Faculdade de Design, Tecnologia e Comunicação
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APPLICABILITY OF THE BASIC ATTENTION TOKEN MODEL FOR STRENGTHENING THE RELATIONSHIP AND LOYALTY BETWEEN BRANDS AND AD BLOCK USERS WITH CONCERNS FOR PRIVACY AND SECURITY IN PORTUGAL

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Dissertation presented to IADE - Faculdade de Design, Tecnologia e Comunicação da Universidade Europeia, to fulfill the requirements to obtain the Master's Degree in Design and Advertising, under the scientific supervision of Rodrigo Hernández-Ramírez, Assistant Professor at IADE - Faculdade de Design, Tecnologia e Comunicação da Universidade Europeia.

Aos meus queridos pais,
Alina e Adrian.

agradecimentos

Agradeço aos meus pais e família pelo apoio, amor e por acreditarem nas minhas capacidades de forma incondicional.

Agradeço à Francisca e aos meus amigos por partilharem comigo momentos de alegria, tristeza e serem um pilar importante da minha vida.

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palavras-chave Digital Advertising; Privacy in Digital Advertising; Basic Attention Token Model; Adblock in Portugal.

resumo Com a expansão da Internet, a publicidade evoluiu, tornando-se digital. A digitalização da publicidade aproximou consumidores e anunciantes, com oportunidades de produtos e comunicações mais diretas e personalizadas. Mas, ao mesmo tempo, também os afastou, levando os consumidores à adoção de ferramentas de *adblocking* para limitar a exibição de anúncios e recolha de dados. Assim, este estudo centrar-se nesta dicotomia e lacuna existente, explorando o modelo Basic Attention Token (BAT) como uma possível solução. Este modelo recompensa os utilizadores pela sua atenção, os editores pelo seu trabalho, e permite aos anunciantes criar estratégias eficientes, respeitando a privacidade de cada interveniente. Por forma a obter conclusões sobre o objetivo do estudo, foram utilizadas metodologias de investigação mistas, qualitativas e quantitativas, tendo sido aplicado um questionário para investigar as perceções dos consumidores sobre o modelo BAT, seu comportamento *online*, e as suas motivações para utilizar ou não *adblockers*. Adicionalmente, foi realizada uma entrevista aprofundada com um profissional do setor publicitário, de modo analisar a sensibilidade da indústria para as preocupações dos utilizadores e a perceção do Modelo BAT como uma possível solução para contrariar a utilização de bloqueadores de anúncios e melhorar a sua relação e lealdade com os clientes, respeitando simultaneamente as suas necessidades de privacidade.

Keywords Digital Advertising; Privacy in Digital Advertising; Basic Attention Token Model; Adblock in Portugal.

abstract With widespread availability of the internet, advertising evolved, becoming digital. The digitalization of advertising has brought consumers and advertisers closer together, with opportunities for more direct and personalized products and communication. But at the same time, it has also driven them apart, leading consumers to the adoption of tools such as adblockers to prevent the display of ads and data collecting. Therefore, this study intends to focus on this dichotomy and the existing gap and explore the Basic Attention Token (BAT) model as a possible solution. This model rewards users for their attention, publishers for their work, and allows advertisers more precise and efficient strategies, while respecting every intervener's privacy. Mixed research methodologies of qualitative and quantitative were employed to investigate and reach conclusions for the study's objectives. An online questionary was implemented to investigate consumers' perceptions of the presented BAT Model and their motives for using adblockers on targeted online adverts. In addition, an in-depth interview was conducted with advertising professional to examine the industry's awareness of users' concerns and their perception of the BAT Model as a possible solution to counteract adblocker usage and improve their relationship and loyalty with customers, while respecting their privacy needs.

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List of Abbreviations

BAT – Basic Attention Token

CEO – Chief Executive Officer

CNIL – Commission Nationale de l'Informatique et des Libertés

CRM - Customer Relationship Management

CTO – Chief Technology Officer

EPRS – European Parliamentary Research Service

EU – European Union

GDPR – General Data Protection Regulation

HTTPS – Hypertext Transfer Protocol Secure

MiCA - Markets in Crypto-Assets Regulation (MiCA)

NIST – National Institute of Standards and Technology

ROI – Return on Investment

STOA – Panel for the Future of Science and Technology

URL – Uniform Resource Locator

UI – User Interface

UX – User Experience

YoY – Year-Over-Year

1. INTRODUCTION

1.1. Context of the Investigation

The digital landscape has transformed our world, redefining how people connect and do business. Digital advertising is now everywhere, reaching users on various platforms and devices. However, with its growth, concerns about users' privacy have also increased. This research offers a chance to explore these concerns from both advertisers' and customers' perspectives. Advertisers benefit from vast amounts of user data, using it to capture online users' attention with targeted ads. On the other hand, users want to protect their personal information and avoid intrusive and unnecessary marketing. This growing trend has led many to use adblockers to safeguard their data. The disparity between digital advertising and privacy-conscious adblock software users underlines the growing dilemma between the desire to generate revenue and the need to safeguard users' data. The relationship between digital advertising and adblock users concerned with privacy is a complex one, with both sides wanting to find solutions that meet their needs. Therefore, focusing on the existing gap, this research intends to emphasis and explore the Basic Attention Token Model as a possible solution for advertisers, publishers, and users in Portugal, for strengthening their bond and relationship.

1.2. Research Question

Can the Basic Attention Token Model be a possible solution to ease or counteract adblocker usage and improve brands' relationship and loyalty with customers, while respecting their security and privacy needs?

1.3. Objectives

This research was designed as an exploratory study since it aims to provide knowledge and understanding about the current situation of digital advertising and the usage of adblocking software in Portugal. It is also intended to verify if the core elements of the Basic Attention Token model can be adopted by companies as a form of ease or counter for adblock usage and,

therefore, increasing the brands relationship and loyalty with their customers and adblock users, while respecting their security and privacy concerns.

1.4. Hypothesis

- **H1:** The adoption and use of adblocking software in Portugal is influenced by factors related to digital advertising practices and correlates with a growing awareness and concern for online privacy and security.
- **H2:** The utilization of the Basic Attention Token (BAT) model has the potential to alleviate the issue of ad saturation in Portugal's digital advertising space by fostering more relevant and engaging ad experiences for users.
- **H3:** BAT's transparent and consent-driven approach to digital advertising addresses privacy and security concerns, making it a viable alternative for users and businesses in Portugal.
- **H4**: User-brand relations in Portugal's digital advertising space can be improved by BAT through its focus on rewarding users for their attention, thus creating a more positive advertising experience.

  H5: Digital literacy levels among Portuguese adblock users affect their understanding of privacy risks and their ability to navigate privacy settings, influencing their willingness to engage with brands that respect their privacy.
- **H6:** Portuguese users would reduce or renounce the use of the adblocking software to be more attentive to digital advertisements if they were rewarded for their attention.

1.5. Methodology & Structure of Dissertation

The methodology has a key role in conducting the scientific research, as it clarifies the problem of the study and what are the main ways to solve it or reach a conclusion (Cresswell, 2003).

To verify the validity of the hypotheses, a literature review will be carried out, together with a qualitative and quantitative analysis of information collected through primary and secondary data. Taking everything into consideration, this exploratory investigation will be approached

with a triangulated mixed-method (quali-quanti), with a strategic applied natured and exploratory objective conducted in two sequential phases.

The first phase can be characterized as documental research as will be focusing on the collection of secondary data through qualitative and quantitative sources, such as from books, journals, reports, and scientific articles published and indexed in specialized platforms, as well as through statistical data published by official organizations. To initiate the analysis of this investigation, firstly was conducted thorough research of the existing literature, with the intent of acknowledging the context that the theme is inserted in and identify possible gaps. During the integrative literature review it was possible to observe that although the topic of adblocking has already been approached by some authors, there is still no answer nor a viable solution to the current gap of a way of strengthening the bond and relationship between advertisers, publishers, and adblock users with security and privacy concerns in Portugal.

Although Quintanilha et al., (2018) carried out a study on digital advertising and adblocking in Portugal, the study's objective was not focused on possible solutions to respond to the problem of the present investigation, providing only a starting and guiding point of the situation regarding digital advertising and adblocking in Portugal in the year 2018.

This present investigation will take into consideration the authors research addressed in the literature review and their conclusions on the theme. Strycharz et al., (2019) affirms that little to nothing has been done to address and mitigate consumer concerns and because of that, they engage in the usage of several strategies to reduce the effect of data gathering and processing for advertising purposes. Brinson et al., (2018) also found that customers who are worried about their control over online content react negatively to personalized advertising, opting to avoid it with adblockers. Similarly, Brinson and Britt (2021) argued that skepticism and annoyance responses to digital advertisements had a major influence on their choice for utilizing adblockers over personalized brand.

The second phase can be characterized as field research as the focus was on the collection of primary data, through a questionnaire conducted among consumers and adblocker and non-adblock users, and a semi-structured interview with a professional in the advertising and communication area.

Methodology Choices Summary

As far as methodological procedures are concerned, the choices made for this research were properly thought out according to the final objective and nature of those objectives.

These objectives are exploratory in nature, since they aim to explore and deepen the context and the theme that still hasn't been fully investigated and has few published literature about, and needs to be explored in depth on various issues. The research has also a strategic applied nature since the goal is to verify if the BAT Model can be addopted, solving or easing the use of adblocking sofware while at the same time improving the user-advertiser relationship.

It was applied a integrative literature review that allows the combination of data from empirical and theoretical literature that can help in the identification of gaps in the study area.

Therefore, the use of research tools such as survey, interview and documental analysis was crucial for obtaining qualitative and quantitative information.

The choice of the complex procedures, speculative design and Research through Design (RtD) is related to the fact that the BAT Model can be used as the design processes itself, trying to improve the way adblock users/consumers interarct with brands/advertisers, improving their relashionship and loyalty, and open up new perspectives on a possibility of a hearlier digital advertisement ecosystem.

A summary of the paths taken for this investigation are shown in the diagram bellow (Figure 1).

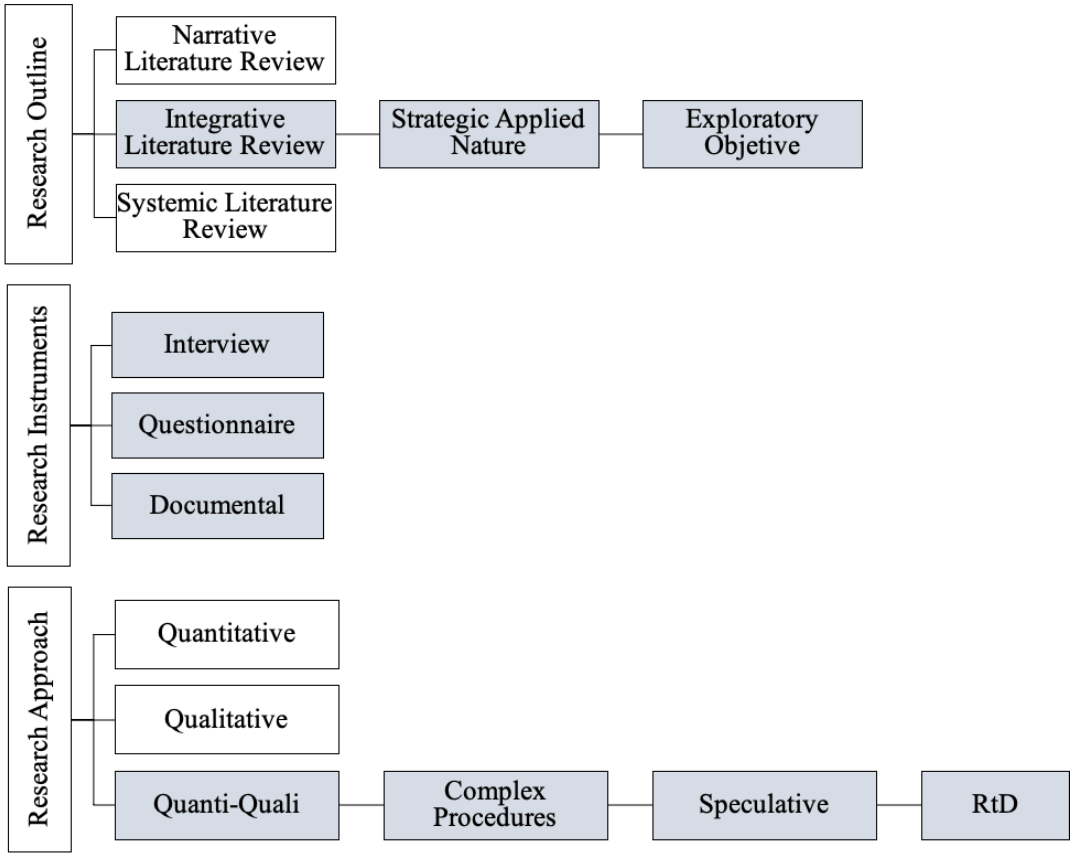

Figure 1 - Summary model for the scientific research method choices

2. LITERATURE REVIEW

2.1. Digital Advertising

Since the emergence of the Digital Era, defined by Lau (2003) as a circumstance where widespread, ready, and easy access to, sharing of, and use of information in electronically accessible way is permanent, the advertising industry has evolved substantially, particularly in terms of the ability of brands to reach out to potential customers on an individual basis and communicating product and messages.

Online advertising was originally introduced in 1994 through a banner advertisement (Liu-Thompkins, 2018), and it was later defined by Schlosser et al., (1999) as "any form of commercial content available on the internet that is designed by businesses to inform consumers about a product or service, which can be delivered via any channel (e.g. video or audio) and provide information at any degree of depth" (p. 36). Lee & Cho (2020), similarly to Schlosser et al., (1999), note that digital advertising communicates products, services, or ideas to consumers through digital media.

With the growth of globalization and the increased importance of the internet in daily life, consumers' digital literacy has also increased. Digital literacy can be defined as the ability to use digital devices and the internet to find, assess, organize, and perform tasks in learning, work, and social life (Wei, 2022). Malmelin (2010) also defines it from a more advertising-oriented perspective as "the ability to recognize, evaluate and understand advertisements and other commercial messages" (p. 130).

Since its inception, numerous industry players have recognized not just the prospects in terms of reach but also the importance of digital advertising as a source of revenue (Evans, 2009; Ha & McCann, 2008).

According to the Internet Advertising Revenue Report (2021), by 2021, both mobile and desktop ad revenues reached record levels with mobile revenue increasing by 37.4% desktop revenue increasing by 30.7%. As it can be observed in Figure 1 (bellow), the evolution in terms of revenue over the past 10 years has been significant, especially on mobile. This increase can be attributed to the fact that the digital ads market is so financially attractive that businesses want to be present on digital platforms.

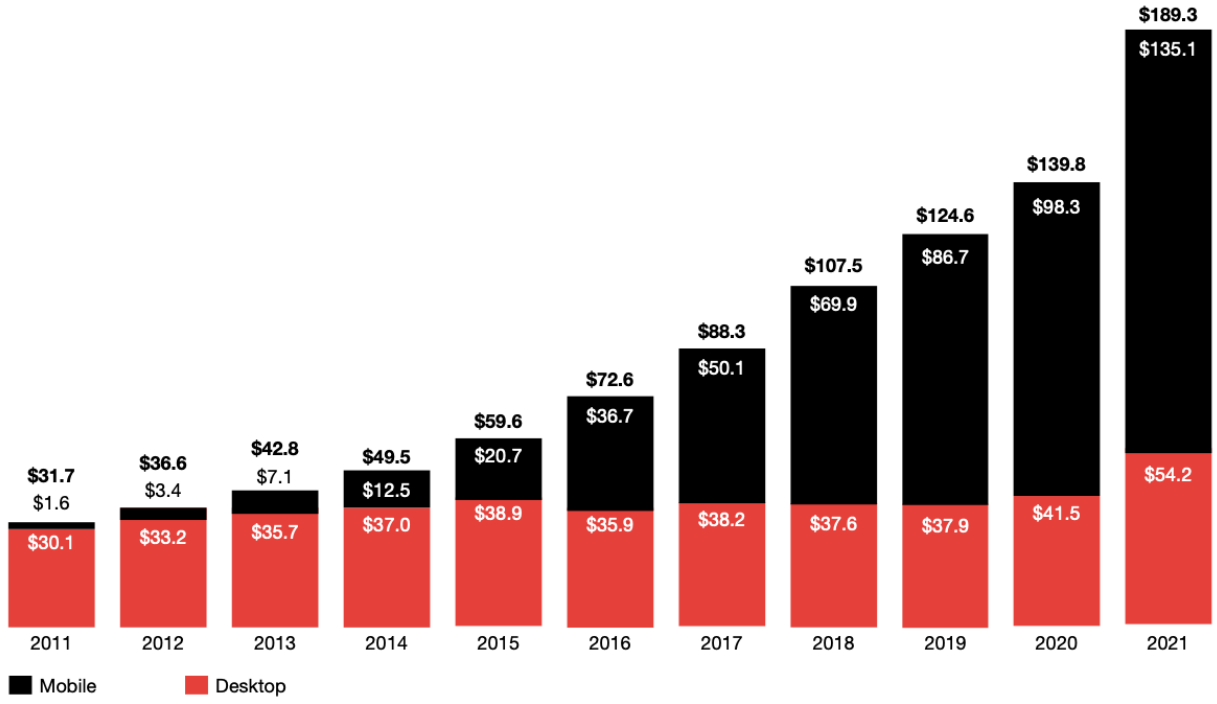

Figure 2 - Desktop vs. mobile internet ad revenues in $ billions (2011 – 2021) (Internet Advertising Revenue Report, 2021)

Therefore, to better understand how the online advertising market works, it is important to comprehend the infrastructure on which it stands.

Online Advertising Market

As shown in Figure 2, this market is mainly constituted by advertisers, ad platforms and publishers. These three main components work together with the clear end goal of reaching the user, by displaying them the most suitable ad (Yuan et al., 2012).

Advertisers can be characterized as companies that seek to promote a brand or product by presenting relevant advertisements to potential customers (Yuan et al., 2012). Online advertisers primarily try to display advertisements in certain areas of the websites that people visit (Estrada-Jiménez, 2016).

Publishers are companies that deliver online material (such as newspapers, search engines, blogs, etc.) typically through web pages. Because such material piques users' interest,

advertisers pay publishers to be allotted a designated area on a website where they may show advertising to a specific audience (Estrada-Jiménez, 2016).

Ad platforms are companies that connect advertisers and publishers, serving as a marketplace for matching the demand and supply of online advertising services (Estrada-Jiménez, 2016).

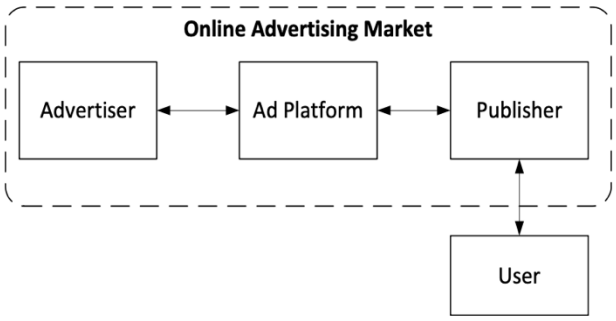

Figure 3 - Main components of the online advertising ecosystem (Estrada-Jiménez, 2016).

Since the ultimate goal of this market is to reach and impact the consumer, it is necessary to understand how this is done and the formats that are used to reach this goal.

Digital Advertising Formats

As consumers are increasingly impacted by digital ads, it is necessary to understand what format these ads can be presented in. According to the Interactive Advertising Bureau (IAB), from information collected in the Internet Advertising Revenue Report (2021, online)[1], there are various formats of digital advertising: digital audio; digital video; display; mobile; search/search engine marketing and social media.

Digital audio format is defined as "advertising that is served within an online audio environment, e.g., through a streaming audio platform or website." (Internet Advertising Revenue Report, 2021, p. 26).

[1] Available at: https://www.iab.com/news/iab-annual-report-2021/

Digital video format is defined as “advertising that appears before, during or after digital video content in a video player (i.e., pre-roll, mid-roll, post-roll video ads).” (Internet Advertising Revenue Report, 2021, p. 26).

Display (Banners/Rich Media) format is defined as “ad banners (…) a form of display advertising that can range from a static graphic to full motion video” (Internet Advertising Revenue Report, 2021, p. 26). This format includes, for example, splash screens, expandable ads, and pop-ups.

Mobile format is defined as “advertising tailored to and delivered to smartphones (e.g., iPhone, Galaxy S, Blackberry, etc.)” (Internet Advertising Revenue Report, 2021, p. 26).

Search/Search engine marketing format is defined as “fees advertisers pay online companies to list and/or link their company site domain name to a specific search word or phrase (includes paid search revenues).” (Internet Advertising Revenue Report, 2021, p. 27).

Social media format is defined as “advertising that reaches targeted audiences through social media platforms, messaging apps, and news feeds.” (Internet Advertising Revenue Report, 2021, p. 27).

Figure 4 (bellow) shows which digital ad formats were used the most in the year 2021, by share. It is noticeable that the predominant format used by businesses is search ads, with 41.4%.

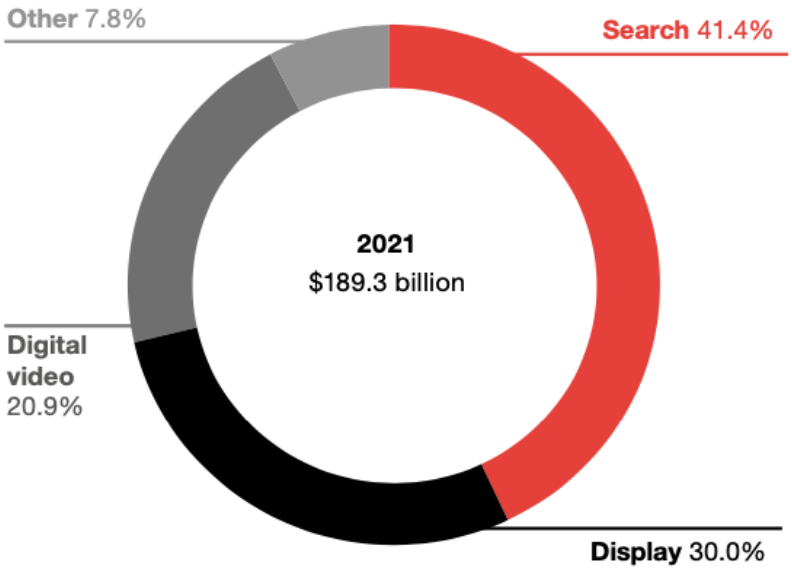

Figure 4 - 2021 advertising format by share (Internet Advertising Revenue Report, 2021)

Online Advertising Targeting

The internet has established itself as a primary platform of services that has transformed the way people communicate, spend their leisure time, and consequently, recognizing the business opportunity, the advertising industry has made significant investments in the digital scene to obtain economic benefits from the numerous individuals who browse the web (Sánchez and Viejo, 2018).

Technological innovations have extended the usage of tailored ads in a variety of scenarios, including targeted e-mail ads, search engines, banner ads, social media, and mobile advertising (Brinson and Eastin, 2016; Haji and Stock, 2021; White et al., 2008; Youn and Shin, 2019; Zhang and Wedel, 2009). Websites that fail to increase visitors' acceptance of personalized advertising suffer from sharp decreases in advertising revenues (Schumann et al., 2014).

Location-based, contextual-based, and profile-based are the most common targeting strategies employed by companies (Sánchez and Viejo, 2018). The first technique involves displaying adverts that are relevant to the users' location, the second technique displays adverts that are relevant to the content of the website being browsed, and lastly, the third strategy, also known as behavioral targeting, collects web users' interests, by tracking their current or previous online activity, collecting data and using it to build a user-profile, therefore personalizing materials, such as ads, based on their personal interests (Lambrecht and Tucker, 2013; Chen and Stallaert, 2014; Sánchez and Viejo, 2018; Choi and Jerath, 2022).

Personalized advertising, according to many authors, captures customers' attention (Malheiros et al., 2012; Huang, 2018), enhances ad assessments (Hirsh et al., 2012), and increases online transactions by improving click-through rates (Tucker, 2014). It was also observed that matching ad messages to consumers' preferences (Li et al., 2019), personality traits (Hirsh et al., 2012), and identities (Ahn et al., 2017) favorably influenced online targeted ads and brand perceptions.

Alternatively, other authors have suggested that the production and distribution of tailored advertising needs accurate personal information, which may result in negative customer responses (Boerman et al., 2021; Kim et al., 2022; Morimoto, 2021; Smit et al., 2014).

Although online targeting is becoming increasingly popular for delivering tailor-made digital ads to users, advertising intermediaries and advertisers are still facing challenges with how to target the most value web visitors and achieve a high response rate (Lu et al., 2018). Users have become more tech-savvy and knowledgeable about targeting practices (Ham, 2017; Hein, 2021), giving them the capacity to recognize that their personal information is being used (Ham, 2017; Morimoto, 2021).

Digital Advertising Avoidance

Consumers' exposure to advertisements has always been significant, however, with the widespread availability of the internet, and the digitalization of ads it became much more apparent and intense (Dahlén & Edenius, 2007; Rau et. al., 2013; Shin & Lin, 2016).

Given this increased usage of the internet, consumers are excessively exposed to digital advertisements, which might irritate them and cause them to develop bad attitudes toward these messages, such as avoidance (Ferreira & Barbosa, 2017; Sharma et al., 2022). Ad avoidance is described in the digital environment as "any action that decreases exposure, or blocks digital advertising" (Kelly et al., 2020, p. 488).

Because of this exposure, users have changed their digital habits, employing adblocking programs such as AdBlock or paying for premium online services to avoid or view fewer advertising (Edelman, 2020). Avoidance of advertising messages in online domains has been boosted by adblocking tools (Johnson, 2013; Kelly et al., 2010; Kim & Seo, 2017). According to Redondo and Aznar (2018), adblocking software has made ad-free browsing usage more pleasant and accessible to users. While advertisers seek new ways to engage with customers, these adblockers thwart their plans (Garrahan et al., 2015, online)[2].

According to a survey done by Statista (2022, online)[3] about the Portuguese advertising market, 45% of the 1.039 respondents, when asked about their attitude towards digital advertising, related that they were annoyed by ads based on their search history and 42% are generally annoyed by ads on the internet.

[2] Available at: https://www.ft.com/content/df072c9c-686f-11e5-97d0-1456a776a4f5
[3] Available at: https://www.statista.com/forecasts/1263142/attitudes-towards-online-advertising-in-portugal

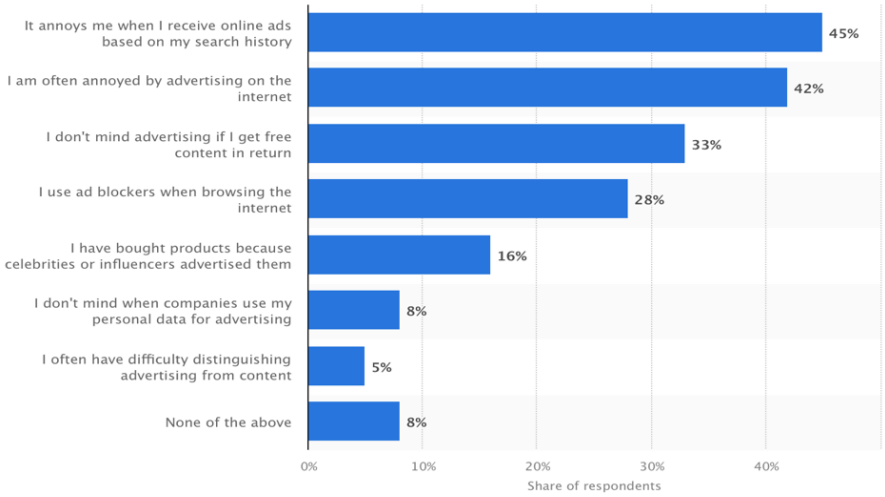

Figure 5 - Attitudes towards online advertising in Portugal in 2022 (Statista, 2022)

It can be concluded from the existing literature that digital advertising has undergone a profound transformation since the advent of the digital era, characterized by the ability to reach potential customers on an individual basis. The industry's growth, fueled by the advent of the internet and the rise of mobile and desktop platforms, has seen significant increases in ad revenues, as highlighted in reports showing mobile revenue growth by 37.4% and desktop by 30.7% in recent years. The online advertising market consists of key players such as advertisers, ad platforms, and publishers, who work together to deliver targeted advertisements to consumers. The variety of digital advertising formats - ranging from digital audio and video to display ads, mobile, search engine marketing, and social media - reflects the industry’s dynamic nature. However, as the industry evolves, there is a growing need to address the concerns associated with digital ad formats and their impact on user experience.

2.2. Privacy Concern in Digital Advertising

Digital Advertising Privacy Concern

No precise definition was established for privacy, although, Cai et al. (2020) classified privacy as a term given to secret information that one is not openly willing to reveal. Yee (2017)

defined privacy as the power to control, refrain from, intend, and disseminate information about oneself (Brinson et al., 2018).

Since the internets' appearance, information that was previously limited and expensive is now cheaper and in vast supply. As a result, confidence in the source of information becomes critical, and when website visitors opt for the installation of adblockers, they demonstrate that a level of trust has been broken (Ryan, 2016, online)[4].

Digital advertising has been proving to have various aspects that provides benefits to both advertisers and consumers, for example, interactivity and personalization, allowing businesses to interact with customers in real-time and personalize their experiences based on their interests (Berthon et. al., 1996; Bezjian-Avery et al., 1998; Ha & McCann, 2008; Liu & Shrum, 2002; Rodgers & Thorson, 2017; Wolin & Korgaonkar, 2003). Although consumers have generally come to tolerate viewing advertisements in exchange for free access to digital content, personal data breach and privacy risks were never expected (Helberger et al., 2020).

Personalized advertising is based on personal-level data collecting, (Boerman et. al., 2017) and comes at an expense, mainly for the user. Data collection techniques have evolved and become more complex, collecting data not only from their own sites but also from seemingly unrelated websites (third-party trackers) to refine to the extreme the information collected about their users' opinions and preferences (Bujlow et. al, 2017).

Users feel uneasy about their internet actions being continually monitored (White, et. al., 2008). Because of the pervasiveness of such surveillance, customers are frequently resigned and exhausted (Choi et. al., 2018). While the advertising industry has been aware of this problem for long (Sheehan & Gleason, 2001), nothing has been done to address and mitigate consumer concerns (Strycharz et al., 2019). Because of that, consumers use several strategies to reduce the effect of data gathering and processing for advertising purposes. While some practice privacy protection and use tracker blockers and adblockers to prevent corporations from gathering their data, believing that their personal information is not secure and it's being misused (Boerman et al., 2021), others try to conceal their genuine preferences from advertisements. Brinson et al. (2018) found that customers who are worried about their control over online content react negatively to personalized advertising, opting to avoid it with adblockers. Similarly, Brinson and Britt (2021) argued that skepticism and annoyance responses to digital advertisements had a

[4] Available at: http://www.huffingtonpost.co.uk/dr-johnny-ryan/my-loose-the- ory-of-too-mu_b_10958434.html

major influence on their choice for utilizing adblockers over personalized brand communications.

Online Targeting Advertising Privacy Concerns

Online targeting advertising practices that obtain, share, and utilize personal data for marketing objectives are expected to raise privacy concerns (Boerman et al., 2017; Morey et al., 2015). The topic of privacy not only raises privacy issues, but it also prevents users from consuming and interacting with the created material, potentially reducing the efficacy of advertisements placed in content (Morimoto and Chang, 2006).

Users are more technologically aware and educated of online targeted advertising practices (Ham, 2017; Hein, 2021). With these increased concerns about user privacy, there has been a new effort to provide customers more control over how their personal information is collected, kept, utilized, and shared (Choi and Jerath, 2022).

General Data Protection Regulation

Personal data protection is a fundamental right entrenched in Article 8 of the Charter of Fundamental Rights of the European Union (2000) and Article 16 of the Treaty on the Functioning of the European Union (2012). At an era where technology is quickly evolving on a worldwide scale, new difficulties surrounding the security of personal data have emerged, and the necessity to reinforce the protection of individuals' integrity has grown (Wallace, 2018).

The digitalization of advertising has brought with it several advantages such as, for example: a greater proximity with the consumer, making marketers increasingly use digital marketing to communicate in an interactive, targeted, and personalized way with each consumer by presenting their services and products in real time (Dahiya & Gayatri, 2017). Privacy issues are intimately related to the degree to which customers feel a risk to their privacy when being targeted by online advertising activities (Baek and Morimoto, 2012; Boerman et al., 2017; Ham, 2017; Morimoto, 2021). When customers perceive a high privacy threat, they may fear losing their ability to manage their personal information (Baek and Morimoto, 2012), leading to heightened protective drive and coping responses (Ham, 2017).

On May 25, 2018, the European Union (EU) started implementing its General Data Protection Regulation (GDPR), a significant privacy regulation effort to standardize data protection law among its member states that outlines individual privacy rights and limits on how businesses may handle personal data (Urban et al, 2019; Goldberg et al., 2019).

GDPR's intend is to safeguard and harmonize individual data protection rules across the EU, as well as to control the acquisition and use of personal data (Urban et al., 2019). Companies that provide services in the EU, regardless of where its headquarters are located, must comply with the GRPD and by minimizing personal data processing, and only being able to process personal data under limited and specific circumstances (Waller, 2018). One of these situations, for example, is an individual's express opt-in consent, that must be affirmative (no pre-checked boxes), freely granted, specific to the processing purpose (i.e., website analytics, behavioral advertising), and include a list of all third parties who handle the data (Goldberg et al., 2019).

One of the primary goals of the GDPR is to give users control over their personal data by providing additional options such as the right to obtain a copy of their data, the right to be erased, and the requirement for services to obtain explicit consent before collecting or sharing personal information. (Goldberg et al., 2019; Aridor et al, 2022)

Prior to GDPR, consumers could protect their privacy by using browser-based privacy protection, however, using these privacy means does not eliminate their footprints (Aridor et al, 2022). Under the GDPR framework firms may choose to collect less web analytics data or may find that fewer users consent to data collection, and therefore, the same customers may simply opt out, in which case they leave no footprints, which might theoretically make the remaining consumers more easily trackable and identifiable (Goldberg et al., 2019; Aridor et al, 2022).

GDPR in Portugal

A study carried out on a sample of 27 advertising agencies in Portugal (Bouçanova et. al, 2020), concluded that the responding advertising agencies were prepared for the GDPR's adoption, having to make slight adjustments within the organizations. These changes were fundamentally related to the privacy policies of the websites, establishing access to information by departments, and acquiring hardware for the destruction of any document containing sensitive information. It has also been drawn to attention that the agencies began to confirm the terms of

the GDPR implementation with legal support before posting any content online, thus avoiding incurring in legal repercussion such penalties or fines.

Most respondents agree on the existence of limitations imposed by the GDPR to digital marketing, as the GDPR introduces barriers to digital marketing, particularly a reduction in freedom of communication with customers and an increase in the complexity of digital marketing operations. Moreover, contacts with customers are increasingly restricted due to a variety of factors, especially express consent. Regarding strategies that can be used to overcome the limitation imposed, the usage of omnichannel CRM platforms with autonomous database maintenance was proposed. This sort of platform allows for the incorporation of GDPR standards, supporting enterprises in GDPR compliance.

MiCA Regulation

On June 30, 2022, the EU reached a provisional political settlement on regulating crypto-assets, issuers, and provider vendors denominated Markets in Crypto-Assets Regulation (MiCA)[5]. This regulation pursuits to defend investors, hold economic stability, and foster innovation at the same time as presenting clarity. MiCA would require vendors to appreciate sturdy necessities to defend customers` wallets and emerge as dependable in case they lose investors' crypto assets. The EU may also modify the dangers associated with crypto-assets, along with marketplace abuse and environmental impact. MiCA will offer a sturdy framework for stablecoins to defend customers and save you dangers from holders. The settlement is issue to approval via way of means of the Council and the European Parliament[6]. The MiCA is a safeguard against possible risks that investors may encounter while purchasing cryptocurrency-related assets. A legislative framework that guarantees transparency and security in the cryptocurrency market to industry participants, such as issuers and providers, is another benefit of its adoption (Read & Diefenbach, 2022).

[5] Available at: https://finance.ec.europa.eu/digital-finance/crypto-assets_en

[6] Available at: https://www.consilium.europa.eu/en/press/press-releases/2022/06/30/digital-finance-agreement-reached-on-european-crypto-assets-regulation-mica/

It can be concluded from the existing literature that the evolution of digital advertising has brought significant privacy concerns to the forefront, as consumers become increasingly aware of the extensive data collection practices that underpin targeted advertising. The proliferation of adblockers is a clear response to these concerns, reflecting users' desire to regain control over their personal information and online experiences. Regulatory frameworks like the General Data Protection Regulation (GDPR) have been pivotal in addressing these privacy concerns by establishing stringent guidelines for data protection, ensuring that businesses adhere to principles of transparency, consent, and user control. Additionally, the introduction of the Markets in Crypto-Assets (MiCA) regulation by the European Union aimed at overseeing crypto-assets, including those used within advertising models like the Basic Attention Token (BAT), represents a significant step toward creating a safer and more transparent environment for digital transactions. MiCA's framework, which aims to protect investors and ensure the integrity of crypto transactions, adds an additional layer of oversight to ensure that privacy and security concerns are adequately addressed in models like BAT. Together, GDPR and MiCA represent significant steps towards safeguarding user privacy and security in the digital advertising landscape.

2.3. Dark Design Patterns

The term “dark pattern” was introduced by user experience (UX) designer Brignull (2010) and can be defined as misleading interface components that are purposefully crafted to compel users into performing activities that benefit an online service by coercing, influencing, or manipulating into making decisions that they would not make if fully informed and capable of selecting alternatives (Ducato & Marique, 2018; Mathur et al., 2019). This type of design has become increasingly common on digital platforms such as social media websites, commerce websites, mobile applications, and video games (Mathur et al., 2019).

Based on a deceptive interface design, user interface (UI) dark pattern leads users into executing unexpected and undesirable activities (Gray et al., 2018). An example of this kind of deception includes agreeing to unwanted privacy settings as they are difficult to change (Maier & Harr, 2020).

According to Bringnull (2010), Gray et al. (2018) and Mathur et al. (2019), there are several techniques to alter a page's design in order to conceal, obfuscate, or disguise information. According to Brignull (2010), dark patterns in user interface design can be categorized into various types, each employing different deceptive techniques to manipulate user behavior. Brignull (2010) established 16 distinct types of dark patterns that represent various deceptive methods, and Gray et al. (2018) contributed by categorizing them into five main groups: nagging, obstruction, sneaking, interface interference, and forced action.

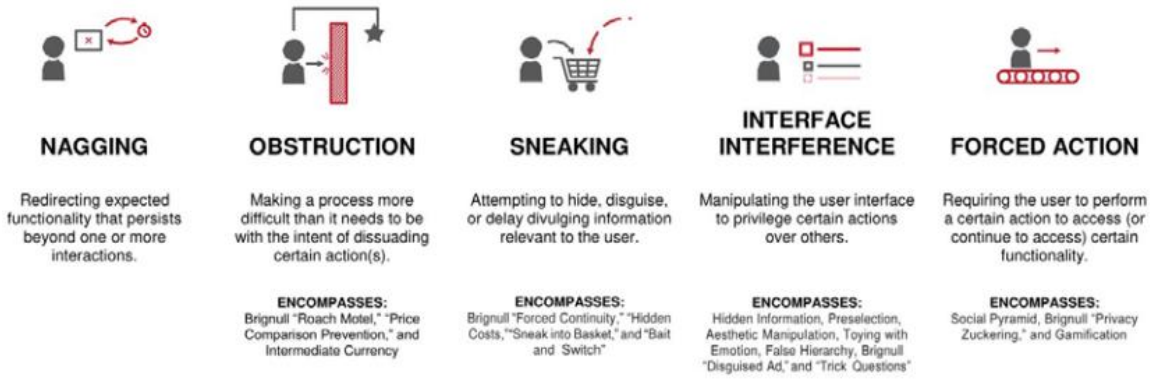

Figure 6 - Summary of dark pattern strategies, taken from Gray et al. (2018).

Misdirection (Bringnull, 2010) and Visual Interference (Mathur et al., 2019) are a common type of design choice that deviates the user's attention on one thing to distract them from or convince them of something else. Small, low contrast lettering can be used to influence how people perceive the world. By designing a disorganized or overpowering interface, comprehension might be affected.

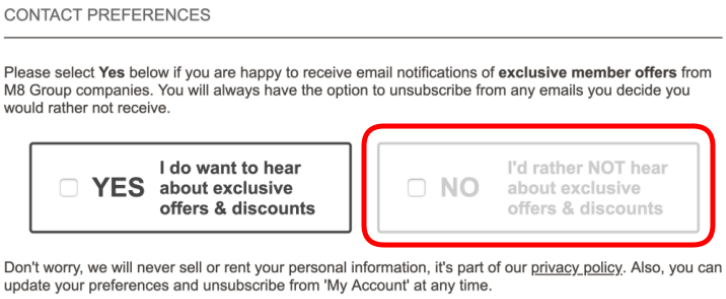

Figure 7 - Example of Visual Interference on greenfingers.com. The opt-out option is grayed out to indicate it is disabled or cannot be clicked when it can. From: https://webtransparency.cs.princeton.edu/dark-patterns/.

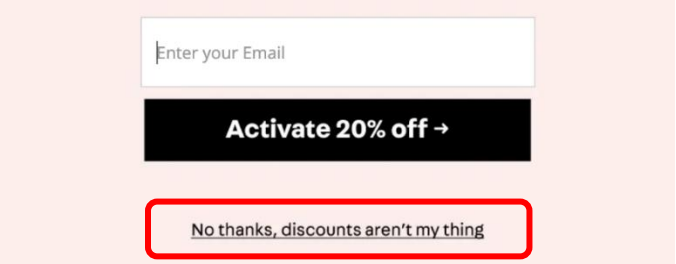

Figure 8 - Example of Misdirection. The opt-out option shames users who don't want to enter their e-mail by assuming they'd rather pay full price. From: https://www.jessicajonesdesign.com/confirmshaming-is-fun/

It is also relevant to mention that dark patterns, according to Zuboff (2019), play a key role in the unethical collection and processing of personal data. Furthermore, design decisions that intentionally mislead customers violate the GDPR's essential principles of transparency and informed consent.

It can be concluded from the existing literature that dark design patterns, defined as deceptive user interface components designed to manipulate user behavior, have become increasingly prevalent across digital platforms. These patterns exploit users' cognitive biases, often leading them to make decisions they might not otherwise choose if fully informed. Common examples include visual interference, such as hiding opt-out options or using misleading language to guide user actions. These unethical design practices not only violate the principles of transparency and informed consent, as emphasized by GDPR, but also contribute to user frustration and distrust in digital services. Addressing the issue of dark patterns is critical for creating a more ethical digital environment that respects user autonomy and fosters trust.

2.4. Adblock

Definition

In the current literature, there are different definitions for adblockers, according to Hemmer (2005), these are a type of software that identifies and hides pop-up windows and other advertisement formats.

In a more simplistic manner, adblockers are defined by Sandvig, Bajwa, & Ross (2011), as browser add-ons that allow users to disable most online advertisements on the internet.

Adblockers also aid in the prevention of data collection on online user behavior, trying to ensure greater control of its user of privacy and security data that is usually collected websites (Gugelmann et. al., 2015).

Another definition is given by Redondo & Aznar (2018). According to these authors, adblockers are defined as:

> "Various software tools (most typically browser plug-ins) that monitor browsers' requests for editorial and advertising content and prevent the display of any advertising content that matches an entry in the blacklists maintained by ad-blocking companies/user communities requests for editorial and advertising content and prevent the display of any advertising content that matches an entry in the blacklists maintained by ad blocking companies/user communities". (Redondo & Aznar, 2018, p. 1607)

Origin and Evolution of Adblock

According to Adguard (2020), the first adblocker was launched in the 1990s. It was developed by a small company named PrivNet, and it was called Internet Fast Forward, but it was discontinued due to liability problems. A couple years later a large adblocking technology was released, called Ad Muncher (Tebyanian, 2019). This technology did not require any device installation and was capable of blocking web advertising on Microsoft Windows (Tebyanian, 2019). However, unlike contemporary adblocking solutions, it was a paid tool. Later, Mozilla Firefox launched the extensions feature, and an adblocker for the browser was developed in 2002 (Tebyanian, 2019). It was a different way of blocking web ads, it operated as a widget on the browser's top corner to conceal the already downloaded adverts (Adguard, 2017, online)[7]. Although the project was abandoned by its owner, another developer opted to continue working on it in 2006 (Tebyanian, 2019). The software's functionality got modified by the new developer, which included not downloading web advertising (Tebyanian, 2019). This latter version was named Adblock Plus and distinguished itself from earlier adblocking plugins (Tebyanian, 2019).

Adblocking software has demonstrated a wide range of benefits since its inception, and its use has increased since then (Maamoun, 2018). According to PageFair's Adblock Report

[7] Available at: https://adguard.com/en/blog/adblocking_history_1.html.

(2022, online)[8], at the end of 2021, there were over 290 million monthly active users of desktop adblocking, reaching an all-time high since 2018. There were also over 530 million mobile adblocking users, with Brave adblock browser growing 100% YoY to reach 29 million users by December 2021.

For the Portuguese scenario, data on adblock usage is scarce, although, according to PageFair's Adblock Report (2022), in 2022 Portugal's adblock rate was at 24%. Data collected by Statista (2022) through a survey about the Portuguese advertising market (Figure 4), 28% of the 1.039 respondents, when asked about their attitude towards digital advertising, related that they use adblockers when browsing the internet.

Since the adoption of adblock software is notably increasing, it is necessary to understand how this tool works.

How do Adblockers work?

Adblockers function in two ways: by hiding page components or by blocking web requests. Although there may be some differences amongst adblocking software, they are fundamentally identical. Subscribing to a list or filter, which is subsequently used to block or automatically conceal the ad before it is displayed on the screen, is the fundamental technique.

One of the most popular methods of ad identification is comparing each request with updated lists of advertisers' server addresses (Sandvig et. al., 2011.) These lists are continuously updated by the publisher and contain a set of rules for adblocking or removal (Rens, 2017; Mughees et. al., 2016).

Another typical strategy is to filter and block page components whose URLs include keywords such as: ad or click. As a result of this simple filer strategy, publishers can prevent adblock from working by merely using alternative and less popular keywords (Singh & Potdar, 2009).

Giving that adblockers tend to hide advertising and block tracking, the adoption this software by many users had led advertisers and publishers to counter the use and existence of this tool.

[8] Available at: from https://blockthrough.com/blog/2022-pagefair-adblock-report/

Countermeasures used by advertisers and publishers for Adblockers

As it could be observed, adblocking is a security-enhancing measure, especially from the user's perspective.

On the other hand, adblocking might be regarded as a threat to online publishers that rely on advertising to cover their costs (Cai et. al., 2020). There are numerous methods for publishers to regain their advertising space. Some of them chose friendlier and peaceful solutions to face this problem, asking the visitor politely to disable adblock to support the free content (Martin, 2015). Other publishers have begun to employ anti-adblocking solutions to detect adblocker users and restrict their content or services from being visible, giving that access exclusively to people who are willing to see their ads (Vratonjic et. al., 2013).

This is the so-called Internet Arms Race (Umar, 2017; Ikram, 2017; Nithyanad, 2016; Mughees, 2017).

Admittedly, the increasing use of adblocking is one of the symptoms of a problematic online advertising market, especially from the users' perspective (Cai et. al., 2020).

It is in this way, and to try and solve this problem, the Brave browser emerged, being the object of the following analysis.

It can be concluded from the existing literature that Adblockers have emerged as a powerful tool for consumers to take control of their online experience by blocking intrusive advertisements and preventing data tracking. The use of adblockers has grown significantly, with millions of users worldwide seeking a cleaner and less invasive browsing experience. The origins of adblocking technology date back to the 1990s, with continuous evolution leading to advanced tools like Adblock Plus. While adblockers offer clear benefits to users, they also pose significant challenges for advertisers and publishers, who rely on ad revenues. In response, some publishers have adopted countermeasures, such as polite requests to disable adblockers or implementing anti-adblocking solutions. This ongoing "arms race" between adblockers and advertisers underscores the need for a new approach to digital advertising - one that respects user preferences while sustaining the economic model of online content.

2.5. Brave Browser and the Basic Attention Token Model

Brave Browser

Brave is a recent privacy-oriented browser developed in 2016 by the current CEO Brendan Eich and the CTO Brian Bondi, two former Mozilla executives. This browser has several privacy-protecting features that come pre-installed as default, such as adblock, web tracker avoidance, automatic HTTPS upgrades, script blocking, cross-site cookie blocking, device recognition blocking (fingerprinting protection) and social media blocking. Since all these features come built directly into Brave, according to Brave Corporation (2021, online)[9], the performance is better than doing the same thing using an extension. These default features go a long way toward protecting users, beyond what the standard web browser provides and are strongly recommended by privacy researchers for all internet users (Beckstrom & Lund, 2019).

A benchmarking test regarding privacy, made by Leith (2021), where the author compared "out of the box" Brave, Google Chrome, Apple Safari, Mozilla, and Microsoft's Edge browsers, with default settings, collecting measurements for both the desktop and mobile (Android and iOS) versions of browsers. With its default settings the results showed that Brave did not use identifiers allowing tracking of IP address over time and did not share details of web pages visited with backend servers, being the only browser to do so.

Brave has developed an innovative solution that preserves the privacy of users and compensates all interveniens.

Advertisers are rewarded by achieving higher Return on Investment (ROI) and better targeting, while publishers and users are rewarded for both their work and attention is through Brave browser's own token, the Basic Attention Token. This token is a key factor in the Brave browser ecosystem, therefore, its essential to comprehend it.

Basic Attention Token

Basic Attention Token (BAT) is an attention-based cryptocurrency that is used as an exchange value in the Brave browsers' advertising marketplace. BAT protects users while

[9] Available at: https://www.brave.com

providing advertisers with increased conversion and publishers with higher revenue, also helping by connecting them (Brave Corporation, 2021).

BAT is built on the Ethereum technology, a blockchain-based distributed computing platform with smart contracts that is open source. These cryptographically secure smart contracts are stateful apps that can enforce performance and are stored in the Ethereum blockchain. Ethereum has been used in and for multiple occasions, for example, on mobile payment systems, distributed exchanges, crowdfunding, and legal document verification.

With the current digital advertising ecosystem, transaction costs are excessively high, with advertisers, publishers, and users unable to reach an agreement (Brave Corporation, 2021). Brave recognizes the need of having a mechanism in place to reward online content, as the use of adblockers prevents advertisers and publishers from receiving compensation based on direct advertising embedded on their sites.

In a simpler explanation: users are compensated with BAT for watching and interacting with advertisements on Brave browser. The token may then be traded for another cryptocurrency, converted to fiat currency, or gifted as a donation to a favorite content creator. Similarly, depending on how much data the user provides, advertisers may attribute variable degrees of remuneration to the user. This enables marketers to reallocate existing expenditure on consumer data acquisition, collection, and storage to direct reading and purchasing of verified real-time data from individual consumers (Yun & Strycharz, 2022).

Figure 6 (bellow) explains, in a simplified manner, the protagonists and how the BAT ecosystem works.

Advertisers have opportunity to purchase ad space directly from Brave, which then displays these advertisements to users in an unobtrusive manner and without the use of trackers that follow them from site to site. By default, ads come blocked and can only be visible when the user accepts to see them, by doing so in the browser preferences (Leith, 2021). In addition, Brave delivers a considerably richer data collecting method for determining the individual users' interests, always with the preoccupation for privacy, by keeping the data on the device only, encrypting it and shielding the identities of users.

Publishers will also be rewarded in BAT for their work, based on users' attention, since the adoption and use of adblockers from the user's end prevents them from obtaining revenue from advertising on their websites (Brave Corporation, 2021).

Users are rewarded BAT for their attention and interaction with advertising. Therefore, becoming an important and active part of the advertising and publishing economy, rather than the passive participants.

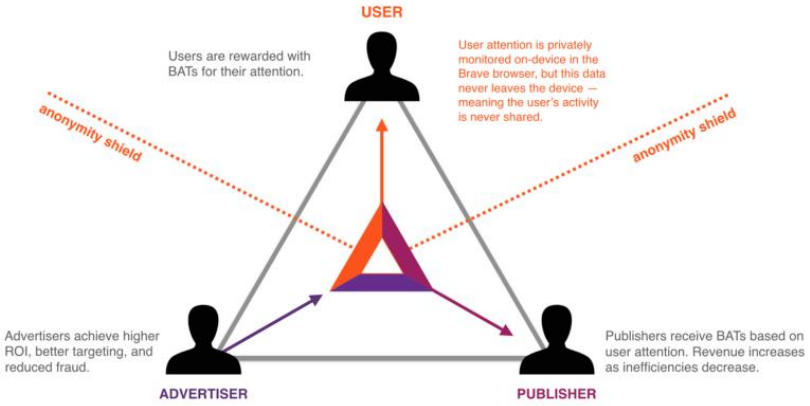

Figure 9 - The Basic Attention Token Model (simplified). (Brave Corporation, 2021)

It can be concluded from the existing literature that the Brave browser, developed by former Mozilla executives, represents a significant innovation in the digital advertising landscape by prioritizing user privacy and security. With built-in features like adblocking, tracker avoidance, and script blocking, Brave offers a more secure browsing experience without compromising performance. The integration of the Basic Attention Token (BAT) model within Brave's ecosystem introduces a novel approach where users are compensated for their attention, publishers are rewarded based on user engagement, and advertisers achieve better-targeted results without compromising user privacy. This model challenges traditional digital advertising by creating a more ethical and transparent ecosystem that aligns the interests of all stakeholders.

2.6. Blockchain

Definition

Given the fact that blockchain is a relatively new phenomenon, there is no determined definition under European Union (EU) legislation or regulation (Wallace, 2018). According to a study at the request of the Panel for the Future of Science and Technology (STOA) and managed by the Scientific Foresight Unit, within the Directorate-General for Parliamentary Research

Services (EPRS) of the Secretariat of the European Parliament, a blockchain can be explained as being "… a shared and synchronized digital database that is maintained by a consensus algorithm and stored on multiple nodes (computers that store a local version of the database)" (Finck, 2019, p. 1). In the recommendation of the Commission Nationale de l'Informatique et des Libertés (CNIL) a blockchain is defined as

> "... a database in which data is stored and distributed to a large number of computers and in which all entries, called "transactions" are visible to all users. A blockchain is not, in itself a data processing operation with its own purpose; it is a technology which can serve in a diverse range of processing operations." (CNIL, 2018)

Blockchain is a technology that can provide data protection because of its usage of an immutable distributed ledger and the implementation of numerous cryptographic algorithms in a decentralized environment (Ma et al., 2019). The National Institute of Standards and Technology (NIST) divides blockchain into two basic types: permissioned (private), where members need permission from authority to join the network, and permissionless (public), where anybody can freely participate (Yaga et al., 2018).

Blockchain in Digital Advertising

Many companies have presented solutions employing cutting-edge technology, particularly blockchain technology, to address the issues in the existing digital advertising the ecosystem (Peres et al., 2022). However, due to the difficulty in adopting the technology on a wide scale, which involves significant cross-sector standardization and coordination efforts, blockchain technology adoption in the advertising industry is still in its early stages (Kim et al., 2023). Because blockchain permits the rapid transfer of entirely transborder information recorded on an unalterable ledger that is only accessible by authorized network users, when applied to the digital advertising delivery process the orders (i.e., ad and bid request, ad delivery) and payments (i.e., auction response), as well as the associated data such as the advertiser and website that ran the ad, can become precisely trackable if all of the information is on the blockchain (Kim et al., 2023).

Blockchain-based technologies have the potential to address the industry's main problems by, for example, determining the precise location of an advertising and whether or not it is

authentic or allowing for more data sharing without the danger of fraud (PwC, 2019). According to PwC's worldwide study on blockchain in business from 2019, there is cross-industry enthusiasm for blockchain, with 84% of the surveys participants stating that their businesses had at least some connection with the technology, as well as barriers that are preventing them from moving further.

Blockchain and General Data Protection Regulation

To comply with the GDPR, all personal data must be treated in line with Article 5 principles (Wallace, 2018).

The GDPR is founded on the underlying premise that there is at least one natural or legal person (the data controller) to whom data subjects can address in order to exercise their rights under EU data protection legislation. Blockchains, on the other hand, continually strive to achieve decentralization by substituting a single actor with a plethora of distinct participants, making the allocation of responsibility and accountability problematic (Finck, 2019). There is also the notion in GDPR that data can be amended or eliminated to meet legal obligations such as Articles 16 and 17. Blockchains, on the other hand, make such data changes purposely onerous to maintain data integrity and create confidence in the network (Finck, 2019). While the GDPR demands that personal data be kept to a minimum and only handled for certain reasons, these principles can be difficult to apply to blockchain technology. Distributed ledgers are append-only databases that grow indefinitely as new information is added (Finck, 2019).

It can be concluded from the existing literature that blockchain technology, with its decentralized and immutable ledger, holds significant potential for transforming the digital advertising industry. It offers solutions to key challenges such as transparency, fraud prevention, and secure data transactions. By enabling precise tracking of advertising transactions and ensuring that all data is recorded on a public ledger, blockchain can enhance the integrity of digital advertising. However, the integration of blockchain with current regulations, such as GDPR, presents challenges, particularly in terms of data modification and erasure. While blockchain’s potential is vast, its widespread adoption in digital advertising will require overcoming technical and regulatory hurdles.

3. RESEARCH

3.1. Methodological Approach

The lack of trust and concerns about the privacy, gathering and usage of the collected data leads costumers do adopt software's such as adblockers, causing a break in the trust between them and advertisers. Therefore, is in this context that investigation will take place.

This research was designed as an exploratory study since it aims to provide knowledge and understanding about the current situation of digital advertising and the usage of adblocking software in Portugal. It is also intended to verify if the core elements of the Basic Attention Token Model can be adopted by companies as a form of ease or counter for adblock usage and, therefore, increasing the brands relationship and loyalty with their customers and adblock users, while respecting their security and privacy concerns.

Taking everything into consideration, this exploratory investigation will be approached with a triangulated mixed-method (quali-quanti), with a strategic applied natured and exploratory objective conducted in two sequential phases.

The first phase can be characterized as documental research as will be focusing on the collection of secondary data through qualitative and quantitative sources. Sources such as from books, journals, reports, and scientific articles published and indexed in specialized platforms, as well as through statistical data published by official organizations.

The second phase can be characterized as an online survey and field research as will be focusing on the collection of primary data, through a semi-structured interview with a professional in the advertising and communication area, and a survey conducted among consumers and adblocker users.

3.2. Survey

In view of the objective and type of research of the dissertation, the survey/questionnaire technique proves to be a good instrument of collecting opinions, attitudes, knowledge and experiences related to the theme of digital advertising, adblocking software, BAT and online privacy and security concerns, from a sample of individuals (Check & Schutt, 2012).

The survey was carried out with the intention of collecting information regarding usage habits, motivation for adoption in case of use, and knowledge of adblock software by internet users in Portugal.

The survey was developed and carried out on the Google platform 'Forms' and was made available and shared online for participants for 15 days.

The first part is designed to get to know and characterize the respondents, whose variables under study were: gender, age, and academic qualifications.

For the second part, the questionnaire construction is based on the pilot study "Why People Block Ads (And What It Means for Marketers and Advertisers)" conducted in the United States of America, United Kingdom, Germany, and France by HubSpot Research (2020). The questionnaire is also based on the investigation conducted by Quintanilha et al., (2018), having as object of study digital advertising and adblocking in Portugal. The adaptations made are justified by the need to obtain more updated and representative data of the current situation of adblocking use in Portugal, privacy and security concerns and the introduction of questions related to the Brave browser and the Basic Attention Token Model.

Sample Justification

The survey totaled 110 responses from a random and non-probabilistic sampling by convenience. This method was chosen primarily because it is easier to collect data. All the participants were completely voluntary, and no financial compensation was given or promised. Every participant also received a link to complete the online questionnaire, where a description and purpose of the questionnaire were presented, information about confidentiality and anonymity in completing the questionnaire, as well as information that the data processing was only for the purpose of the study, and that it could be used for other purposes as well that the participant may withdraw from responding, without prejudice, at any time.

Survey Results

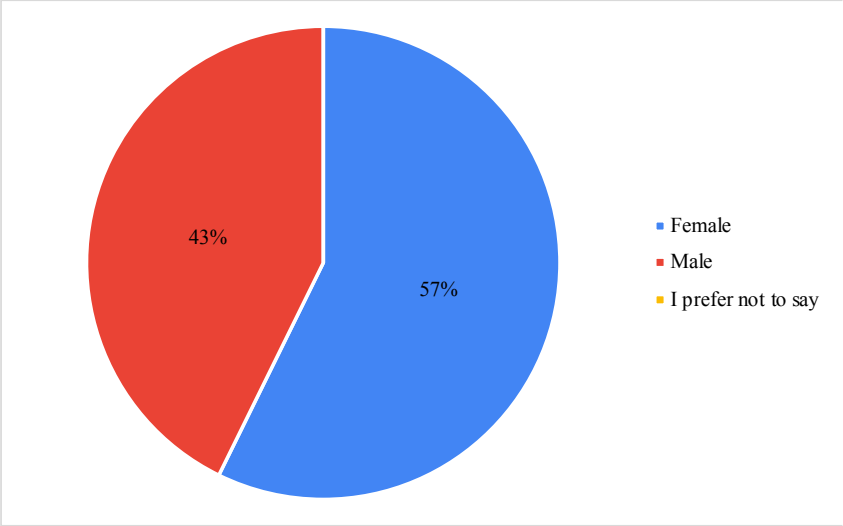

Figure 10 - Question 1: Please, indicate your gender

With figure 10, the intention is to understand the gender of the respondents. This is relevant because the topic and the use or not of Adblock can vary between genders, and it is important to understand on who has the most impact and to whom the BAT model can possibly be applied. From the total of 110 respondents, male respondents constitute 43% of the total participants, as indicated by the red segment of the pie chart. The blue segment of the chart represents the female respondents, making up 57% of the survey participants.

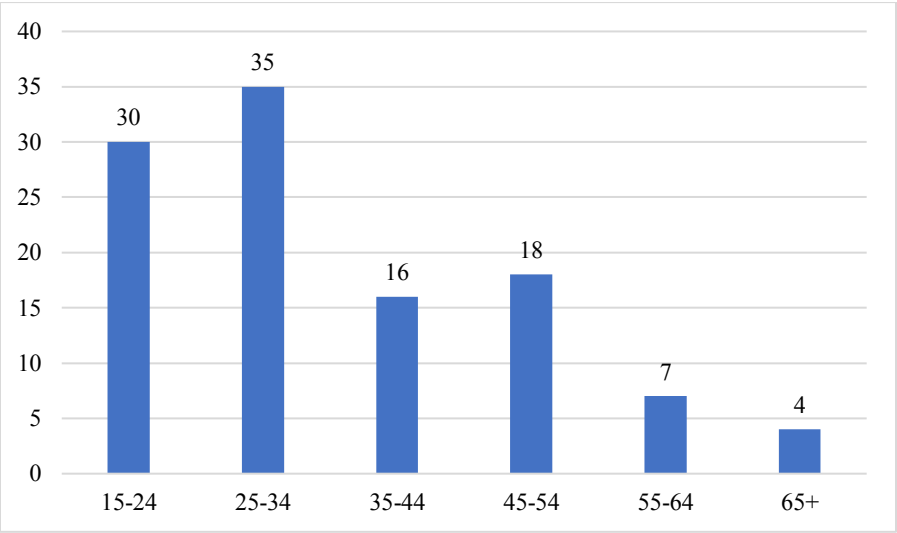

Figure 11 - Question 2: Within the following ranges, indicate your age

In Figure 11 it is possible to analyze the question "Within the following, state your group age" that inquired about the age distribution of 110 survey participants, providing valuable insights into the demographics of the respondents. From the observed data, it can be defined that 35 participants fell within the 25 to 34 age group, indicating that young professionals and adults in this range constituted the largest segment of the survey. Following closely, 30 respondents were aged 15 to 24, reflecting a significant presence of teenagers and young adults known for active online engagement. The 45 to 54 age group comprised 18 participants, representing individuals in their mid-forties to mid-fifties, while the 35 to 44 age group included 16 respondents. Moreover, the survey captured responses from 7 individuals aged 55 to 64 and 4 participants aged 65 and above. This data on age distribution serves as a foundational understanding of the participants, which can be further analyzed in conjunction with their attitudes, behaviors, and preferences concerning online activities, including the acceptance of terms and conditions and cookie settings.

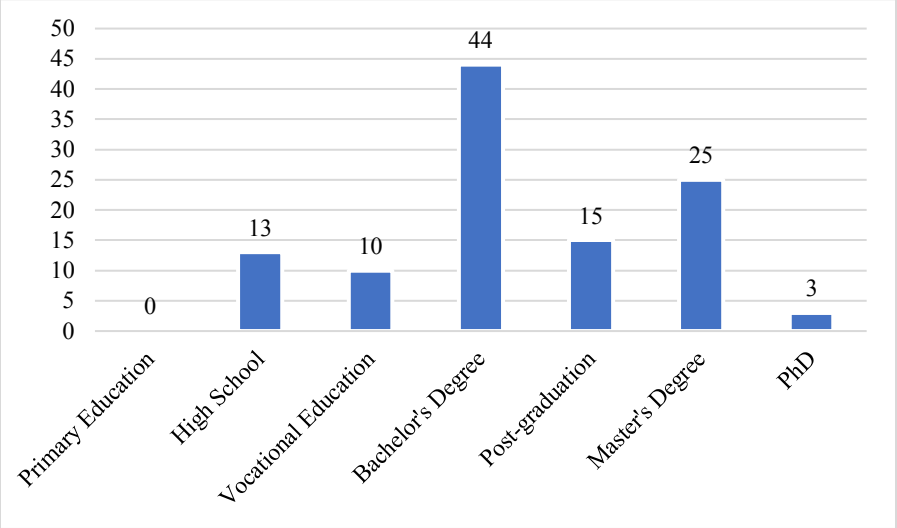

Figure 12 - Question 3: Please indicate your level of education

In Figure 12 it is possible to analyze the question "Please indicate your level of education" that gathered information on the educational qualifications of 110 respondents, offering valuable insights into the educational diversity of the participant pool. None of the participants reported having only primary education, suggesting that all respondents had

progressed beyond basic education. A group of 13 respondents had completed high school, signifying a basic secondary education level. Additionally, 10 participants indicated vocational education, which typically involves practical training in specific trades or skills. The most prominent educational category was "Bachelor's Degree," with 44 respondents, highlighting a substantial portion of the sample holding undergraduate degrees. Further education was represented by 15 participants with "Post-graduation" qualifications, encompassing various forms of advanced training beyond a bachelor's degree. Meanwhile, 25 respondents had earned "Master's Degrees," indicating a significant number of individuals with postgraduate education. Lastly, 3 respondents had achieved the highest academic attainment with a "PhD". This comprehensive educational data indicates that majority of the participants have high levels of literacy and can make informed decisions about the issues addressed by the research topic.

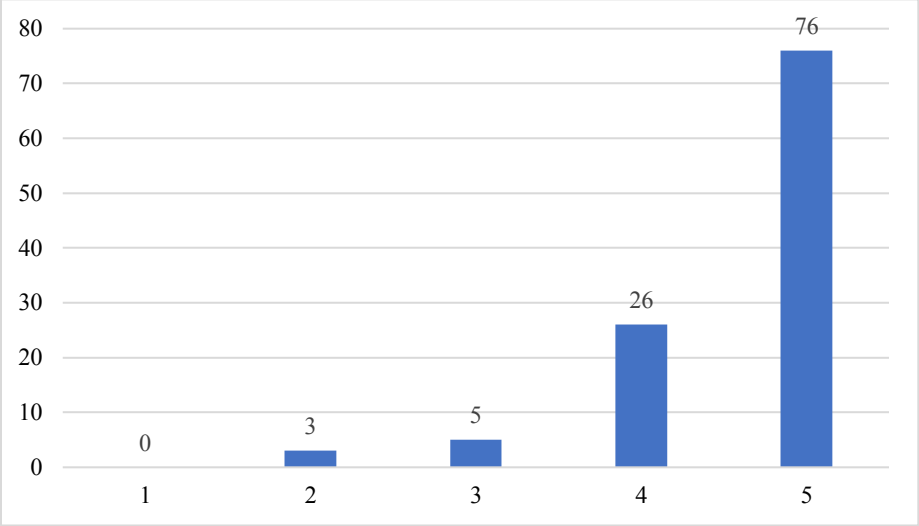

Figure 13 - Question 4: On a scale ranging from 1 to 5, where 1 is "Nothing Important" and 5 is "Very Important," how important is online privacy to you?

In Figure 13 it is possible to analyze the importance of online privacy on a scale of 1 to 5 reveals several key insights. A significant majority of the 110 surveyed individuals, precisely 76 respondents, assigned the highest rating of 5, indicating that online privacy is of paramount importance to them. This underscores the widespread concern for safeguarding personal data and digital security within the sample group. Furthermore, 26 individuals chose a rating of 4, indicating a substantial portion of the sample still places a moderate level of importance on online privacy. None of the respondents rated online privacy as "Nothing Important," signifying

that, to some degree, it is regarded as significant by all participants. While there were a few respondents who expressed lesser concern with ratings of 2 and 3, it's clear that online privacy holds considerable weight in the minds of the surveyed individuals.

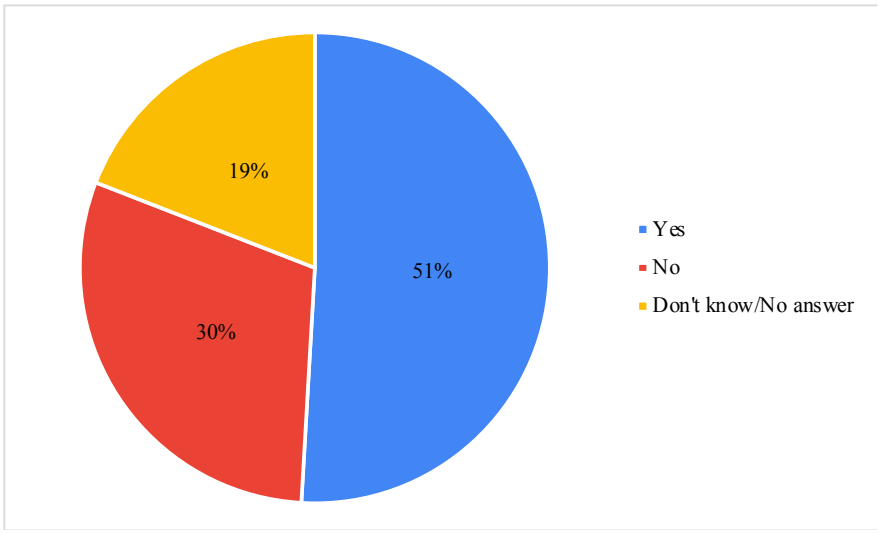

Figure 14 - Question 5: Are you a user of adblocking software?

In Figure 14 it is possible to analyze data from the question "Are you a user of adblocking software?" that collected responses from 110 participants to gauge their usage of adblocking software. The results reveal that 51% of respondents, representing a majority, reported using adblocking software, indicating a significant portion of the sample actively takes steps to block online advertisements. This suggests a desire for a streamlined browsing experience, reduced distractions, and concerns about privacy or security related to ads. In contrast, 30% of respondents answered "No," indicating they do not use adblocking software, potentially implying greater tolerance for online ads or a lack of awareness about adblocker options. Understanding the characteristics and motivations of this group is essential for advertisers and website owners aiming to engage users effectively. Moreover, 19% of respondents chose "Don't know/No answer," suggesting that adblocking software usage may not be universally understood or well-defined among all participants. This data offers valuable insights into the prevalence of adblocking software usage among survey participants, reflecting a clear shift in user preferences and behaviors when it comes to online advertising.

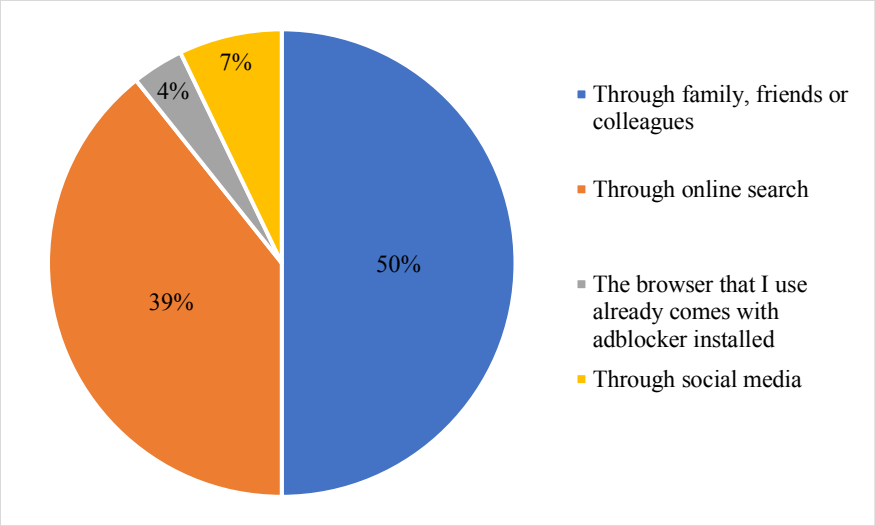

Figure 15 - Question 6: How did you become aware of adblockers?

In Figure 15, in response to the question "How did you become aware of adblockers?" posed to 56 survey participants who confirmed their use of adblocking software, several notable insights emerged. It is possible to understand that 28 participants, half of adblocker users, credited their awareness of adblockers to recommendations from family, friends, or colleagues, highlighting the significant influence of word-of-mouth referrals and personal experiences in introducing individuals to these tools. Additionally, 22 respondents mentioned that they discovered adblockers through online searches, indicating a proactive approach to finding solutions for enhancing their online browsing experience. A relatively small minority of participants (2 out of 56) reported that their chosen web browser came pre-installed with an adblocker. Lastly, 4 respondents attributed their awareness of adblockers to social media, although this source had less impact compared to word-of-mouth and online searches. In conclusion, majority of users who employ adblocking software became aware of these tools primarily through personal recommendations from their social networks and proactive online research. Word of mouth and online searches serve as powerful channels for introducing users to adblockers, underscoring the importance of peer recommendations and user-driven research in driving awareness and adoption of adblocking software.

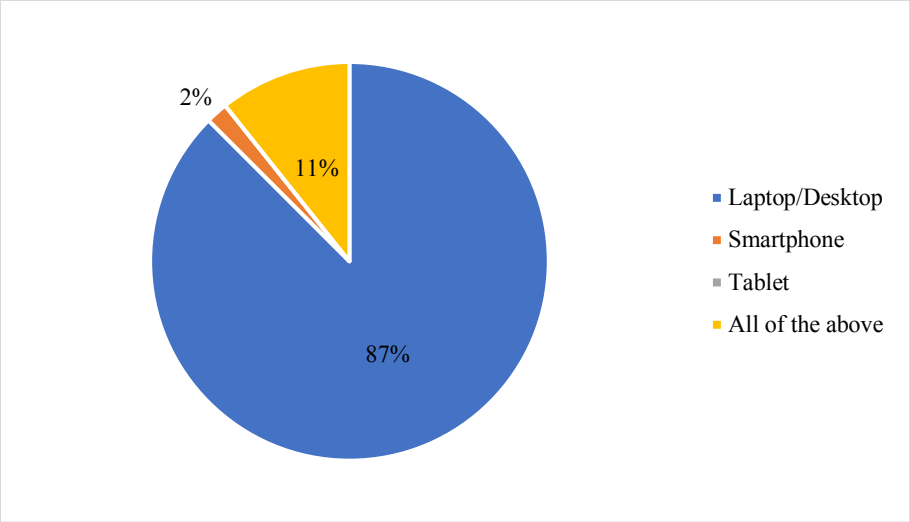

Figure 16 - Question 7: On which devices do you have adblocking software installed?

In Figure 16 it is possible to analyze data from the question "On which devices do you have adblocking software installed?" that was directed at the 56 respondents who confirmed their usage of adblocking software, offering valuable insights into the distribution of adblocker usage across different devices. The responses revealed that the majority, 49 out of 56 respondents, have adblocking software installed on their laptops or desktop computers, emphasizing the significance of adblockers in the desktop browsing experience. Conversely, only one respondent reported having adblocking software on their smartphone, indicating a notably lower prevalence on mobile devices. Furthermore, none of the participants mentioned having adblockers on their tablets, suggesting that this device category is less frequently equipped with adblocking tools among this group. Interestingly, six respondents indicated using adblockers on all three device types, illustrating a subset of users who adopt a comprehensive approach to adblocking, seeking an ad-free experience across all their devices. This data offers valuable insights into where adblocking software is mostly employed among this user group and can guide marketers and advertisers in tailoring their strategies to different device platforms accordingly. In conclusion, these results imply that the prevalence of adblocking software varies significantly across different device types among the surveyed users. Desktops and laptops are the primary targets for adblockers, while mobile devices, particularly tablets, are less commonly equipped with adblocker tools.

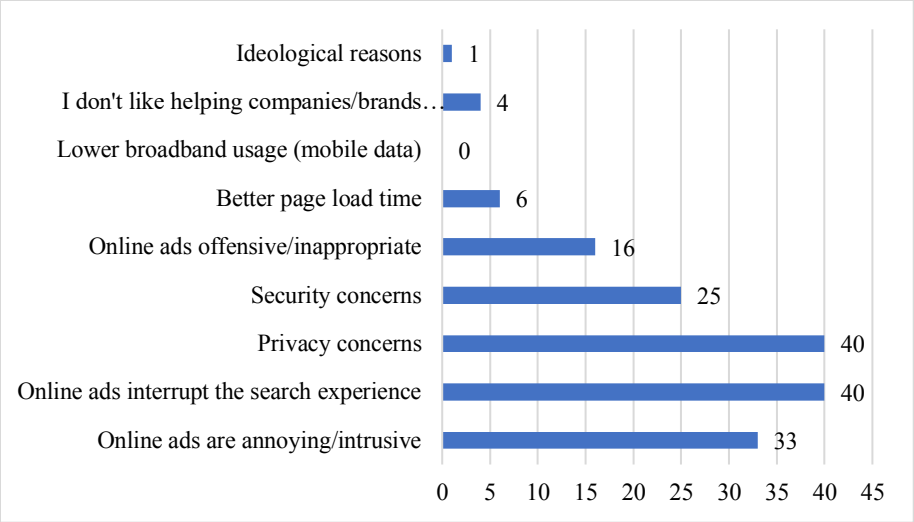

Figure 17 - Question 8: Why did you install adblocking software? (refer to up to 3 options)

Figure 17 provides information for the question "Why did you install adblocking software? (refer to up to 3 options)", offering valuable insights into the motivations of the 56 respondents who have installed adblocking software. Firstly, a substantial number of users were motivated by the annoyance and intrusiveness of online ads (33 respondents), indicating a strong desire for a more seamless and distraction-free browsing experience. Secondly, a larger group expressed that online ads interrupt their search experience (40 respondents), highlighting users' frustration with ads that disrupt content consumption, especially in the context of search results and website navigation. An equal number of respondents cited privacy and security concerns (40 respondents) as a motivation, underlining their awareness of the potential risks linked to online ads and their desire to safeguard personal information and enhance online security. Conversely, a smaller but significant group mentioned finding online ads offensive or inappropriate (16 respondents), reflecting their objection to ad content that did not align with their sensibilities. Other motivations, such as improved page load times or conserving mobile data, were less prominent. Finally, a small segment cited ideological reasons or a desire not to support companies' profits through ad views (4 and 1 respondent, respectively). In conclusion, this analysis underscores that users' motivations for installing adblocking software are multifaceted,

encompassing annoyance, privacy, security, and content appropriateness concerns, reflecting a desire for a more user-centric, secure, and values-aligned online experience.

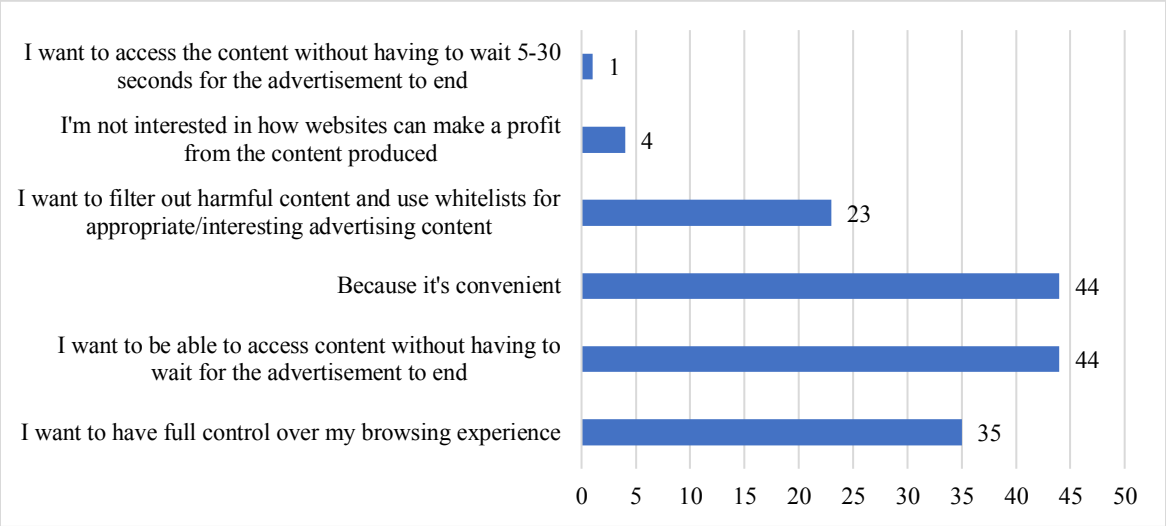

Figure 18 - Question 9: In what way(s) does it justify the use of adblocker? (refer to up to 3 options)

Figure 18 provides data for responses to the question regarding the justification for using adblockers, collected from 56 individuals who could select up to 3 motives, reveals several key insights. Firstly, a significant majority of respondents, precisely 44 out of 56, expressed their desire to access online content without having to endure the interruption of advertisements or waiting for ads to end, emphasizing the importance of quick and uninterrupted content consumption. Simultaneously, an equal number of participants cited "convenience" as a motive, indicating that adblockers are seen as a convenient tool to streamline their online experiences, removing distractions. Moreover, 35 respondents highlighted their wish for full control over their browsing experiences, emphasizing the importance of managing their online environment by eliminating intrusive ads. Additionally, 23 individuals mentioned using adblockers for filtering harmful content and managing whitelists, showcasing a concern for both online safety and the ability to curate advertising content. In contrast, only a small group of 4 respondents expressed indifference towards how websites profit from content, suggesting a more pronounced emphasis on personal browsing preferences over website monetization. Reducing wait time for ads was mentioned by just one respondent, indicating that, for most, it's not solely about ad duration but rather ad avoidance. Overall, this comprehensive analysis underscores the significance of user

experience, convenience, and privacy in motivating the use of adblockers among surveyed individuals.

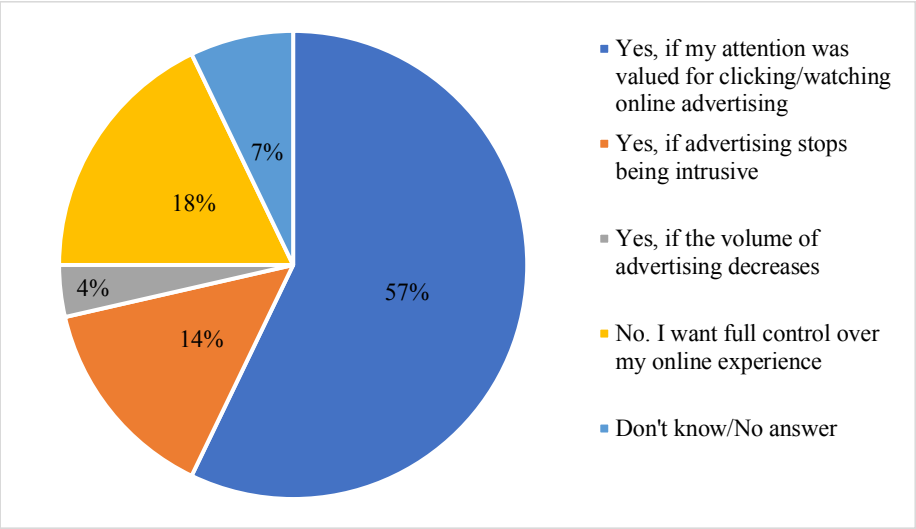

Figure 19 - Question 10: Do you think there is any way to give up the use of adblocking in the future?

In Figure 19 it is possible to analyze data from the question "Do you think there is any way to give up the use of adblocking in the future?" from 56 individuals. Firstly, a significant majority of respondents, specifically 32 out of 56, believe that they could potentially abandon the use of adblocking if their attention and engagement with online advertising were genuinely valued, suggesting a willingness to engage with ads if a fair exchange of value were perceived. Additionally, a smaller group of 8 respondents expressed the possibility of giving up adblocking if online advertising ceased to be intrusive, indicating that ad intrusiveness is a notable factor affecting their adblocker use. In contrast, only 2 respondents mentioned that they might consider stopping adblocking if the overall volume of advertising decreases, indicating that while ad volume plays a role for some, it is a less common motivator. Furthermore, 10 individuals strongly emphasized their desire for full control over their online experience and stated that they would not consider giving up adblocking, highlighting the significance of user autonomy and control. Lastly, 4 respondents either did not know or did not provide a clear response, indicating some uncertainty or ambiguity in their stance on the matter. In summary, the analysis reveals that a substantial portion of respondents is open to the possibility of giving up adblocking in the future if certain conditions are met. These conditions include the perceived value of their

attention, reduced intrusiveness of ads, or a decrease in the overall volume of advertising. However, a significant number also prioritize maintaining full control over their online experience, and a few respondents did not offer a clear stance on the matter. This suggests that user attitudes toward adblocking are multifaceted and can be influenced by factors related to user experience, perceived value, and control over online content.

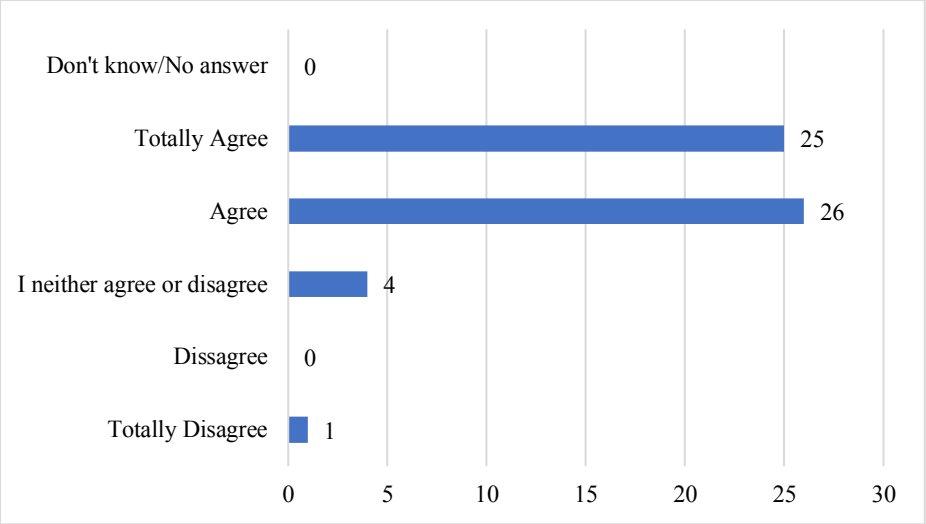

Figure 20 - Question 11: Online advertising is intrusive

In Figure 20 it can be analyzed data from responses to the statement "Online advertising is intrusive" from 56 individuals, revealing a distinct and prevailing sentiment within the surveyed group. Majority of participants, specifically 25 out of 56, completely agreed with the statement, underscoring a robust consensus that online advertising is indeed perceived as intrusive in their online experiences. Additionally, another substantial portion, comprising 26 respondents, agreed with the statement, further emphasizing that a significant number of participants find online advertising to be disruptive or intrusive in some capacity. It is noteworthy that no respondents explicitly disagreed with the statement, highlighting a notable absence of strong dissenting views. A small subset of 4 respondents took a neutral stance, neither fully agreeing nor disagreeing, suggesting a degree of indifference or mixed feelings. Importantly, there were no "don't know/no answer" responses, indicating a high level of clarity and conviction in the opinions expressed. In summary, the analysis underscores a clear and shared sentiment among the surveyed individuals that online advertising is perceived as

intrusive. The absence of strong disagreement and the presence of a significant majority that either agrees or completely agrees with the statement indicate a prevailing perspective within the sample group that online advertising disrupts their online experiences to varying degrees. This suggests that a majority of participants view online advertising as intrusive in some form.

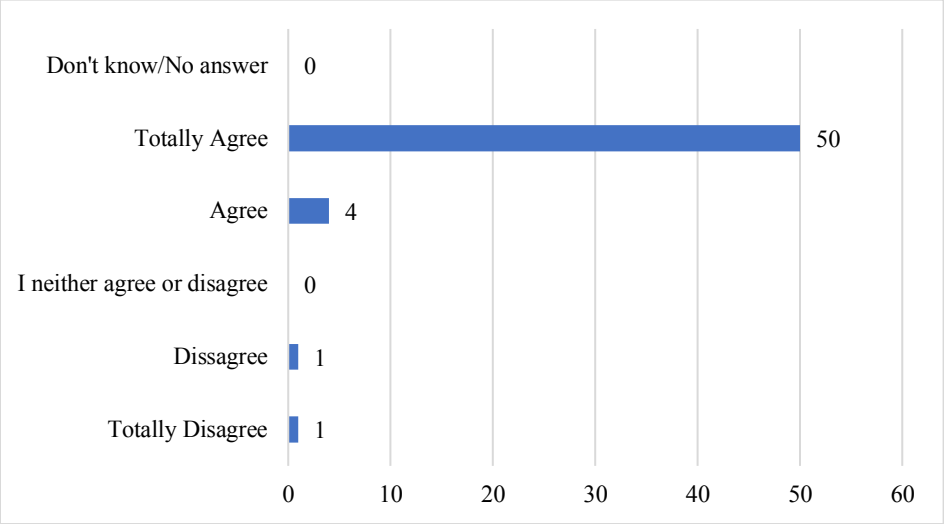

Figure 21 - Question 12: Some advertisements, such as pop-ups, where I have to load "X" to remove, are very frustrating

Figure 21 provides data relating to the responses to the statement "Some advertisements, such as pop-ups, where I have to load 'X' to remove, are very frustrating" from 56 individuals that reveals an unequivocal and prevailing sentiment among the respondents. A substantial majority of participants, precisely 50 out of 56, expressed complete agreement with the statement, emphasizing a robust consensus that pop-up ads and similar advertisements requiring additional actions for removal are highly frustrating. Remarkably, only one respondent totally disagreed with the statement, and another disagreed, indicating a slight variance in opinion from the majority. Importantly, there were no neutral responses, underscoring the strong convictions and clarity of viewpoint within the surveyed group. The absence of "don't know/no answer" responses further solidifies the overwhelmingly shared perspective that these types of ads are a major source of annoyance and frustration. In summary, the analysis underscores a strong and unified sentiment among the surveyed individuals that pop-up ads and similar advertisements that demand extra actions for removal are exceedingly frustrating. With only a few respondents

expressing a differing opinion, the vast majority found such ads to be a source of significant annoyance and frustration. This result suggests a clear and shared perspective within the sample group on this issue.

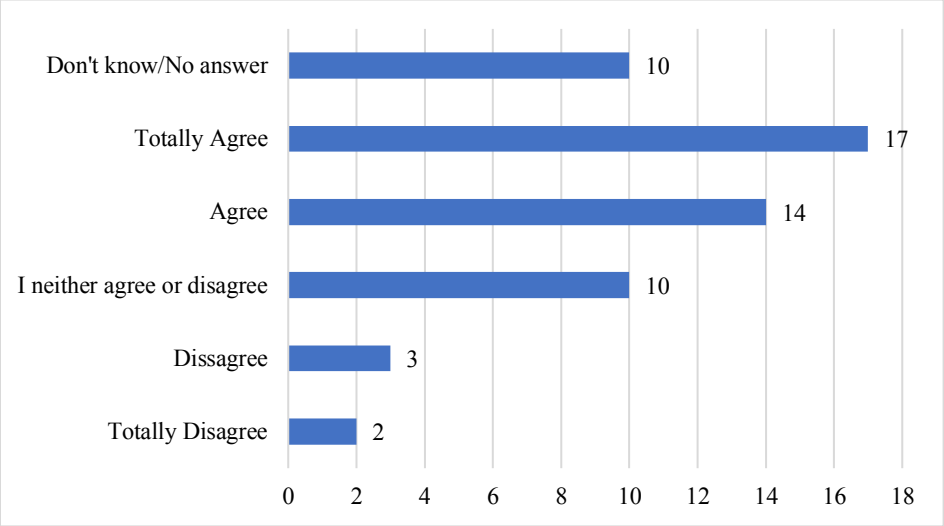

Figure 22 - Question 13: I see more online advertising today than I did 2-3 years ago

Figure 22 provides data relating to the responses to the statement "I see more online advertising today than I did 2-3 years ago" from 56 individuals that reveals a range of perceptions within the surveyed group. While a substantial portion, comprising 17 respondents, completely agreed with the statement, indicating a strong consensus that they perceive an increase in online advertising over the past 2-3 years, there is also a significant group of 14 participants who agreed with the statement but to a somewhat lesser extent. On the other hand, a smaller group, consisting of 3 respondents, disagreed, suggesting that they do not believe they are encountering more online advertising. Intriguingly, a similar number of 2 individuals totally disagreed with the statement, expressing a clear opposite perspective. A notable subset of 10 respondents remained neutral, neither fully agreeing nor disagreeing, reflecting a degree of uncertainty or mixed perceptions regarding changes in online advertising volume. Equally interesting is the presence of 10 respondents who either didn't provide a clear answer or expressed uncertainty, underlining the complexity of this topic and the variability in individual experiences and perceptions of online advertising trends. Overall, this analysis illustrates the

diversity of views within the sample group regarding the evolution of online advertising over the past few years.

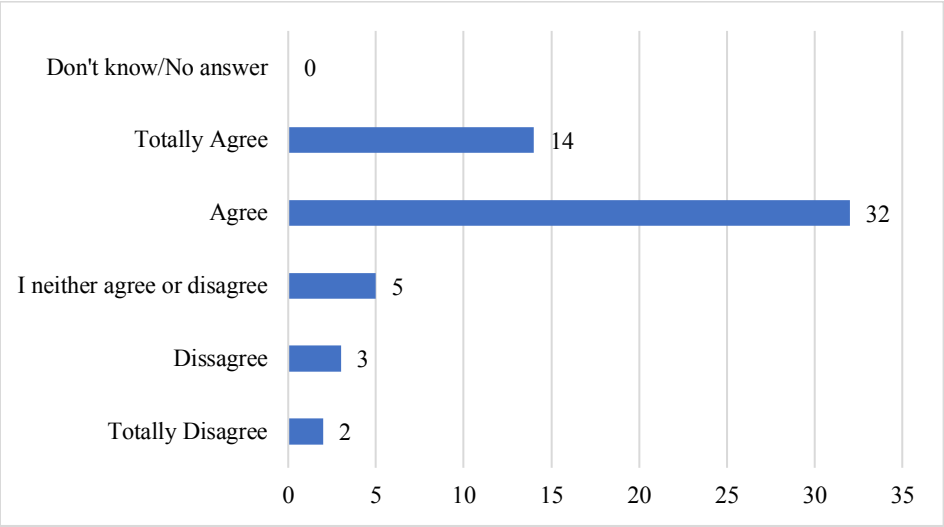

Figure 23 - Question 14: Not all advertising is bad, but I wish I could filter out everything that interests me

Figure 23 provides data relating to the responses to the statement "Not all advertising is bad, but I wish I could filter out everything that interests me" from 56 individuals that reveals a prominent and shared sentiment among the respondents. While a small minority, comprising 2 participants, completely disagreed with the statement, and another 3 disagreed, indicating they do not wish to filter out advertising, majority of respondents expressed a desire for increased control over the ads they encounter. A significant number of 32 individuals agreed with the statement, highlighting their wish to filter out advertising content, even while acknowledging that not all advertising is bad. Moreover, a substantial group of 14 participants completely agreed, underlining a strong consensus that they want to filter out everything that interests them. This reflects a prevailing sentiment among the surveyed individuals that they seek greater autonomy and customization in their online advertising experiences. Importantly, the absence of "don't know/no answer" responses underscores the clarity and conviction in the participants' views on this subject. In summary, the analysis underscores a clear and prevailing sentiment among the surveyed individuals that they desire more control over the ads they encounter. While there is recognition that not all advertising is bad, the majority express a wish to filter out advertising content that interests them to varying degrees, with a significant portion indicating a

strong desire for such filtering. The absence of "don't know/no answer" responses signifies a high level of clarity and conviction in the participants' views on this matter.

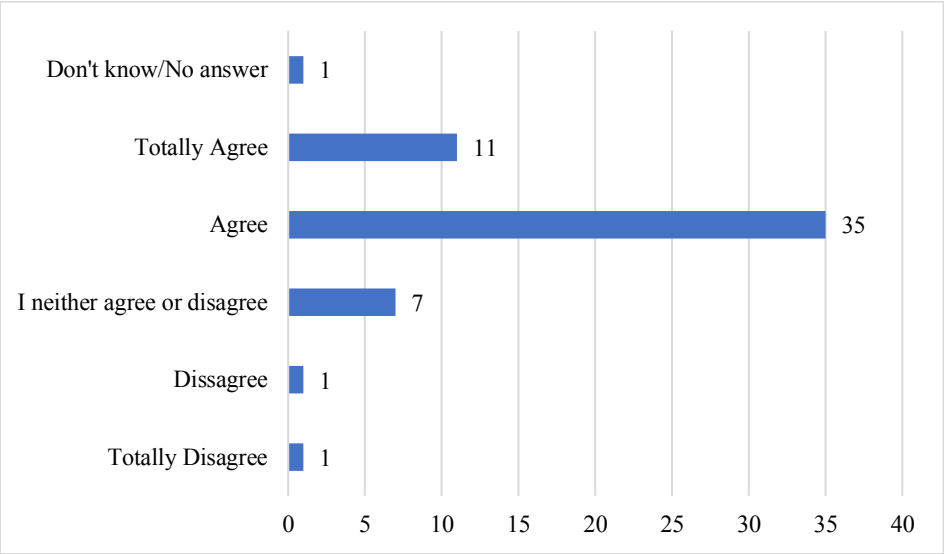

Figure 24 - Question 15: I feel like I'm monitored because I see advertising for products I've purchased/researched in the past

Figure 24 provides data relating to the responses to the statement "I feel like I'm monitored because I see advertising for products I've purchased/researched in the past" from 56 individuals that reveals a prevalent and shared sentiment within the surveyed group. While a small minority, comprising just one respondent each, completely disagreed or disagreed with the statement, suggesting they do not feel monitored in this context, the majority expressed a clear perception of being monitored. A substantial number of 35 participants agreed with the statement, indicating that they do feel monitored when encountering advertising related to their past purchases or research. Additionally, a significant group of 11 respondents completely agreed, emphasizing a strong consensus that individuals often perceive targeted advertising as a form of monitoring or surveillance. This underscores a widespread awareness of the personalized nature of online advertising and its association with feelings of being tracked or monitored. While a few participants expressed neutrality or uncertainty, the bulk of respondents conveyed a sense of surveillance when encountering such targeted ads. In summary, the analysis highlights a prevalent sentiment among the surveyed individuals that they often feel monitored or surveilled when they encounter advertising related to products they have purchased or researched in the

past. While a few participants expressed a differing opinion or took a neutral stance, the majority conveyed a sense of surveillance in this context. This indicates that many individuals are aware of the personalized nature of online advertising and associate it with being monitored or tracked to some extent.

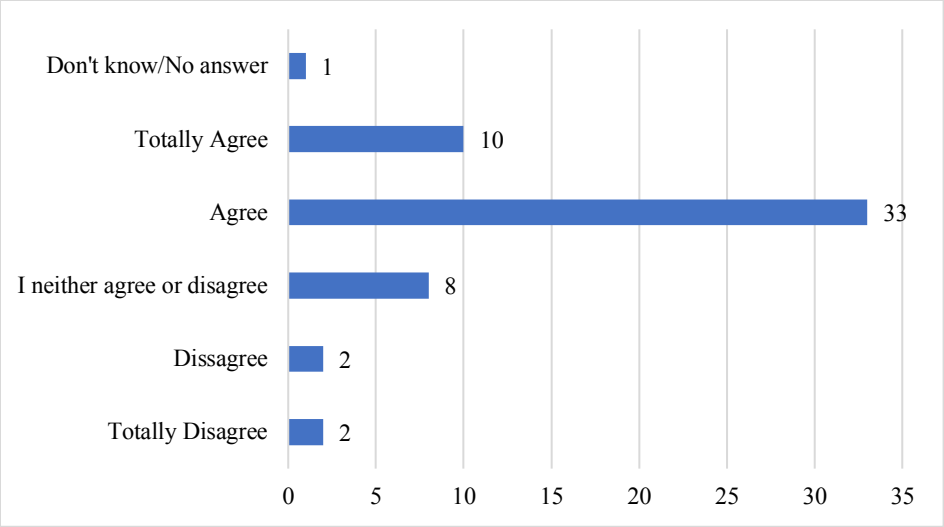

Figure 25 – Question 16: I wish there was an option to filter advertising instead of blocking advertising

Figure 25 provides data relating to the responses to the statement "I wish there was an option to filter advertising instead of blocking advertising" from 56 individuals that reveals a distinct and prevailing sentiment among the surveyed group. While a minority, comprising 2 respondents who totally disagreed and 2 who disagreed, expressed a preference for outright blocking of advertising, the majority conveyed a strong desire for more nuanced control options. A substantial number of 33 participants agreed with the statement, indicating that they do wish for an option to filter advertising rather than entirely block it. Additionally, 10 respondents completely agreed with the statement, emphasizing a strong consensus that they prefer filtering over blocking when it comes to online advertising. This illustrates a shared sentiment among the surveyed individuals that they want the ability to tailor their ad experiences to their preferences and interests. While a few respondents expressed neutrality or uncertainty, the bulk of participants expressed a desire for increased control and customization in their interactions with online advertising. The presence of one participant who did not provide a clear answer reflects the complexity of individual perspectives on this topic. In summary, the analysis underscores a

shared sentiment among the surveyed individuals that many of them wish for an option to filter advertising instead of completely blocking it. While a small number disagreed or expressed neutrality, the majority conveyed a strong desire for increased control and customization in their online ad experiences, with a significant portion indicating a strong preference for filtering over blocking. The presence of one participant who did not provide a clear answer highlights the complexity of individual perspectives on this topic. Overall, this analysis illustrates a prevailing sentiment of wanting more nuanced ad control options within the sample group.

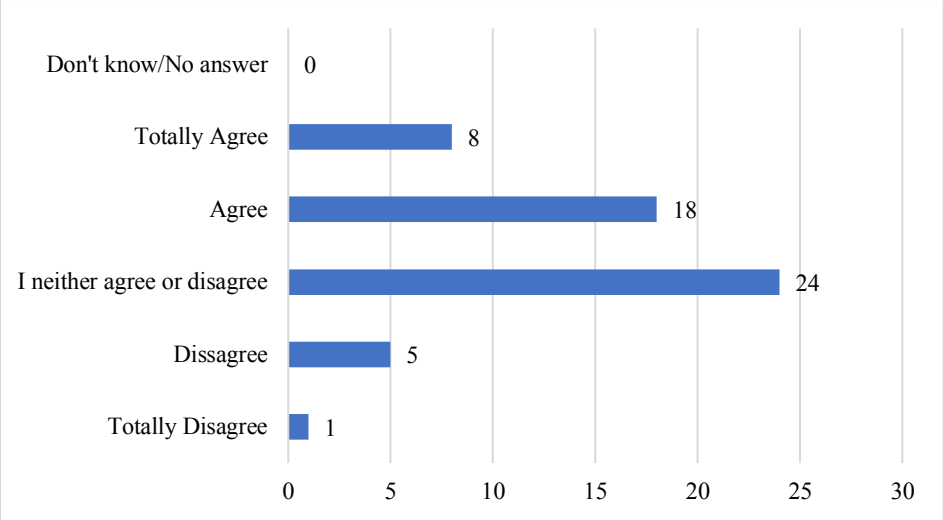

Figure 26 – Question 17: Most online advertising looks unprofessional and unpolished

Figure 26 provides data relating to the responses to the statement "Most online advertising looks unprofessional and unpolished" from 56 individuals that reveals a spectrum of perspectives within the surveyed group. While a minority, consisting of 1 respondent, completely disagreed with the statement, suggesting they do not perceive most online advertising as unprofessional or unpolished, a slightly larger group of 5 respondents expressed disagreement, indicating a viewpoint that while not most, some online advertising falls into the unprofessional category. A significant number of participants, comprising 24 out of 56, adopted a neutral stance, neither fully agreeing nor disagreeing, showcasing a degree of ambivalence or mixed perceptions regarding the professionalism of online advertising. In contrast, 18 respondents agreed with the statement, conveying a perception that most online advertising lacks professionalism to some extent. Additionally, 8 participants completely agreed, emphasizing a strong consensus that they

perceive the majority of online advertising as unprofessional and unpolished. Importantly, there were no "don't know/no answer" responses, highlighting a high level of clarity and conviction in the participants' views. In summary, the analysis illustrates a range of perceptions within the surveyed individuals regarding the professionalism and polish of online advertising. While some participants expressed disagreement or neutrality, a notable portion indicated agreement, and a smaller group completely agreed that they find most online advertising unprofessional and unpolished. The absence of "don't know/no answer" responses indicates a high degree of clarity and conviction in the participants' views on this matter. This diversity in perceptions suggests that opinions on the quality of online advertising can vary widely within the sample group.

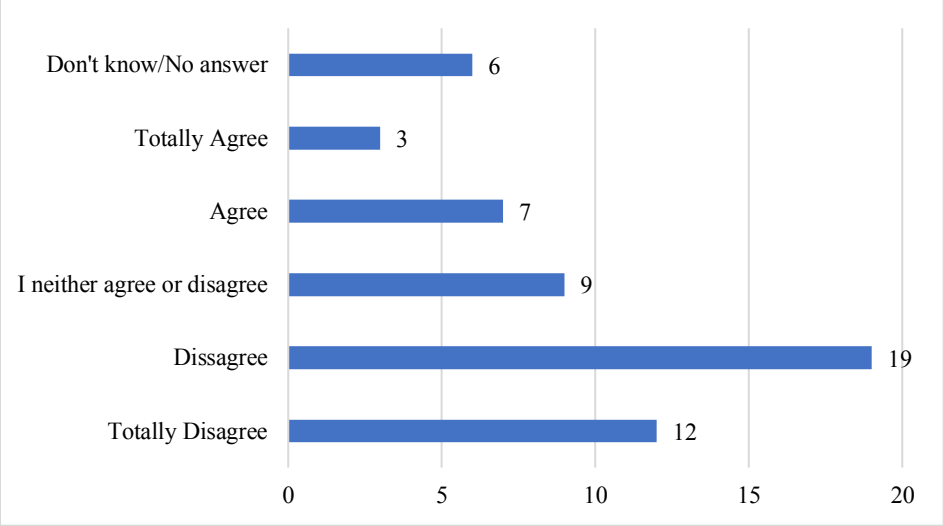

Figure 27 – Question 18: People who use adblockers should behave fairly and pay for content differently

Figure 27 provides data relating to the responses to the statement "People who use adblockers should behave fairly and pay for content differently" from 56 individuals that reveals a diverse range of opinions and attitudes within the surveyed group. A notable portion, comprising 12 out of 56 respondents, completely disagreed with the statement, indicating they do not believe adblocker users should be required to change their behavior or pay differently for content. The majority of participants, with 19 out of 56 responses, disagreed with the statement, suggesting that they do not think adblocker users should be treated differently in terms of content payment or behavior. Additionally, a significant number expressed a neutral stance (9 out of 56), neither fully agreeing nor disagreeing, reflecting ambivalence or mixed feelings about how

adblocker users should be treated. In contrast, a smaller group of 7 participants agreed, and a very small subset of 3 completely agreed with the statement, indicating a belief that adblocker users should be treated differently in terms of content payment and behavior. Importantly, six participants did not provide a clear answer or expressed uncertainty, highlighting the complexity of individual perspectives on this matter. In summary, the analysis illustrates a range of views within the surveyed individuals regarding how people who use adblockers should be treated in terms of content payment and behavior. While the majority disagreed or expressed neutrality, a notable subset disagreed, and a smaller group agreed or completely agreed with the statement. The presence of respondents who did not provide a clear answer or expressed uncertainty reflects the complexity of individual perspectives on this topic. Overall, this analysis underscores the diversity of opinions and attitudes within the sample group regarding adblocker users and their treatment in the context of online content.

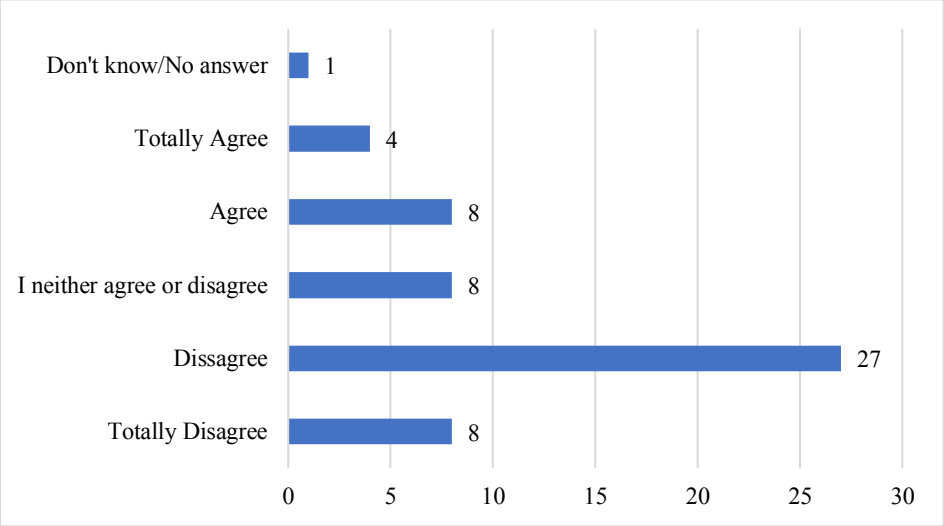

Figure 28 – Question 19: I don't pay attention to online advertising, even if I don't block it

Figure 28 provides data relating to the responses to the statement "I don't pay attention to online advertising, even if I don't block it" from 56 individuals that unveils a spectrum of attitudes and behaviors regarding online advertising. While a minority, consisting of 8 respondents, completely disagreed with the statement, signifying active engagement with online ads even without blocking them, the majority, encompassing 27 participants, disagreed but admitted to paying some degree of attention to online advertising. This suggests that many

individuals do notice online ads to some extent. A similar number of 8 participants expressed neutrality, neither fully agreeing nor disagreeing, reflecting a degree of ambivalence or mixed feelings. In contrast, 8 respondents agreed with the statement, indicating a tendency not to pay attention to online advertising, even without blocking it. Additionally, 4 participants completely agreed, indicating a strong consensus that they generally do not pay attention to online advertising. Notably, there was one participant who did not provide a clear answer or expressed uncertainty, highlighting the complexity of individual responses to online advertising and varying levels of engagement within the sample group. In summary, the analysis illustrates a range of attitudes and behaviors among the surveyed individuals when it comes to paying attention to online advertising. While the majority disagree or express neutrality, a significant portion does acknowledge paying some degree of attention to online ads. A smaller group agrees or completely agrees with the statement, indicating a tendency to not pay attention to online advertising, even without blocking it. The presence of one participant who did not provide a clear answer reflects the complexity of individual responses to online advertising, with varying levels of engagement and attention within the sample group.

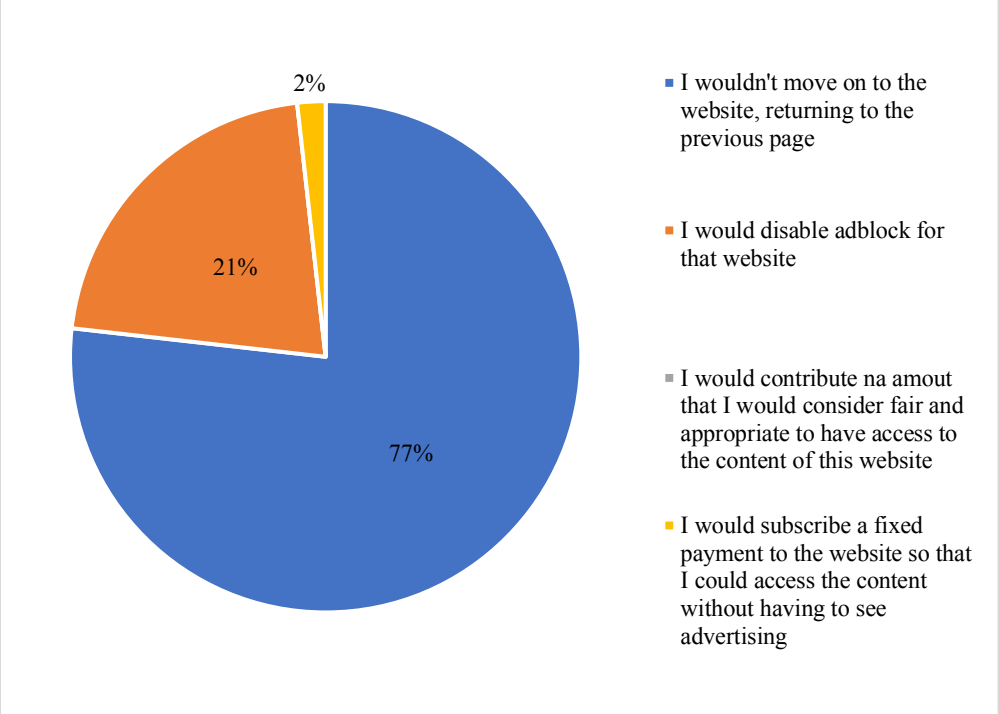

Figure 29 – Question 20: If you are blocked from accessing the content of a website because you are using adblocker, which of the following actions do you usually take?

Figure 29 presents data on question "If you are blocked from accessing the content of a website because you are using adblocker, which of the following actions do you usually take?" from 56 individuals that demonstrates the strategies individuals employ when faced with adblocker restrictions on websites. The most prevalent response, provided by 43 out of 56 respondents, is to avoid the website altogether and return to the previous page. This suggests that a significant portion of users prioritize circumventing websites with adblocker restrictions by opting for alternative content sources. A smaller group of 12 participants indicated they would disable their adblocker for the specific website, indicating a willingness to engage with content by temporarily deactivating adblocker tools. Interestingly, none of the participants expressed a willingness to make direct financial contributions to access content, indicating a general reluctance to pay on a per-visit basis. Only one respondent mentioned a preference for subscribing to a fixed payment plan to access content without encountering advertising. In summary, the analysis reveals that the most common response to adblocker restrictions is to simply avoid the website and return to the previous page, as reported by the majority of participants. While a minority would disable their adblocker or consider subscribing to access content without advertising, the options involving direct financial contributions or subscriptions received limited support. This reflects a prevalent preference for avoiding adblocker-restricted websites or finding alternative ways to access content, rather than directly contributing financially to bypass adblocker restrictions.

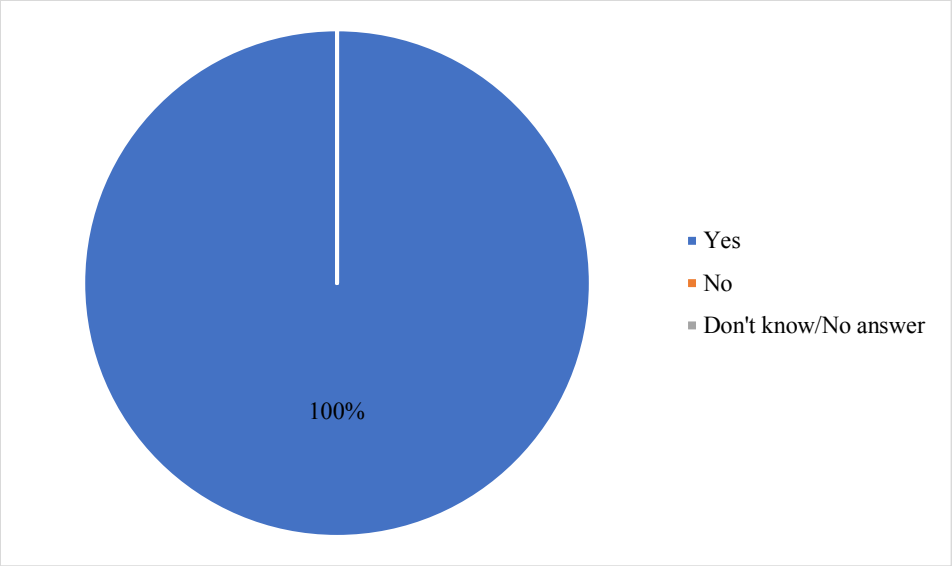

Figure 30 – Question 21: Do you think the introduction of adblocking software has created a positive impact on the experiences of Internet users?

Figure 30 provides relevant data for the question "Do you think the introduction of adblocking software has created a positive impact on the experiences of Internet users?" that was directed at 56 survey participants, and the responses provide a unanimous perspective. All 56 respondents (representing 100% of the participants) answered in the affirmative, expressing their belief that the introduction of adblocking software has indeed created a positive impact on the experiences of Internet users. This consensus underscores the widespread and resounding endorsement of adblocking software among this group. Such unanimous agreement suggests that these respondents view adblockers as a highly effective means of improving the online experience. They likely perceive adblocking software as instrumental in reducing the annoyance and intrusiveness of online ads, enhancing privacy and security, and providing better control over the content they encounter. In conclusion, the unanimous agreement among respondents that adblocking software has had a positive impact highlights its value in addressing the various concerns associated with online advertising. This strong vote of confidence in adblocking software reflects its importance in the eyes of Internet users and suggests that it plays a crucial role in shaping a more enjoyable and user-centric online environment.

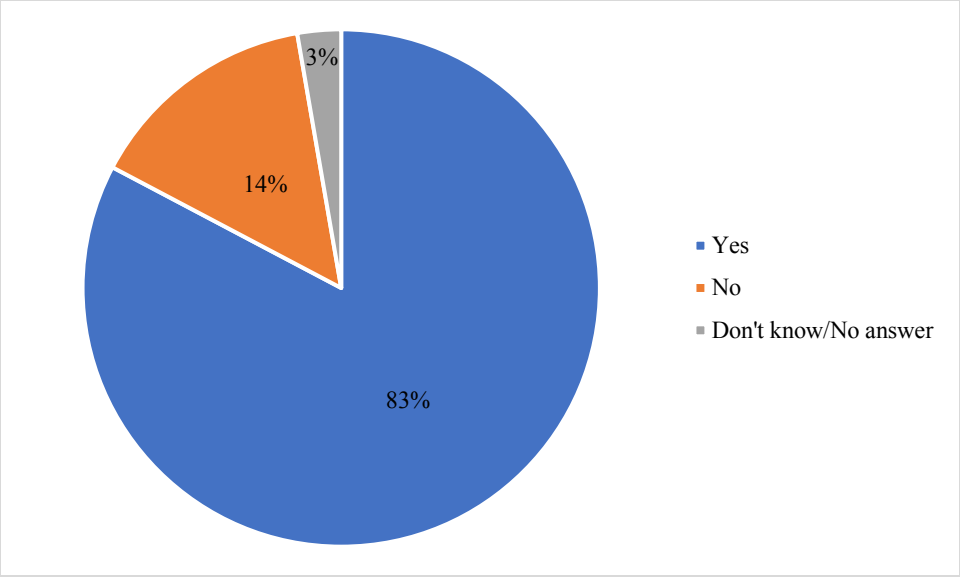

Figure 31 – Question 22: Do you share information online?

In Figure 31 provides information that allows for an analysis of responses to the question "Do you share information online?" from 110 individuals, revealing a clear and predominant trend toward active online information sharing within the surveyed group. It can be clearly observed that 91 out of 110 respondents reported that they do share information online, highlighting that this is a common and widespread practice among the participants. This suggests that sharing personal information, content, or experiences on the internet is a prevalent behavior within the sample group, reflecting the way many individuals engage with online platforms and communities. While a smaller minority of 16 participants indicated that they do not share information online, and a very small subset of three respondents did not provide a clear answer, the overall trend underscores the significance of online information sharing as a common activity among the surveyed individuals.

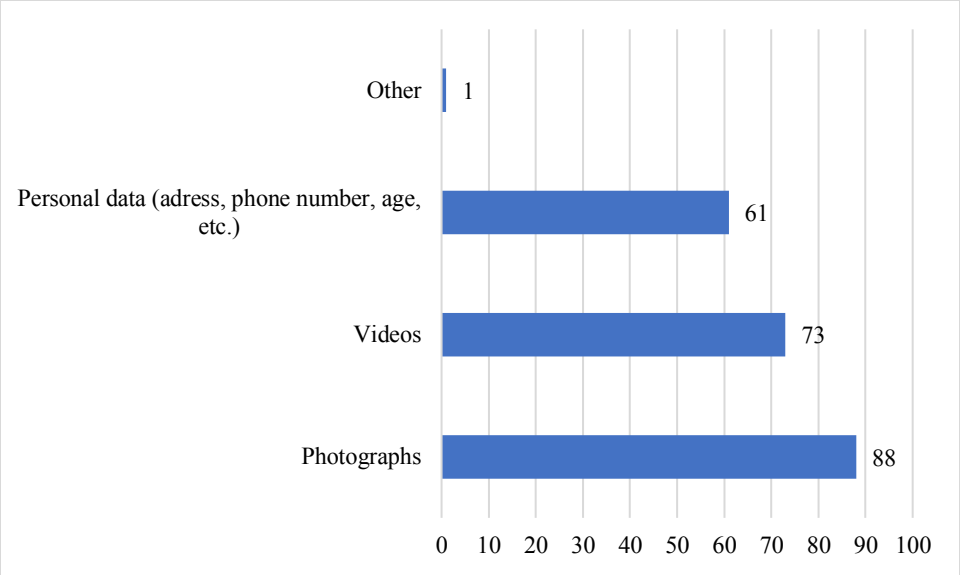

Figure 32 – Question 23: What type of information do you share online?

Figure 32 provides data that allows for an analysis of responses to the question "What type of information do you share online?" from 91 individuals who indicated that they share information online offers insights into the kinds of content they are comfortable sharing. Photographs emerged as the most prevalent type of content shared, with 88 out of 91 respondents indicating they share images online. This underscores the popularity of visual communication and the widespread use of platforms designed for photo sharing. Videos also ranked high, with 73 participants mentioning that they share video content online, reflecting the prevalence of video-sharing platforms and the role of video in online communication. Additionally, a significant number of respondents, 61 out of 91, reported sharing personal data online, indicating a level of comfort with sharing at least some personal information in various online contexts. It's important to note that the "Other" category had only one response, leaving the specific content type unspecified. In summary, the analysis indicates that among the 91 individuals who reported sharing information online, photographs are the most shared content, followed by videos and personal data. This reflects the diverse ways people engage with online platforms and the types of content they are comfortable sharing in the digital age. The presence of a single "Other" response underscores the potential for additional forms of online content sharing that may not fit neatly into predefined categories.

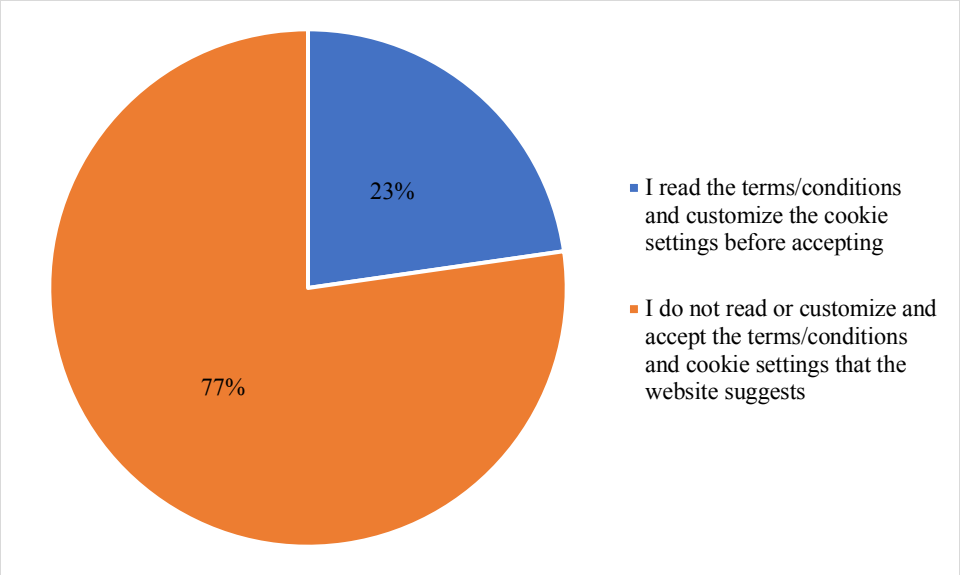

Figure 33 – Question 24: When accessing a new website, what is your action when the notice of terms/conditions and cookie settings appears?

Figure 33 provides information to the question "When accessing a new website, what is your action when the notice of terms/conditions and cookie settings appears?" from 110 individuals, revealing distinct user behaviors and attitudes when faced with these website notices. The majority, comprising 85 out of 110 respondents, adopt a more passive approach by not reading or customizing the terms and conditions and simply accepting the default cookie settings that the website suggests. This behavior suggests that convenience and expediency often outweigh concerns about privacy and a deep understanding of the terms and conditions. In contrast, a minority, consisting of 25 participants, takes a more proactive stance by actively reading the terms and conditions and potentially customizing the cookie settings before providing consent. This group reflects a heightened concern for online privacy and a desire for greater control over personal data. In essence, the analysis reveals that the majority of surveyed individuals choose not to actively engage with the terms and conditions or customize cookie settings when encountering them on a new website. They typically accept the default settings or proceed without further interaction. However, a notable minority does take a more proactive approach by reading and potentially customizing these settings, emphasizing their concern for online privacy and a desire for greater control over their data. This highlights the varying levels of user engagement with website terms and privacy settings in the digital landscape.

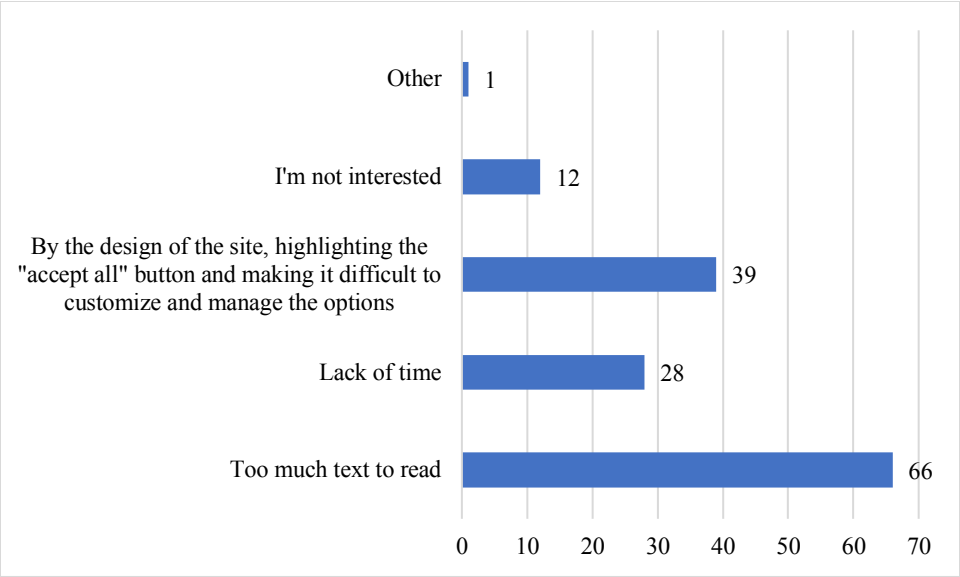

Figure 34 – Question 25: By accepting the terms/conditions without reading and without customizing the cookie settings, what is the reason for doing so?

Figure 34 presents data on the survey question aimed to uncover why users accept website terms and conditions without reading or customizing their cookie settings. Among 110 participants, the most common reason cited was the overwhelming volume of text, with 66 respondents expressing reluctance to engage with lengthy legal documents. Additionally, 28 participants mentioned time constraints as a factor, indicating that some users opt for defaults due to time pressures. Notably, 39 respondents attributed their behavior to the website's design, which emphasized the "accept all" button and made customization difficult, suggesting that design choices may prioritize ease of acceptance over user choice. A smaller group of 12 respondents stated disinterest as their reason, perceiving these elements as irrelevant. Lastly, one participant provided an "Other" response, indicating that they would visit the website either way. Overall, these findings underscore the multifaceted factors influencing users' decisions in this context, informing website designers and policymakers seeking to enhance user engagement with privacy settings and terms and conditions.

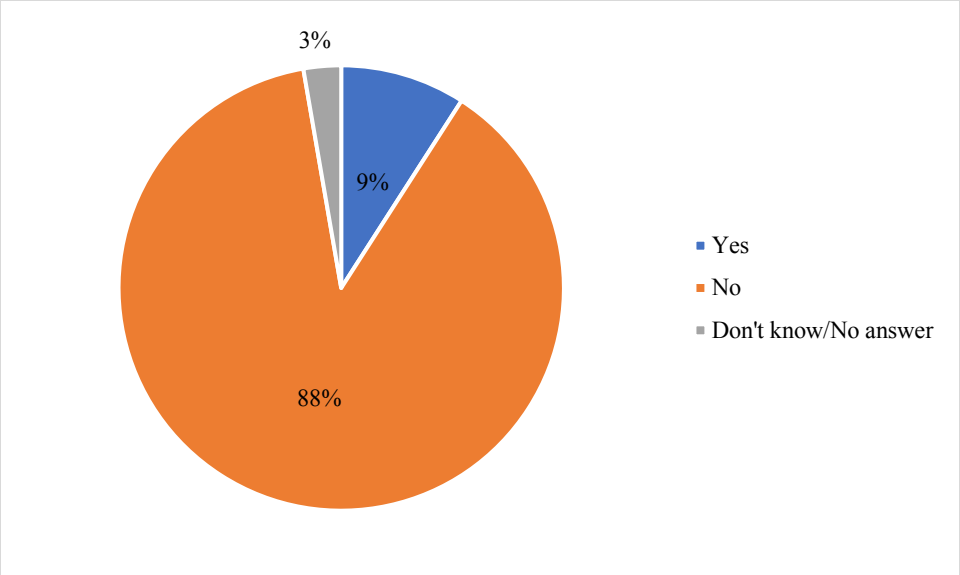

Figure 35 – Question 26: Do you know or have you heard of the Brave browser?

In Figure 35, important information to the question "Do you know or have you heard of the Brave browser?" was collected from 110 individuals, revealing a lack of awareness about the Brave browser within the surveyed group. Only a small minority, comprising 10 out of 110 respondents, indicated that they are aware of or have heard of the Brave browser. This represents a relatively low level of familiarity with the Brave browser among the sample group. In contrast, the vast majority of participants, with 97 out of 110 responses, reported that they do not know or have not heard of the Brave browser. This demonstrates a significant lack of awareness about the browser within the surveyed population. Additionally, three respondents either did not provide a clear answer or expressed uncertainty about their knowledge of the Brave browser, representing a very small subset of the sample. In summary, the analysis highlights a predominant lack of awareness about the Brave browser among the surveyed individuals, with only a small minority indicating familiarity with or knowledge of the browser. This suggests that the Brave browser may not be widely recognized or known within this particular sample group.

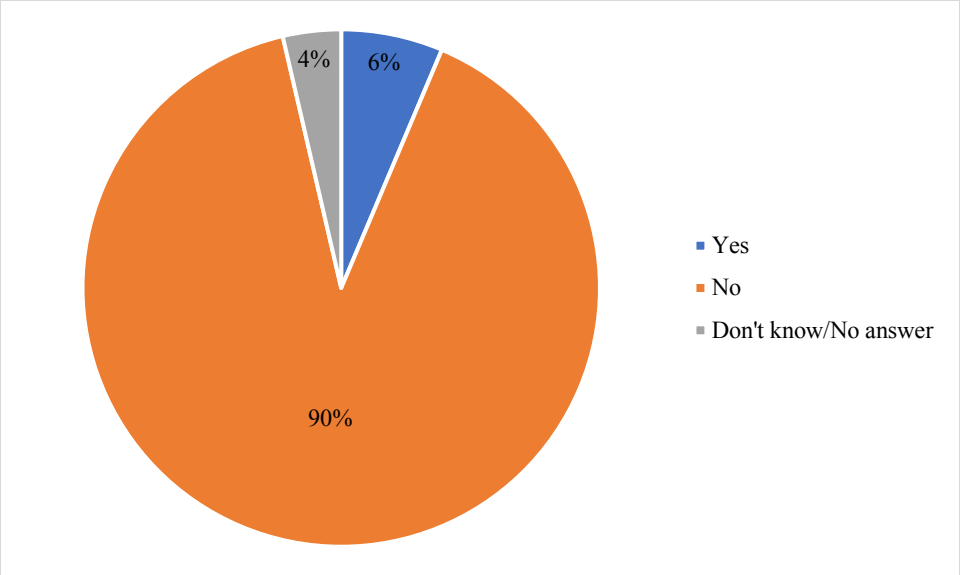

Figure 36 – Question 27: Do you know or have you heard of the Basic Attention Token model?

In Figure 36, important information to the question "Do you know or have you heard of the Basic Attention Token model?" collected from 110 individuals, revealing a notable lack of awareness and knowledge about the Basic Attention Token (BAT) model within the surveyed group. A mere 7 out of 110 respondents indicated that they are aware of or have heard of the BAT model, representing a relatively low level of familiarity with this blockchain-based digital advertising model among the sample group. In stark contrast, the majority of participants, with 99 out of 110 responses, reported that they do not know or have not heard of the Basic Attention Token model. This demonstrates a significant lack of awareness about BAT within the surveyed population. A very small subset of four respondents either did not provide a clear answer or expressed uncertainty about their knowledge of the BAT model. In summary, the analysis underscores a predominant lack of awareness about the Basic Attention Token model among the surveyed individuals, with only a small minority indicating familiarity with or knowledge of the BAT model. This suggests that the BAT model may not be widely recognized or known within this particular sample group.

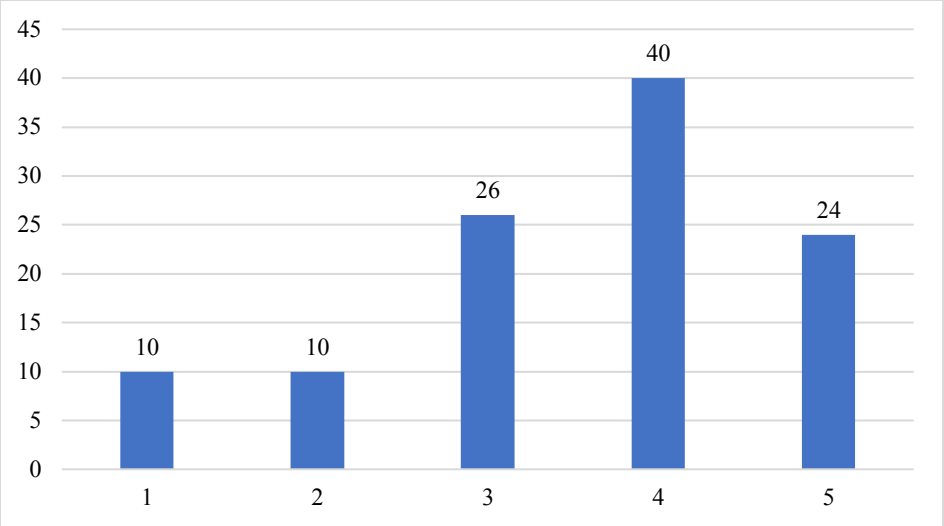

Figure 37 – Question 28: On a scale ranging from 1 to 5, where 1 refers to "Nothing Interesting" and 5 refers to "Very Interesting", how interesting is the Basic Attention Token model to you?

Figure 37 presents data on to the question "On a scale ranging from 1 to 5, where 1 refers to 'Nothing Interesting' and 5 refers to 'Very Interesting', how interesting is the Basic Attention Token (BAT) model to you?" from 110 individuals, revealing a range of interest levels within the surveyed group. A notable portion, 10 out of 110 respondents, rated the BAT model as "Nothing Interesting," indicating a low level of interest. Similarly, 10 participants rated it as a "2," suggesting limited interest. However, a significant number of respondents found the BAT model intriguing, with 26 participants rating it as "Moderately Interesting," 40 as "4" (reflecting a relatively high level of interest), and 24 as "5" (indicating "Very Interesting"). This diversity in ratings underscores varying degrees of enthusiasm and curiosity about the BAT model among those who are familiar with it, despite the majority of the surveyed individuals not being aware of it. It suggests that among those who have knowledge of the BAT model, it garners a range of positive interest levels, with many finding it moderately to very interesting in the context of digital advertising innovation. In summary, the analysis reflects a range of interest levels within the surveyed individuals regarding the Basic Attention Token model. While some participants expressed little to no interest, a substantial number found the model moderately to very interesting, with a notable proportion rating it as a 4 or 5. This suggests that, despite the overall lack of awareness noted earlier, those who are familiar with the BAT model often find it intriguing and noteworthy in the context of digital advertising innovation.

of online advertising. These findings underscore the importance of striking a balance between advertising interests and user preferences to create a more harmonious online ecosystem that respects individual privacy and enhances the user experience.

3.3. Interview

The use of the interview urges from the need to obtain data directly from a professionals' point of view. Thus, to collect more detailed data, an individual interview was conducted with an experience professional specialized in the field of digital advertising, namely researching and buying advertising space for brands to communicate online.

The interview aimed to explore and understand the awareness of working professionals about the concerns on the behalf of users in relation to the current situation of digital ad and online security, with special focus on the collection and use of data for personalization of communication through digital ads, and what efforts professionals are making to mitigate or respond to these concerns. It was also intended to obtain information from a professionals' point of view regarding the impact of adblocking, presenting and gathering his perception on the Basic Attention Token model as a possible solution or preventative measure to be implemented.

This was semi-structured interview, with a list of questions aiming to obtain open qualitative responses through dialogue.

The interviews will have the following general objectives: identify the level of awareness of professionals regarding current user concerns; find out what efforts are being made to address these issues; verify the perception of professionals regarding the adoption of the Basic Attention Token model as a possible solution for strengthening the relationship between consumers adblocker users and brands.

Sample Justification

A survey was carried out among users, both those who use and those who don't use adblocking software, to understand their profile, whether they use the software and their motivations for doing so, as well as their point of view in relation to their data and online privacy

and security. We tried to get the point of view of both the companies and the professionals, however, after attempts and contacting companies to carry out the interview, it was not possible due to their lack of interest and availability, so it was only possible to carry out a semi-structured interview with a professional with more than 17 years' experience in the area. Due to the right to anonymity, no personal details or information about the company or the professional history of the companies he has worked for will be revealed. The selection of the professional in question was due to his profession and area of work, being closely related to the subject of the research, allowing us to obtain information closer to the current professional reality in Portugal.

Individual Interview Results

Table 1 - Question 1, asked during the individual interview.

Q1. "How would you characterize the current situation of digital advertising in Portugal?"

Answer: "The numbers are positive, there is an increasing investment in digital, mainly due to the lower cost of a digital campaign, where not all companies have the budget to invest in traditional media channels. The ease of production and implementation of these campaigns, combined with the ability to segment and direct communication to the desired target, also ends up being a strong reason for increasingly adopting digital communication. For these reasons, the tendency is for online advertising in Portugal to continue to grow".

Table 2 - Question 2, asked during the individual interview.

Q2. "How would you characterize the consumer of digital advertising in Portugal? (e.g. digital literacy, behaviour, needs, data sharing)"

Answer: "The digital consumer in Portugal uses online as a way to find good offers and opportunities. Despite there being an increase in the purchase of products and services online, there is still a lot of "see online, buy offline", being biased due to a "shopping center" culture. There are many commercial areas close to the area of residence, where a lot of time is spent as a form of leisure, something that does not happen in other countries. In this way, as they have more opportunities to purchase physically, consumers continue to prefer to do so, thus creating a mix of digital and in-person.

Although the digital advertising sector in Portugal is growing, due to this behavior, it has not had the expected growth. In terms of digital literacy, older audiences continue to have difficulty understanding much of the language presented both in advertising and in the definitions of the applications or websites themselves. Also, in terms of the techniques used, for example, they cannot understand the difference between organic content and paid content. When you start to look below the 45-50 age range, people start to have more awareness and understand more what is and what is not advertising. Still in terms of digital literacy, people are very used to having things for free, something that happens due to the presence of advertising on the pages they visit, and they end up not being aware of it, with advertising ending up being a necessary evil so that things remain free".

Table 3 - Question 3, asked during the individual interview.

Q3. "What's your point of view on adblocking software?"

Answer: "I don't have the most recent numbers of adblocking use in Portugal, but they were around 20-25%. Adblocking, unfortunately, turns out to be a consequence of poor work done by professionals in the field. It has gone from communicating in a relevant way to communicating in a massive way, seeking great reach. For example, because of exaggeration, the same advertisement is presented to the same person, in the same place multiple times a week, and the professionals responsible end up lacking the notion and discretion of the professionals responsible. Now imagine this situation applied to all brands present in digital and you have a situation of absolute saturation in the consumer, ending up creating a bad impression of digital advertising.

Table 4 - Question 4, asked during the individual interview.

Q4. "Do you or have you ever used adblocking software?"

Answer: "Although I am a very careful person in relation to digital advertising, I do not use adblocking and I do not give up being impacted by online advertising, but I use the features of reporting and blocking an ad that I find intrusive or that saturates me. I've tested adblocking by professional induction in the past, to be able to understand how the software worked, how the page looked without the ads. I understand the use of consumers who end up being saturated, but I recognize many positive things in relation to digital advertising, which can be impacted by relevant ads that end up getting lost with the use of this type of software".

Table 5 - Question 5, asked during the individual interview.

Q5. "What types of responses have been developed by brands/companies to deal with the use of adblockers by users?"

Answer: “What has been done to try to deal with the issue of the use of adblockers, as well as consumer saturation in relation to digital advertising, is to increase digital literacy among professionals in the field. There has been an attempt to implement work strategies focused on creating more impactful and relevant communications for users, avoiding the focus on just showing results in terms of numbers, something that has been done in recent years, but which has not translated into sales or even a better relationship between brands and consumers”.

Table 6 - Question 6, asked during the individual interview.

Q6. "Do you consider the security and privacy concerns of users' data collection to be valid?"

Answer: “The company where I work takes data privacy very seriously, being very conservative in that sense. Personalized communication can be done, for example, through data that is shared on social media such as Instagram or Facebook, even by companies that have not provided data or given permissions to be the target of communication. This is because when being on a social network, the most common thing is that people accept the terms and conditions without any reading or knowledge, thus allowing the data to be shared. In this case, I would consider that it is possible to separate the issue of adblocking and personalization and data privacy, because even without giving permissions to a specific site, or having active ads, through registration, for example, on social networks, the data is already being provided. However, through concrete information that I have, from websites widely used by most consumers in Portugal, from users who even have adblcking software installed, it can be seen that 95% of them do not bother to personalize or reject cookies, simply accepting them. Therefore, in theory there may be a concern about the issue of data privacy and security, but in practice no actions are taken to reinforce this concern".

Tabel 7 - Question 7, asked during the individual interview.

Q7. "What kinds of actions have been taken to respond to users' privacy and security concerns?"

Answer: “The way companies collect, and process consumer data has become more compliant and takes privacy and security more into account. This issue has been put in the spotlight a little more in recent years because of the implementation of the GDPR. Companies have started to rethink the ways in which they communicate, how they collect data and are paying more attention to legal issues, not least because of the large fines that can be imposed if they fail to comply with and respect the regulation”.

Table 8 - Question 8, asked during the individual interview.

Q8. “Since the need to implement the legislation imposed by the GDPR, have there been difficulties in the strategies used to collect and personalize digital advertising content?”

Answer: “At the user level, we can say that the GDPR has harmed the usability of websites. The layers of cookie pop-ups and privacy settings are as or more annoying than advertising itself. Websites end up creating more complex ways, longer paths to customize settings, and using window and button designs that try to influence the user to accept the privacy settings and cookies they recommend. I believe it had theoretical benefits, allowing people the possibility to ask for their data to be forgotten, creating a warning in the big brands that started to communicate more rigorously. However, I don't think it had many practical benefits because it made browsing worse, and brands still don't respect it. From a professional point of view, companies have gained fear, especially due to the amount of money that is due to non-compliance with the GDPR, they had to reinvent themselves using technology and some legal knowledge that perhaps not everyone had before. I wouldn't consider that there were difficulties, but there was a period of habituation but also a greater recourse by companies to their legal department, making it necessary to do everything regularly, complying with the rules. The

collection and use of first party data, which is data provided directly to a brand through, for example, a contractual relationship, was largely regulated by the GDPR, but it is possible, through third party data, to continue communicating with the consumer, even without providing your data directly. The idea that the GDPR comes to protect and save the consumer from advertising is misleading because of this, it does in fact introduce a layer of data protection, because companies need to worry about their first party data, but it does not protect the consumer from being impacted by the same brand through third party data".

Table 9 - Question 9, 10, 11 & 12 asked during the individual interview

Q9. "Do you know or have you heard of the Brave browser?"
Q10. "Do you know or have you heard of the Basic Attention Token model?"
Q11. "What is your perception of this model?"
Q12. "Would you consider that the implementation of solutions along these lines would be beneficial for the relationship between companies and consumers who use adblock?"

Answer: "I haven't heard of the Brave browser or the Basic Attention Token. This model has its strengths, but I think it has some issues that could hinder its expansion and adaptability. What this model suggests is a shift from a current model in which brands know that the user has numerous interests, to a model in which they only have information about a limited number of interests that the consumer decides to communicate, and therefore are no longer impacted by several brands. Often, what the consumer reports is not exactly what they like, what they are consuming at the moment, or what they will consume in the future. In fact, this model would be much more relevant for companies, because the consumer would be impacted by advertising for products that the company sells, making it "perfect" communication tageting. To be able to implement this model, it would mean having to give up the traditional digital advertising model in order to have just the BAT model, because otherwise the model won't scale up and risks being compromised, never being able to convince the public at mass. Consumers' needs vary, there are many cases of users who weren't interested in a product or service category but were impacted and created the need to acquire and consume a product or service. When you limit advertising to

just selected categories, you lose that. That's why, although I understand the functionality and advantages of this model, I find it difficult to succeed".

4. CONCLUSION

The main aim of this research was to answer the central question: "Can the Basic Attention Token Model be a possible solution to ease or counteract adblocker usage and improve brands' relationship and loyalty with customers, while respecting their security and privacy needs?". Along with the desire to answer this question, there was also the curiosity and need to address and deepen the issues of digital advertising, the effect it has on consumers and how the communication made affects the relationship between consumers and brands, taking into account privacy and security in the collection and use of online data.

The 1st chapter began by contextualizing the topic and the research, presenting the objectives, methodology and structure of the study.

The 2nd chapter introduced the state of the art, reviewing the existing literature on the topics covered in the research. As there is a lack of studies with localized information at a Portuguese level, there is a large contribution from international references, further highlighting the importance of new research in order to obtain data focused on Portugal. The literature review began by discussing the definition of digital advertising, understanding how the global market and ecosystem works, which formats are most used to impact the consumer, techniques such as targeting, which allows communication to be personalized through data collection, and the consequences these techniques have on the consumer, causing avoidance. Once the topic of avoidance had been addressed, it was natural to proceed to an analysis of consumer concerns about privacy in digital advertising, taking into account their concerns about targeting, dark design patterns and how the GDPR regulates the collection and processing of data by companies, both in Portugal and internationally. As a result of the bad practices of various companies and advertisers, adblock software has emerged, so it was also important to understand its definition, origin, how it works, and how advertisers have responded to the use of these tools by the consumers. The quest to explore the Brave browser and its BAT token was linked to the search for a solution that would be a win-win situation for all the players in the digital advertising ecosystem in Portugal. The literature review ended with an approach to the topic of Blockchain

technology, explaining its definition, how it can be used in digital advertising and how the decentralization of technology is or is not regulated by legislation such as GDPR.

In this way, the literature review can be organized into 5 important topics of analysis: Digital Advertising; Privacy Concerns in Digital Advertising, Adblock; Brave Browser & Basic Attention Token and finally, Blockchain.

The 3rd chapter aims to complement the theoretical framework of the previous chapter and help answer the central question and verify the hypotheses. To this end, data collection instruments such as a survey and an individual interview were used.

The survey of a group of 110 individuals provided relevant data on the use of adblock by these users in Portugal. The demographic responses showed that 57% of the respondents were female. With regard to the age range of those surveyed, the predominant ages are between 15 and 34 years old, with a greater presence of individuals between 25 and 34 years old, revealing a relatively young sample, something that may explain a set of attitudes, behaviors and preferences. The data on the level of education indicates that the majority of the participants have high levels of literacy, with 87 of the 110 having a bachelor's degree or above, being able to make informed decisions on the issues addressed by the research topic. When asked to rate the importance of online privacy on a scale of 1 to 5, a significant majority of the 110 individuals surveyed, 76 respondents in fact, gave it the highest rating of 5, indicating that online privacy is of the utmost importance to them. This underlines the widespread concern about personal data protection and digital security in the sample group. In addition, 26 people gave a rating of 4 and none indicated values below 2, clearly demonstrating the concern and weight of privacy. Of the 110 respondents, 51% indicated that they use adblock, while 30% do not have this software installed. When asked why they had installed it, the two most mentioned reasons, with 40 answers each, were privacy concerns and the desire not to have their browsing experience interrupted. With the intention of finding out if there was any possibility of these individuals stopping using adblocks, the majority, with 57%, indicated that they would stop using them if their attention was valued. In order to conclude the data collection on the subject of adblock, an attempt was made to find out whether, in the opinion of those surveyed, adblock had a positive impact on the user experience on the Internet, and 100% of the participants indicated that yes, it had a positive impact. Since the vast majority of respondents indicated that online privacy was important or very important, we tried to see if this concern actually translates into action. What

we found was that only 77% of respondents don't customize their cookie settings or read the terms of use, instead clicking the "accept all" button. In theory there is indeed concern about privacy, but in practice few actually take action to protect their privacy and data online. The main reasons given for not customizing these settings are essentially the amount of text to read, with 66 responses, and the design of the sites, which through dark patterns, such as Visual Interference (Mathur et al., 2019), highlight actions that are beneficial to the sites, making it difficult to customize according to the user's preferences. Finally, in order to understand the level of awareness of the Brave browser and BAT, the overwhelming majority indicated that they neither know nor have heard of it. However, after a brief explanation, when asked about their level of interest in this model, although some participants expressed little or no interest, a substantial number found the model moderately to very interesting. This suggests that, despite the general lack of knowledge mentioned above, there is an interest and openness on the part of respondents to the model.

The interview, conducted with a professional in the area of buying advertising space, made it possible to gather important information from the point of view of the professional and the market, in relation to the behavior and type of digital consumer in Portugal, adblocking software, in relation to companies' responses to dealing with the use of this software, how the GDPR has impacted companies and safeguarded consumers and, in particular, whether consumers' concerns about their privacy are valid and, finally, the Brave browser and the BAT model were presented.

The data is particularly interesting because it reinforces a lot of the information obtained in the survey. According to the interviewee, the state of digital advertising in Portugal is positive and growing, with an increasing focus on online, due to its ease of implementation and low cost. As for the characterization of the digital consumer in Portugal, the information obtained gives the impression of a consumer who is very present in digital, but who still buys a lot offline, largely due to the "shopping center culture", which has contributed to limiting the growth in consumption of online products and services and digital advertising. Consumers are digitally literate, especially those under the age of 45, and can distinguish between organic and paid content, for example. Concern about privacy is evident, but as the survey showed, this is still more theoretical than practical. Data provided by the interviewee indicates that 95% of individuals who use adblock software do not customize their cookie settings, accepting the

settings predefined by the site. As for adblocking software, its use is not because consumers don't want to be impacted by advertising, but because of the poor work done by professionals in the field, who saturate consumers with ads that end up being uninteresting and saturating. The solutions that the interviewee says are being implemented in companies are the training of their professionals, so that they have more precise strategies and a more relevant message for the consumer, thus avoiding the use of this software. Another measure that was somewhat "forced" was the change in strategy and greater care in communicating the new GDPR policy. Companies have started to be more careful, particularly because of the large fines to be paid in the event of non-compliance with the regulation. The DGPR has given consumers greater protection by allowing their data to be forgotten by companies. However, this data is only data provided by contractual ties, the so-called "first party data", but the regulation does not apply as much to "third party data", in this case, information provided by sites such as social networks to companies about their users. This is because the consumer does not read the terms and conditions before accepting, thus giving permission for their data to be stored and processed. The GDPR has therefore created a greater layer of protection, but it hasn't changed the paradigm. Finally, the Brave browser and the BAT model were presented. The interviewee believes that the model has its strengths, but that it has some problems that could hinder its expansion and adaptability. In the view of the professional interviewed, the proposal of this model suggests moving from a current model in which brands know that the user has numerous interests, to a model in which they only have information about a limited number of interests that the consumer decides to communicate, thus no longer being impacted by various brands. Often, what consumers communicate is not exactly what they like, what they are consuming at the moment or what they will consume in the future. In this case, this model is more relevant for companies, because the consumer would be impacted by advertising for the products the company sells, making them a "perfect" communication target. However, in the professional's opinion, in order to implement this model, it would be necessary to give up the traditional digital advertising model in order to have only the BAT model, because otherwise the model won't scale up and runs the risk of being compromised, never managing to convince the masses.

Through the data obtained from the literature review and the collection of information through the survey and individual interviews, it was possible to confirm the assumptions of five of the six hypotheses and, to a certain extent, answer the central research question.

Consumers are theoretically concerned about their privacy and the data they share on the internet, but their behavior runs counter to their ideas, and they find it easy to give up certain data or their attention in exchange for something in return. Therefore, in theory, and based on the data obtained in the survey, the BAT model would be accepted with interest by the majority, but only the practical test could indicate whether the model could be viable in the medium or long term, verifying whether it can or not become the new digital advertising model.

4.1. Confirmation and conclusion of the Research Question and Hypothesis

H1: "The adoption and use of adblocking software in Portugal is influenced by factors related to digital advertising practices and correlates with a growing awareness and concern for online privacy and security."

- Survey Findings:
    - A significant portion of respondents indicated that they use adblockers due to concerns over privacy and security (Figure 17). This directly ties to the hypothesis, confirming that these concerns are primary drivers for the adoption of adblocking software.
    - The majority of respondents who use adblockers do so to avoid intrusive ads and protect their personal information (Figures 13 and 14).
- Literature Review:
    - Existing studies highlight the growing trend of privacy concerns among internet users worldwide, including Portugal. This aligns with findings from the survey where respondents expressed high importance for online privacy (Figure 13).
- Conclusion**:**
    - The hypothesis is confirmed as the survey results and literature review consistently show that concerns over privacy and security are key factors influencing the adoption of adblockers in Portugal.

H2: “The utilization of the Basic Attention Token (BAT) model has the potential to alleviate the issue of ad saturation in Portugal's digital advertising space by fostering more relevant and engaging ad experiences for users.”

- Survey Findings:
    - Respondents showed interest in the BAT model due to its promise of delivering more relevant and less intrusive advertisements. A considerable number of participants rated the BAT model as interesting (Figure 37).
    - The frustration with current digital ads, evidenced by high adblocker usage, suggests a demand for alternative advertising models that BAT can fulfill.
- Qualitative Insights:
    - The interview with an industry professional highlighted that traditional ads are often seen as intrusive and irrelevant, supporting the idea that BAT’s personalized approach could be more effective.
- Conclusion:
    - The hypothesis is supported as the BAT model addresses key pain points in digital advertising (ad saturation and irrelevance), making it a promising solution for creating more engaging ad experiences.

H3: “BAT’s transparent and consent-driven approach to digital advertising addresses privacy and security concerns, making it a viable alternative for users and businesses in Portugal.”

- Survey Findings:
    - Many respondents appreciated the idea of a consent-driven advertising model like BAT. The preference for ads that respect privacy and security was clear from the high importance placed on online privacy (Figure 13).
- Qualitative Insights:
    - The industry professional emphasized the growing importance of transparency and consent in digital advertising, which aligns with BAT’s approach and is likely to be well-received by privacy-conscious users.
- Conclusion:

    - The hypothesis is confirmed as both users and industry professionals recognize the value of BAT's transparent and consent-driven model in addressing privacy and security concerns.

H4: "User-brand relations in Portugal's digital advertising space can be improved by BAT through its focus on rewarding users for their attention, thus creating a more positive advertising experience."

- Survey Findings:
    - Respondents showed a positive attitude towards being rewarded for their attention. This aligns with the hypothesis that rewarding users can enhance user-brand relationships (Figure 37).
    - Many users expressed dissatisfaction with current ad practices, indicating a potential for improved relations through models like BAT that reward attention.
- Qualitative Insights:
    - The professional interview suggested that the advertising industry is increasingly looking for ways to build trust and loyalty, which BAT's reward system could support.
- Conclusion:
    - The hypothesis is supported as the BAT model's reward mechanism is likely to foster more positive user-brand interactions, enhancing relationships in the digital advertising space.

H5: "Digital literacy levels among Portuguese adblock users affect their understanding of privacy risks and their ability to navigate privacy settings, influencing their willingness to engage with brands that respect their privacy."

- Survey Findings:
    - Higher education levels among respondents correlated with greater use of adblockers, suggesting that more digitally literate users are more aware of privacy risks (Figure 12).

    - These users also expressed a higher importance for online privacy, indicating that digital literacy impacts their privacy concerns and behaviors (Figure 13).
- Literature Review:
    - Studies have shown that digital literacy influences users' ability to understand and manage online privacy settings, supporting the hypothesis that more literate users are likely to engage with privacy-respecting brands.
- Conclusion:
    - The hypothesis is confirmed as higher digital literacy among Portuguese adblock users leads to greater privacy awareness and a preference for engaging with brands that respect their privacy.

H6: "Portuguese users would reduce or renounce the use of the adblocking software to be more attentive to digital advertisements if they were rewarded for their attention."

- Survey Findings:
    - A significant number of respondents indicated they would consider reducing or disabling adblockers if rewarded for their attention, supporting this hypothesis (Figure 37).
    - The positive reception of the BAT model's reward mechanism indicates a willingness among users to engage with such advertising approaches.
- Qualitative Insights:
    - The interview highlighted that reward-based advertising could shift user behavior, reducing the reliance on adblockers if the ads are seen as beneficial.
- Conclusion:
    - The hypothesis is supported as the idea of being rewarded for attention resonates well with users, suggesting that they would be willing to engage more with digital advertisements under such a model.

4.2. Limitations & Future research

There were some difficulties with the questionnaire, particularly in obtaining a more significant sample. The number of 110 participants is relevant, but it is not representative of the Portuguese population, and the data may not show the national reality.

Another difficulty was reaching out to companies to get their perspective on the BAT model and how it is communicated, taking into consideration data privacy and security and the relationship with the consumer.

Finally, the research has the possibility and opportunity to be continued. This can be done by expanding the survey and interviews, reaching out to a larger sample group and through a practical implementation, using, for example, a privacy-oriented technology such as blockchain. By creating a working prototype, it can be verified whether this model is accepted by a niche or a large part of the population and how easy or complicated it can be to implement by companies and adopted by users.

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Appendixes

Appendixe A

Survey Questions

Survey Questions
Section 1: Demographics Q1: What is your gender? Q2: Within the following ranges, indicate your age. Q3: Please, indicate your level of education. *Section 2: Adblocking* Q4: On a scale ranging from 1 to 5, where 1 is "Nothing Important" and 5 is "Very Important," how important is online privacy to you? Q5: Are you a user of adblocking software? Q6: How did you become aware of adblockers? Q7: On what devices do you have adblocking software installed? Q8: Why did you install adblocking software? (refer to up to 3 options) Q9: In what way(s) do you justify the use of adblocker? (refer to up to 3 options) Q10: Do you think there is any way to give up the use of adblocking in the future? Q11: On a scale ranging from "Strongly Disagree" to "Strongly Agree", how do you rate the following related to online advertising and adblocking use? • Online advertising is intrusive; • Some advertisings, like pop-ups, where I must press "X" to remove are very frustrating; • I see more online advertising today than I did 2-3 years ago; • Not all advertising is bad, but I wish I could filter out everything that doesn't interest me; • I feel like I am being monitored because I see ads for products that I have purchased/researched in the past; • I wish there was an ad filter option instead of blocking advertising;

- Most online advertising looks unprofessional and unpolished;
- People who use adblockers should behave fairly and pay for content differently;
- I don't pay attention to online advertising, even if I don't block it;

Q11: If you are blocked from accessing the content of a website because you are using adblocker, which of the following actions do you usually take?

Q12: Do you think the introduction of adblocking software has created a positive impact on the experience of Internet users?

Section 3: Online Security and Privacy

Q13: Do you share information online?

Q14: What type of information do you share online?

Q15: When accessing a new website, what is your action when the notice of terms/conditions and cookie settings appears?

Q16: By accepting the terms/conditions without reading and without customizing the cookie settings, what is the reason for doing so?

Section 4: Brave Browser and BAT model

Q17: Do you know, or have you heard of the Brave browser?

Q18: Do you know, or have you heard of the Basic Attention Token model?

Q19: On a scale ranging from 1 to 5, where 1 refers to "Nothing Interesting" and 5 refers to "Very Interesting", how interesting is the Basic Attention Token model to you?

Appendixe B

Individual Interview Questions

Q1. "How would you characterize the current situation of digital advertising in Portugal?"
Q2. "How would you characterize the consumer of digital advertising in Portugal? (e.g. digital literacy, behaviour, needs, data sharing)"
Q3. "What's your point of view on adblocking software?"

Q4. "Do you or have you ever used adblocking software?"
Q5. "What types of responses have been developed by brands/companies to deal with the use of adblockers by users?"
Q6. "Do you consider the security and privacy concerns of users' data collection to be valid?"
Q7. "What kinds of actions have been taken to respond to users' privacy and security concerns?"
Q8. "Since the need to implement the legislation imposed by the GDPR, have there been difficulties in the strategies used to collect and personalize digital advertising content?"
Q9. "Do you know or have you heard of the Brave browser?" (If yes, proceed to the next question. If not, explain the browser).
Q10. "Do you know or have you heard of the Basic Attention Token model?" (If yes, proceed to the next question. If not, explain the model in question)
Q11. "What is your perception of this model?"
Q12. "Would you consider that the implementation of solutions along these lines would be beneficial for the relationship between companies and consumers who use adblock?"