Advertising technology (or adtech) is the term that refers commonly to all technologies, software and services used for delivering and targeting online advertisements.

There are vast amounts of data collected when accessing websites online and this is merged together with other information held on individuals in real time in the form of a digital personal profile, to decide which advert is delivered to them. Publishers use ad tech to sell advertising space in real-time.

The ICO is actively investigating the adtech industry and its handling of personal data and has commissioned research, with advice provided by Ofcom.
Research objective

“To understand the public’s awareness and perceptions of how online advertising is served to the public based on their personal data, choices and behaviour.”

In line with the ICO’s Technology Strategy to assess the risks to the public of new technological developments.

Methodology

2,342 adults aged 18+ responded to a 10 minute online survey

Fieldwork conducted 25th-27th February 2019

Results of survey are weighted to be nationally representative of the UK population by age and gender.
Executive Summary of Adtech Research

- Most people accept that websites display adverts in return for being able to access them for free.

- A majority would prefer to see adverts that are relevant and feel that adverts are being personalised to them at least some of the time, but many feel they have little or only some control over which adverts are shown.

- Ad preference messages are mainly only recalled when examples are shown. Also, the information provided is often not understood, takes too much time or people think they can’t do anything about it.

- Once an explanation of adtech is shown, there is a notable shift in perceptions towards websites showing adverts as being unacceptable.

- Only search/browsing history is really top of mind in terms of information used to personalise adverts. All the information points typically used are frequently deemed unacceptable.
Perceptions before description of adtech is shown
Two thirds of those who use free websites that display adverts find it acceptable that they do so in return for the websites being free to use.

82% visit free to use websites (social media sites, webmail sites or free online newspapers) that display adverts

92% amongst those who access the Internet most often by mobile phone

MQ4. How acceptable or unacceptable is it that some websites display adverts in return for the websites being free to use?

Of these...

63% NET acceptable

- Completely acceptable: 17%
- Acceptable: 46%
- Neither: 23%
- Unacceptable: 10%
- Completely unacceptable: 3%

Base: 2056 (UK 18+ year olds)

Base: 1690 (UK 18+ year olds who visit free to use websites)
Whilst a majority would prefer to see relevant adverts rather than seemingly random ones, one in five disagree. Four in ten feel they have no control over which adverts they are shown.

MQ7. To what extent do you agree or disagree that you’d prefer to see adverts on websites that are relevant to you rather than seemingly random adverts?

54% agree

20% disagree

MQ5. How much control do you feel you have over which adverts are shown to you on these websites?

- No control: 42%
- Some control: 34%
- Full control: 18%
- Unsure: 6%

Of those who disagree that they’d prefer to see adverts on websites that are relevant to them, 56% feel they have no control over which adverts are shown.

Base: 1690 (UK 18+ year olds who visit free to use websites)
A third feel the adverts they see on websites are relevant to them individually. Almost six in ten feel that the adverts they see on free to use websites seem to be personalised to them at least some of the time.

**MQ6. How relevant to you individually do you find the adverts you see on these websites?**

- 20% Relevant
- 14% Highly relevant
- 44% Varies by website
- 12% Irrelevant
- 10% Unsure

26% amongst those who access the Internet most often by mobile phone.

**MQ6a. How often do you find the adverts you see on these websites seem to be personalised to you?**

- 50% Some of the time
- 28% Never
- 9% All of the time
- 14% Unsure

Base: 1690 (UK 18+ year olds who visit free to use websites)
Prior to being shown examples, only a quarter can recall websites providing information about how websites are personalised. This recall is significantly greater amongst males and 18-34 year olds.

**MQ8. Do these websites provide information about how the adverts that appear on their sites are personalised to you?**

- Yes: 24%
- No: 50%
- Unsure: 26%

Recall seeing information:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-34</td>
<td>39%</td>
<td>26%</td>
<td>7%</td>
</tr>
<tr>
<td>35-54</td>
<td>26%</td>
<td>26%</td>
<td>7%</td>
</tr>
<tr>
<td>55+</td>
<td>7%</td>
<td>17%</td>
<td>7%</td>
</tr>
</tbody>
</table>

- Those who disagree that they’d prefer to see adverts on websites that are relevant to them: 15%
- Those feeling it is unacceptable that some websites display adverts in return for the websites being free to use: 10%
- Those who feel that they have no control over which adverts are shown to them on these websites: 7%

Base: 1690 (UK 18+ year olds who visit free to use websites)
When shown examples of advert preference messages, recall increases to over four in five.

MQ9. Have you ever seen messages like these?

82% Yes
11% No
7% Unsure

Base: 1690 (UK 18+ year olds who visit free to use websites)
Nearly nine in ten state that they do not click on the messages all of the time. Key reasons include not being able to do anything about it and the amount of time it takes. A quarter of those who do click do not understand the explanation provided.

**MQ10. Do you click on these messages to find out how adverts are personalised to you?**

- 12% Yes, always
- 35% Yes, sometimes
- 53% No, never

Base: 1379 (Base: All qualified respondents who have seen the advert messages)

**MQ11. Do you feel that you understand the explanation given to you, as to how adverts are personalised to you?**

- 16% Unsure
- 26% No
- 59% Yes

Base: 644 (UK 18+ year olds who click on the advert preference messages)

**MQ12. Why do you not always click on these messages to find out how advertising is personalised to you?**

- I just ignore the adverts: 50%
- You can't do anything about it anyway: 29%
- It takes too much time: 28%
- I don't care how the adverts are personalised to me: 21%
- I didn't realise you could access this information from...: 18%
- The information they provide is too complicated: 16%
- I don't feel adverts are personalised to me: 13%
- I'm happy to see the adverts: 10%
- None of these: 1%

Base: 1217 (Base: UK 18+ year olds who do not always click on the advert preference messages)
Over two in five have tried to stop websites from displaying adverts, and this is mainly via ad blockers or options within adverts.

41% have tried to stop websites from displaying adverts that are relevant to them or from displaying any adverts?

<table>
<thead>
<tr>
<th>MQ14. How did you do this?</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used an adblocker</td>
<td>55</td>
</tr>
<tr>
<td>Used options within an advert</td>
<td>44</td>
</tr>
<tr>
<td>Actively deleted marketing cookies</td>
<td>36</td>
</tr>
<tr>
<td>Changed browser settings</td>
<td>31</td>
</tr>
<tr>
<td>Stopped visiting the website</td>
<td>30</td>
</tr>
<tr>
<td>Can’t remember</td>
<td>3</td>
</tr>
</tbody>
</table>

Base: 1690 (UK 18+ year olds who visit free to use websites)
The public mainly associates advert personalisation with browsing and search history. There are some mentions of purchase history, cookies, location and demographics.

MQ15. What kind of information do you imagine is being used, when a relevant advert is shown to you on a website?

<table>
<thead>
<tr>
<th>Information</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browsing history/Websites I have visited</td>
<td>40%</td>
</tr>
<tr>
<td>Previous search history</td>
<td>23%</td>
</tr>
<tr>
<td>Past purchase history/Buying habits</td>
<td>14%</td>
</tr>
<tr>
<td>Cookies (tracking)</td>
<td>9%</td>
</tr>
<tr>
<td>Location</td>
<td>8%</td>
</tr>
<tr>
<td>Age</td>
<td>8%</td>
</tr>
<tr>
<td>Personal data/information</td>
<td>8%</td>
</tr>
<tr>
<td>Gender</td>
<td>6%</td>
</tr>
<tr>
<td>Interests/Hobbies/Preferences</td>
<td>6%</td>
</tr>
<tr>
<td>Products you have looked at</td>
<td>4%</td>
</tr>
<tr>
<td>IP address</td>
<td>3%</td>
</tr>
<tr>
<td>Retail websites/Where I shop</td>
<td>3%</td>
</tr>
</tbody>
</table>

32% amongst those who access the Internet most often by mobile phone

34% amongst those who access the Internet most often by mobile phone

4% do not know what information is being used

2% do not think any information is being used

Base: (905) (UK 18+ year olds who gave an answer). NB: Only responses greater than 2% are shown in this table.
Many of the responses showed an awareness of browsing and search histories being used when an advert is shown on a website. Some however, questioned the process and expressed a lack of knowledge as to what information is being used.

MQ15. What kind of information do you imagine is being used, when a relevant advert is shown to you on a website?

All sorts, e.g. my age, location, things I type and the information I'm searching for. Also I'm pretty sure everything is listening to my conversations!

History on a particular site or app to predict trends of what might be relevant to you. Mainly online activity in your history with that website.

I have never thought about it but would imagine email and/or IP address and perhaps web search history.

I have no idea which information they use but these adverts are very rarely anything that I would buy. I think in all the years that I have been using the internet only Amazon have succeeded in tailoring anything that I might buy.

I would suggest that cookies from other sites are shared as to what you browse on shopping sites and potentially other things that you search for.

I think the data collected about you like your age, sex, job, interests and location are used by companies when they look to target adverts at you as potential customers.

I have no idea which information they use but these adverts are very rarely anything that I would buy. I think in all the years that I have been using the internet only Amazon have succeeded in tailoring anything that I might buy.

My browsing and purchasing history - though why the information so often results in ads for what I have already bought baffles me.

Information about websites I have looked at in the past. Items that I have either bought or looked at. Record of places I have asked about, such as restaurants in a certain city.

On Facebook in particular it seems to check on recently visited websites. I think it must use the address because it also shows me what my husband has been looking at on the pc that I rarely use. I find this a bit worrying for people who are less open with one another.

No idea, I am a single 70yr old man so no idea why I get ads for women's clothes, shoes etc.

Source: Typical examples of responses provided.
Nearly half feel advertisers select the adverts that appear on websites, but one in five are unsure. Nearly three in ten are unsure about how many firms see personal information before an advert is displayed.

**MQ16. Who do you imagine chooses which adverts appear when you visit these websites?**

- Advertisers: 49%
- Search engines: 46%
- Website owners: 41%
- Don't know: 18%

**MQ17. How many firms do you imagine see information about you, before an advert that is relevant to you is displayed on a website?**

<table>
<thead>
<tr>
<th>Number of Firms</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-99</td>
<td>25</td>
</tr>
<tr>
<td>100-199</td>
<td>14</td>
</tr>
<tr>
<td>200-299</td>
<td>8</td>
</tr>
<tr>
<td>300-399</td>
<td>4</td>
</tr>
<tr>
<td>400-499</td>
<td>5</td>
</tr>
<tr>
<td>500-599</td>
<td>3</td>
</tr>
<tr>
<td>600+</td>
<td>11</td>
</tr>
<tr>
<td>Unsure</td>
<td>29</td>
</tr>
</tbody>
</table>

Base: 1690 (UK 18+ year olds who visit free to use websites)
Perceptions after description of adtech is shown
Respondents were shown the following explanation of adtech.

When you visit a website that displays adverts, certain information may be collected by the website, merged with other information about you, and shared, via third-party intermediaries, with advertisers who bid against each other to display their advert to you. This all happens in an instant.

The type of information that the website shares with advertisers may include:

- Browsing history
- Device identifiers such as model of phone, operating system and IP address
- Location
- Gender
- Year of birth
- Past purchase history
- Search history
After finding out information about how the adtech process works, levels of perceived acceptability decreased.

MQ4/18. How acceptable or unacceptable is it that some websites display adverts in return for the websites being free to use?

Before given information on adtech:
- 63% acceptable
- 14% unacceptable

After given information on adtech:
- 36% acceptable
- 43% unacceptable

Those who disagree that they’d prefer to see adverts on websites that are relevant to them: 61%

Those who feel that they have no control over which adverts are shown to them on these websites: 59%

Base: 1690 (UK 18+ year olds who visit free to use websites)
Respondents were most aware that browsing, search and purchase history can be used to display relevant adverts, however this does not necessarily mean that people find them acceptable to be shared with advertisers.

MQ19. Were you aware that the following categories can be used to display adverts that are relevant to you? (% stating Yes)

MQ21. How acceptable or unacceptable is it that websites share the following kinds of information about you with advertisers?

<table>
<thead>
<tr>
<th>Category</th>
<th>%</th>
<th>NET unacceptable</th>
<th>Neither</th>
<th>NET acceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browsing history</td>
<td>76</td>
<td>51%</td>
<td>18%</td>
<td>31%</td>
</tr>
<tr>
<td>Search history</td>
<td>76</td>
<td>51%</td>
<td>19%</td>
<td>30%</td>
</tr>
<tr>
<td>Past purchase history</td>
<td>69</td>
<td>47%</td>
<td>18%</td>
<td>35%</td>
</tr>
<tr>
<td>Location</td>
<td>68</td>
<td>51%</td>
<td>19%</td>
<td>30%</td>
</tr>
<tr>
<td>Gender</td>
<td>61</td>
<td>37%</td>
<td>22%</td>
<td>40%</td>
</tr>
<tr>
<td>Device identifiers (e.g. model of phone, operating system and IP address)</td>
<td>47</td>
<td>55%</td>
<td>20%</td>
<td>25%</td>
</tr>
<tr>
<td>Year of birth</td>
<td>46</td>
<td>51%</td>
<td>19%</td>
<td>30%</td>
</tr>
<tr>
<td>Unique user identification codes (generated by advertising technology)</td>
<td>36</td>
<td>53%</td>
<td>23%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Base: 1690 (UK 18+ year olds who visit free to use websites)
Appendix
The public has most frequently accessed the Internet using a mobile phone in the last 12 months.

MQ1. In which of the following ways have you accessed the Internet in the last 12 months?

- Mobile Phone 76%
- Laptop 73%
- Tablet 57%
- PC 52%
- Smart TV 35%

MQ2. In which of these following ways, have you accessed the Internet most often in the last 12 months?

- Mobile Phone 34%
- Laptop 30%
- Tablet 21%
- PC 12%
- Smart TV 2%

Base: 2056 (UK 18+ year olds)