as a protection mechanism against unwanted persuasion by targeted advertising.

An online questionnaire was distributed among a representative sample of adult Internet users shortly after the new cookie regulations were enacted during the summer of 2012. Before presenting the methodology and results of this survey, insights from earlier research are discussed with regard to the previously mentioned research questions.

## 2. Background and related work

### 2.1. What do Internet users know about OBA?

Earlier research has already provided some insight into consumers' understanding of OBA. An interesting study by [McDonald and Cranor \(2010\)](#) demonstrated a working understanding of OBA but also confusion about some aspects, particularly cookies with regard to OBA. For instance, half of American respondents believed that their location could not be identified if they did not accept cookies or that cookies contain information from when they purchased their computer, including their name and home address. Neither of these beliefs is true, and the results showed a lack of understanding. Other misunderstandings included confusion about the difference between cookies and browsing history, whether the blocking of cookies preserves geolocation privacy, and the information that is protected by privacy statements. The study by [McDonald and Cranor \(2010\)](#) provided valuable insight into the (mis)understanding of American website users regarding online behavioural advertising and the use of cookies. We wondered whether the understanding of Dutch website users would be better than that of American respondents. We expected that this would be the case for the following reasons: (1) the new legislation in the Netherlands requires sufficient understanding; and (2) the change in legislation was debated in the Dutch media over the three months prior to our survey.

### 2.2. To what extent are Internet users concerned about their privacy?

As OBA is based on previous site visits, it involves the notions of personal space and privacy. Central to privacy is the issue of privacy concerns, defined by [Beak and Morimoto \(2012, p. 63\)](#) as "the degree to which a consumer is worried about the potential invasion of the right to prevent the disclosure of personal information to others." Several public opinion polls have revealed that

American citizens worry about what companies know about them and whether the information that is used is correct ([Phelps, Nowak, & Ferrel, 2000](#)). For instance, 57% were "not comfortable" with browsing history-based behavioural advertising, even when that information could not be tied to their names or to any other personal information ([TRUSTe, 2012](#) reported in [McDonald & Cranor, 2010](#)). A poll by Zogby International (reported in [Sipior, Ward, & Mendoza, 2011](#)) revealed that 80% were either "somewhat" or "very" concerned about online tracking for the purpose of advertising. The same trend was found in European polls. According to the recent [TRUSTe, 2012](#) UK Consumer Data Privacy Study, 94% of respondents were worried about their online privacy. This study also showed that 79% were aware of OBA, 53% did not like it, and 42% worried that personally identifiable information (PII) would be attached to tracking activity. Based on these international reports and the European discussion of new cookie regulations, we expected that Dutch Internet users would be concerned about their privacy as well.

### 2.3. How do Internet users cope with OBA?

In response to the growing concerns among consumer advocates about the loss of privacy caused by e-marketers' information collection practises, researchers have not only begun to examine Internet users' online privacy concerns empirically but they have also begun to examine their coping behaviours in protecting their privacy. Prior research has shown two different types of strategies for coping with privacy threats: coping by approach and coping by avoidance.

Coping by approach refers to confrontation strategies ([Raman & Pashupati, 2004](#)) that result in 'mastering the Internet' ([McDonald & Cranor 2010, p. 398](#)), such as reading privacy policies and installing technological software (e.g., firewalls, spam guards). Prior research on the approach type of coping behaviours has resulted in an overall picture of consumers not being adequately protected ([Milne, Rohm, & Bahl, 2004](#); [Berendt, Günther, & Spiekermann, 2005](#)). Although these studies were conducted several years ago and in a different part of the world, Dutch Internet users might demonstrate the same behavioural pattern. However, it might also be the case that Dutch Internet users protect themselves more adequately, as the Internet penetration is higher in the Netherlands than in the countries that were under examination in prior studies ([Internetworldstats.com, 2013](#)).

Coping by avoidance refers to coping strategies that aim to avoid having websites collect data for targeted advertising by rejecting, blocking or accepting only some types of cookies ([McDonald & Cranor, 2010](#)). An alternative business model for the industry would be to charge for advertising-free online content; that way, Internet users could avoid cookies being installed, although no prior studies have investigated whether paying for online content, such as music and news, is a good way to protect online privacy. As prior research has demonstrated that a large percentage of Internet users are inclined to avoid doing business on some websites as a strategy for preventing behavioural data from being collected ([Milne et al., 2004](#)), we expected that Dutch Internet users would consider paying for online content to be an option for protecting their online privacy.

### 2.4. How should different Internet users be approached?

We expected that not all Internet users would respond to OBA and privacy regulations in the same manner. To differentiate between Internet users, several authors have proposed privacy concern-based segmentation ([Hoofnagle & King, 2008](#); [Kumaraguru & Cranor, 2005](#); [Milne & Bahl, 2010](#); [Milne, Rohm, & Bahl, 2009](#)). In general, these studies showed that privacy-concerned segments

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