Consumers' perception on the advantages and disadvantages of cookies and browsing history

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Abstract. *The new internet technologies have changed radically the communication between consumers and companies and they had an important role in changing the way consumer data is gathered. In comparison to the traditional way in which several surveys and experiments have been done, nowadays the consumer data is stored with the help of different technologies. Nowadays the consumer is online most of the time and his/her entire activity is monitored by the intelligent systems and applications installed on his mobile device. This storage of consumer data gives companies the possibility to personalize the interaction to the consumer, but in the same time it gives an insight in the private life of the consumer. In our research we investigate the attitude and awareness of consumers towards the advantages and disadvantages of the storage of cookies and browsing history. The results show that there is an average perception on the advantages and a higher awareness on the disadvantages.*

Keywords: consumer, cookies, browsing history, data protection, social media networks.

Introduction

The increased use of online environment worldwide has changed the way people communicate, think and act. Time is a precious and limited resource therefore any action that can be made automatically, can have a positive impact for the online user. Nowadays, with the help of the online environment, companies aim to have a real time communication with their customers. Therefore particular services were developed in order to express the customer experience with a certain product or service. The reviews offered directly by the customers are transformed in product ratings and they are used by the companies in order to highlight the transparency of their communication. World-wide digital companies use an enormous volume of data collected directly from its users, based on their browsing experience.

The storage of the browsing history and online activity of the users has several advantages and disadvantages. Personalization and increased efficiency through automated process, are some of the main advantages of online data storage. The main disadvantage refers to the intrusion in the private life of consumers. The collection of big amounts of data about the everyday online activity give to companies and to these intelligent systems an insight in the interest and passions of consumers. This information will allow the intelligent systems to know more about the habits of a consumer and will by this be able to manipulate his behavior by recommendations or by selecting the provided information. The new GDPR law, which aims to reglement the protection of data, gives only a partial solution for the protection of data. The agreements regarding data

protection, which appear when opening any site, contain many information unknown to the user. Consequently many users agree to them without necessarily reading them. In our paper, we present the results of a research about the consumer's perception towards the advantages and disadvantages of online data storage.

Literature review

Nowadays, data represent one of the most important resource a company may have. Gathering information about consumers, helps companies to understand better the interests and preferences of their customers. This is the premise of improving certain characteristics for particular products and the key in designing personalized marketing communication based on customers profiles. In order to collect data, online cookies and the storage of browsing history are used. Besides the social media networks are another important source for consumer information.

Web browsing history represents the totality of web pages that a user visited recently. This option offers the user the possibility to access at any time, his/her past content. This technical possibility allows the user to have access to his past data, without the need of making an extra effort in remembering what he had searched in the past. Among the web browser software, there are also third-party services that are able to register a user's web browsing history. In Google Web History, the clicks are recorded and stored in individual user's histories that they can access anytime (Google MyActivity, 2020). Supplementary Google has the advertising click-tracking for a more efficient advertising targeting. The users can also install the Google Toolbar, which records all the pages that a particular user visits while logged into Google (Google Toolbar, 2020). The main advantage of this tool is that the user can review on any device, his/her web browsing history, but in the same time the stored data can affect its privacy. A web cookie is a part of data sent from a website and stored on the user's device during its online browsing. It was developed for the websites to collect useful information about the user (example: at what items did the user look on an e-commerce site, what products did he put in his shopping cart but did not buy, what size, colour etc.) in order to make his/her online experience more personalized (European Commissions, 2019).

The benefits of using social media represent a topic analyzed in a large number of studies (Sabate et al., 2014). For companies, social media helps the marketing department for customer service and public relations, by using the information communicated between consumers and companies. (Kietzmann et al., 2011; Pop, 2018). Most of the major companies worldwide start analyzing user generated content (Paniagua, et al., 2017) and interactions on social networking platforms (Wagner, et al., 2017) in order to improve their marketing and image. Two billion active Facebook users were registered in 2017 (Brandwatch, 2018a) and between 53% and 50% of Instagram and Twitter users, respectively, follow brands (Mander, 2015). Taking this in consideration, social media has created shift in power to customers (Mangold & Faulds, 2009).

This huge amount of data gathered in the online environment based on browsing history, cookies and different reviews or likes is known as Big Data (Gandomi & Haider, 2015). All these companies require consumer's personal data at registration, accumulating high volumes of personal data information (example: name, address, bank account). Big Data refers to a technique used to examine and process big volumes of data with the purpose of revealing hidden underlying patterns, relationships and other insights concerning a certain application (Costa & Santos 2017). In order to fully benefit from Big Data, the companies must hire dedicated persons who are able to handle large volume of data, to discover patterns in the information and highlight the competitive advantages; the resource is known as the data scientist (Costa & Santos, 2017;

Larson & Chang, 2016). Therefore, even the major part of the analysis on Big Data are made automatically, with the help of pre-programmed procedures, there is still need of a human approach (Pop & Pelau, 2017) for setting specific objectives and prioritizing the data.

The data collected can be divided in first-party data, second-party data and third-party data. First-party data represents the data obtained by the company directly from its users. This can be gathered directly from the company's website reflecting its consumer's behaviour or even non-online activities like punctual surveys developed (Estrada-Jimenez, et al, 2017; Sanchez & Viejo, 2018). The second-party data is the data that was collected by a different company, from which the existing company can purchase information, reflecting another company first-data. The buying is usually made on a private market place. The third-data party represents the data that a company can purchase from a data aggregator company, collected from a large number of publishers (Estrada-Jimenez, et al, 2017; Sanchez & Viejo, 2018).

The most important data represents the first-party data party because of the fact that it contains information about the existing users. This information helps the company in creating particular profiles, personalized ads messages; improve user's interaction with the brand. Based on all of these data, companies can aim to communicate with small groups of potential users generating low-cost investments (Esteban & Hernandez, 2017). From this perspective, advertising data-base are a key element in marketing and they are frequently used in online marketing. The main disadvantage for the user is the fact that their personal data is collected and a behavioral profile is developed. Based on this profile, the consumer can be directed towards some particular decisions.

In order to have the advantage of automated data interpretation, it is required that the user should provide its personal data (Pelau et al., 2019). The GDPR law (applied from 2018) represents the first action for protecting a users' personal data. The GDPR has established rules also for the storage of cookies. The first way for the websites to collect user's data, is if the users allows the platforms to access and storage it. Additional to this, other methods of storing are used such as browsing and search history. Most websites that the user visited will send a cookie in his browser, based on which it can collect information (Estrada-Jimenez et al., 2017). For example, a cookie can remember if a user logged into a website at a certain moment. The access to the stored information is an asset for different advertising platforms that can send personalized messages based on the user's browsing profiles (Estrada-Jimenez, et al., 2017).

As previously mentioned, consumer data has become an important tool for companies. This information can be provided directly by the consumer or it can be collected indirectly by the companies by gathering data from their online experience. According to the GDPR law, the privacy policies have to be mentioned on the site and the user has to accept them in order to access the site. On e-commerce platforms, the users once registered, can receive personalized offers and particular discounts based on their activity, and therefore it's important both for the company and also for the user to use its account and not to create a new one for each interaction. In this way, the data cumulated by the company, can be transformed in a user history that can be explored in the future.

The existing technologies have changed the customer's interactions between them and with the companies (Zhang & Mao, 2016; Pelau & Acatrinei, 2019). Among reviews given on a particular company's site, the customers have now the possibility to communicate and share opinions also on social media platforms. Therefore it's important for the companies to consider also these data (DiStaso & Bortree, 2014), in developing advertising communication. Moreover, the companies are making efforts in generating brand conservations on social platforms (Saboo,

Kumar, Ramani, 2016). Paradoxes is that 96% of persons that communicate about brands on social platform do not follow brand profiles (Brandwatch, 2018b). This represents an area on which brands have to work harder to attract more users to their own profiles in order to increase brand awareness on social platforms.

A high concern is related now to the protection of the users' data. One of the major examples, where personal data of millions of users have been used without their acceptance is the Facebook–Cambridge Analytica data scandal in 2018 (Granville, 2018). In this case the information has been analyzed for political purposes.

Users may or may not be aware of the volume of information that is gather based on their online activities. Still the data and privacy protection policies are now a permanent characteristic of websites (Lloyd, 2018). Based on recent surveys, two out of three internet users are concerned about the fact that their online behavior is used without their knowledge and consent. High amount of advertising messages can degrade a user browsing experience. (Marvin, 2015). It is the customer obligation to read and to accept or deny the using of a particular site or to have his browsing history maintained. As time is perceived as a limited resource, the users may be more open to maintain their browsing history and to easily accept terms of conditions of different websites.

Methodology

The objective of this research is to give an overview of the possible points that contribute to consumer attitudes. On one side the research will focus on the general opinion about cookies and storage of online search history, the advantages of an online consumer experience, the satisfaction with the appearing suggestions based on the stored search history and on the other side the research will focus on the possibility of manipulation of the recommendations based on the search history and the position of the consumers regarding the intrusion in the private sphere.

The research method was the questionnaire that was distributed to 120 people on the internet. The questionnaire had as main objective the observation of the consumers' perception on the subject individualized online advertising and cookies policies. The questionnaire contained 45 items, measured with the help of a Likert scale with values from 1 to 7, where 1 means that they agree little with the scenario or with the presented statement and where 7 means that they fully agree with the statement or with the scenario . The sample contained consumers from different age groups with different levels of education and employment, so that our research could be valid and comprehensive.

The analysis is based on the average values and they are used in order to make comparisons between age groups/differences, education level, gender and income level, as well as comparisons between groups, demographic groups.

Research Personalized offers as consumer's advantages of cookies and browsing history

The first analyzed aspects refer to the respondents' attitudes towards cookies and storing their browsing history on the internet. With this question, we aim to create an overview of the general opinion of consumers regarding the possibility of companies to store and save data about their internet experience. Throughout the analysis, we have made a comparison between the attitudes and perceptions of men and women. The results can be observed in table 1.

For the general item referring to the agreement of consumers that a company may store their search history to facilitate his/her future online activities, we have noticed that women have an average score of 3.462, while men have an average score of 3.275. The difference is not that

significant, but there is a tendency for women to be more open towards this subject. Women are more open to the storage of their data on the internet to create an advantage in the future or to have a simplified activity. Men, on the other hand, are more reserved with a difference of 0.187 when it comes to storing their online activity. Nevertheless, it can be determined that respondents value their privacy, due to the fact that both women and men have average scores less than the general average.

In the following we will focus on the benefits of a personalized consumer experience on the internet. We have focused on the aspects and mindset of the respondents on the issue of the advantages of an online individualized consumer experience. The technology enables nowadays the providing of a special experience for consumers who usually benefit from the automated opportunities. These benefits provide more free time for consumers, which can be used for other purposes, special offers, ongoing relationship between them and the companies, and actually an improved online experience in general/ overall. The positive aspects are appreciated by respondents and companies can take them into account when setting up their future online advertising strategies.

The next item provides information about the respondents' attitudes towards two different statements, the main topic being the automatic online completion of data when someone needs to fulfill it on the internet. The first statement concerns the perception of the surveyed consumer in relation to the storage of online data, which gives the possibility to fill in personal data automatically, quickly and directly. After processing the answers it can be observed that the two average scores for men and women are above average, which shows that the respondents agree with this fact and that it is alright for them to save their data online in order to autocomplete their personal data on other websites. Nevertheless, there is a small difference, the average score of women (3.82) is higher compared to that of men (3.76). This indicates that women perceive a higher benefit in comparison to men. The second statement concerns the time gained by not filling in the data in a repeated manner. Similar to the previous item, women (3.95) appreciate this possibility more than men (3.90). Nowadays time is precious for everyone, and the average marks of answers reflect this fact, since they are also above the middle.

Table 1. Consumer's general attitude towards storing their browsing history

Statement	Women	Men
Agreement on saving the browsing history for a better and more simple future activity on the internet	3.46	3.27
Reading of the cooking policy on the internet	82%	20%
I think it is good that the storage of online data gives me the possibility to automatically and directly complete the personal data	3.82	3.76
I think that valuable time is gained, when the personal data is automatically completed based on previous inputs and online history	3.95	3.90
Cookies make online activity easier	3.24	3.13
Saving my browsing history makes my online experience more interesting	3.40	3.31
Scenario1: After ordering a pizza I receive special offers and discounts for the next orders	4.97	4.98
Scenario2: After ordering a pizza I receive advertisings about the pizza company	2.92	2.86

Source: Own research results

The next items represent the respondents' view of online activity, facilitated by cookies and the stored search history. The main observed trend is that women are more enthusiastic about the

online experience than men. However, all average scores are above the middle, which shows that the general opinion is positive. Both the cookies and the search history play a significant role in the satisfaction of the online experience according to the data received and the consumer are aware of this.

In order to determine the expectations of the consumers regarding the development of online marketing instruments, we have developed two scenarios. In the first scenario, the focus is put on a possible advantage after purchasing a product online by providing a discount for the next order. The average scores show that people are more than willing to receive advertising if they can benefit from them in the future. The difference is very low between men (4.98) and women (4.97). On the contrary, when it comes to the second scenario, in which consumers receive only advertising after a visit on a webpage, people are no longer satisfied with it as they cannot benefit from it. Their tolerance is below average and they feel stalked. The difference between men (2.86) and women (2.92) in this second scenario has a value of 0.064, showing that men are slightly more disturbed compared to women.

One key issue regarding the privacy awareness of consumers consist in the reading of the cookies policy when opening an internet page. The results of the research show that there is a big difference in the behavior of men and women, when it comes to reading cookies policies of visited websites or of online companies. To the statement "I usually read the cookie policies of online businesses and websites I visit" there is a big contrast between the answers of women and men: 82% of women have confirmed that they usually read the cookies policy. The other 18% of women and the majority of men responded that they do not read the cookies policy. Only 20% of men read the cookie policies according to the received answers. The women are more aware of the risks that might occur on the internet and so this is the explanation of why this result has come up. The men who have answered "No" do not pay attention to details or have no interest or time to learn more about the cookies policies.

Data protection and intrusion in personal life as main disadvantages of cookies and browsing history

In this subchapter, we will present the negative aspects of cookie policies and search history storage that do not bring any advantage to the consumers. Influencing people by constantly reminding them about the websites they visit or products they could prefer, the lack of understanding of the cookie policy and what will happen with their personal data can bring a negative feeling in the foreground. The first statement concerns the opinion of people depending on the age group, whether they can be manipulated. According to the calculated data and average scores, more than half of them believe that by knowing the search history a company cannot influence their behaviour on the internet (4.45 for people younger than 30 years and 4.71 for people older than 30 years). The difference between the age categories is very low, which means that respondents are certain that they cannot be controlled. On the other hand, the second statement brings to the foreground people's attitudes towards other internet users. They consider that the others can be manipulated if someone knows their search history (5.41 for people younger than 30 years and 5.50 for people older than 30 years). It is remarkable that everyone thinks that they cannot be manipulated, but when it comes to other people, they are sure that others can be easily influenced. The difference between age categories is very small, the age does not matter, because regardless of that the opinion is almost the same. The research results can be observed in table 2.

Table 2. Consumers' disadvantages related to their browsing history storage

Statement	Younger than 30 years	Older than 30 years
I am not manipulated by knowing my browsing history	4.45	4.71
People can be manipulated if their browsing history is known	5.41	5.50
The websites that do not allow access without confirmation of the cookie politics disturb me	6.22	6.22
I feel constrained to be exposed on the internet as most websites require confirmation of cookie policy in order to access information	5.66	5.70

Source: Own research results

Further on, we will analyze the users' attitude towards the intrusion in the private sphere. Our research will focus on analyzing if the internet is a factor which constantly monitors people's private lives and which is not considered trustworthy. Although everyone makes the decision whether he/ she publishes something on the internet or agrees/likes something, there are also cases when people feel obliged to accept or post more. Storing the search history also helps to establish such an opinion. Internet, home devices and all mobile applications are present in our lives and play an important role, so it is difficult to stay away from them. The daily routine includes using the internet in order to stay in touch with family, friends, but also to meet job requirements. People should find a balance to protect their private life. If we take a look at the above statements, there can be observed that people are disturbed when it comes to not being able to access desired websites without accepting different data protection policies. The average results from the first statement are equal regardless of age category (6.22 for all age groups). For all consumers it is annoying to get such requirements, namely to agree with the cookie policies in order to have access to the wanted web pages. The average results for the second statement are also very similar (5.66 for people younger than 30 years and 5.70 for people older than 30 years). Nevertheless, all the average results calculated for these items are above average, which is a sign that online companies that have such requirements on their websites should pay attention. For the moment consumers feel forced and under pressure, but if they had an alternative, they might not visit these websites anymore, which could have a negative impact on the performance of these online companies in the long run. The statement related to the willingness of consumers to grant their personal data in order to obtain some benefits has received average values (3.53). There is an average value for both groups, which means that respondents are not sure if they would actually choose this option in case they were actually confronted with this scenario.

Conclusion

The results of our research show that the consumers have an average evaluation of the perceived advantages of the storage of browsing history and a higher awareness of the disadvantages and risks involved. The most interesting results refers to the materialistic behavior regarding the fact that consumers are willing to give their data for some material benefits. The two scenarios analyzed in the research show that the consumers prefer the situation in which they receive a certain discount for providing their browsing data.

The second important result is the fact that consumers believe that others might be more manipulated by the intelligent systems that store their data, in comparison to themselves. They see the risk of manipulation more as a general risk than a threat for their own behavior. This is an interesting result which depends to a high extent to the cognitive ability of the user to sort out the information he/she receives from the recommendation systems based in the stored online data. In

is interesting to further research this situation and the reason behind it. However the topic of data storage remains an important one and it still needs further research on the balance between the amount of data given by any online user and the advantages he receives for this.

References

- Brandwatch (2018a). Facebook statistics. Available at <https://www.brandwatchis.com/blog/47-facebook-statistics/>, Accessed date: September 2018.
- Brandwatch (2018b). Social media statistics. Available at <https://www.brandwatch.com/blog/amazing-social-media-statistics-and-facts/>, Accessed date: September 2018.
- Costa, C., & Santos, M. Y. (2017). The data scientist profile and its representativeness in the awEuropean e-Competence framework and the skills framework for the information age. *International Journal of Information Management*, 37(6), 726–734.
- DiStaso, M. W., & Bortree, D. (2014). *Ethical practice of social media in public relations*, Taylor and Francis
- Esteban, L.; Hernández, J.M. (2017). Direct advertising and opt-in provisions: Policy and market implications. *Information Economics and Policy*, 39, 15-25.
- Estrada-Jimenez, J.; Parra-Arnau, J.; Rodríguez-Hoyos, A.; Fornec, J. (2017). Online advertising: Analysis of privacy threats and protection approaches. *Computer Communications*, 100, 32-51, <http://dx.doi.org/10.1016/j.comcom.2016.12.016>.
- European Commission (2019). The EU Internet Handbook - Cookies, retrieved from: http://ec.europa.eu/ipg/basics/legal/cookies/index_en.htm, accessed: 27.01.2019.
- Gandomi, A.; Haider, M. (2015). Beyond the hype: Big data concepts, methods, and analytics, *International Journal of Information Management*, 35(2), 137-144.
- Google MyActivity (2020). View & control activity in your account, retrieved from: https://support.google.com/accounts/answer/7028918?visit_id=637170968381665498-3490740214&p=my_activity&hl=en&rd=1, accessed on: 12.02.2020.
- Google Toolbar (2020): Take the best of Google everywhere on the web, retrieved from: <https://www.google.com/intl/en/toolbar/ic/index.html>, accessed on: 12.02.2020
- Granville, K. (2018). Facebook and Cambridge Analytica: What You Need to Know as Fallout Widens, The New York Times, retrieved from: <https://www.nytimes.com/2018/03/19/technology/facebook-cambridge-analytica-explained.html>, accessed on: 12.02.2020.
- Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons*, 54(3), 241-251.
- Larson, D.; Chang, V. (2016). A review and future direction of agile, business intelligence, analytics and data science. *International Journal of Information Management*, 36(5), 700-710
- Lloyd, I. (2018). From ugly duckling to Swan. The rise of data protection and its limits, *Computer Law & Security Review*, 34(4), 779-783.
- Mander, J. (2015). Half of Instagrammers follow brands. Available at <https://blog.globalwebindex.net/chart-of-the-day/half-of-instagrammers-follow-brands/>, Accessed date: 30 September 2017.
- Mangold, W.G.; Faulds, D.J. 2009. Social media: the new hybrid element of the promotion mix. *Bussines Horizons*, 52, 357–365.
- Marvin, G. 2013. Consumers now notice retargeted ads, retrieved from: Tech. rep. <http://marketingland.com/3-out-4-consumers-notice-retargeted-ads-67813>, accessed on: 12.08.2015.
- Paniagua, J., Korzynski, P., & Mas-Tur, A. (2017). Crossing borders with social media: Online social networks and FDI. *European Management Journal*, 35(3), 314-326.

- Pelau, C.; Acatrinei, C. 2019. The Paradox of Energy Consumption Decrease in the Transition Period towards a Digital Society, *Energies*, 12(8), Article 1428, <https://doi.org/10.3390/en12081428>.
- Pelau, C.; Stanescu, M.; Serban, D. 2019. Big-Data and Consumer Profiles – The hidden traps of data collection on social media networks, Proceedings of the 13th International Conference of Business Excellence (ICBE), 1070-1078.
- Pop, N.Al. (2018), Quo Vadis Romanian Marketing: The Future and Contribution of the Romanian Community, in: Vaduva S.; Wilt, R.; Fotea, I.; Vaduva L.P. (2018): *Civil Society: The Engine for Economic and Social Well-Being*, Springer.
- Pop, N.Al.; Pelau, C. (2017). Correlations within the EFQM Business Excellence Model by Applying a Factor Analysis, *Amfiteatru Economic*, 19(44), 28-40.
- Sabate, F., Berbegal-Mirabent, J., Canabate, A., & Lebherz, P. R. (2014). Factors influencing popularity of branded content in Facebook fan pages. *European Management Journal*, 32(6), 1001-1011.
- Saboo, A. R., Kumar, V., & Ramani, G. (2016). Evaluating the impact of social media activities on human brand sales. *International Journal of Research in Marketing*, 33, 524–541.
- Sanchez, D.; Viejo, A. (2018). *Privacy-preserving and advertising-friendly web surfing*, *Computer Communications*, 130, 113-123.
- Wagner, T. F., Baccarella, C. V., & Voigt, K.-I. (2017). Framing social media communication: Investigating the effects of brand post appeals on user interaction. *European Management Journal*, 35(5), 606-616.
- Zhang, J., & Mao, E. (2016). From online motivations to ad clicks and to behavioral intentions: An empirical study of consumer response to social media advertising. *Psychology and Marketing*, 33(3), 155–164.