Speak Up! Legal Challenges in the Light of the Determination of Emotion in Conducting Targeted Advertising through a Voice Recognition Device

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Article Info

ABSTRACT

Artificial Intelligence (AI) technology keeps on being developed and has started to emerge into some devices and/or machines. AI can be embedded in many forms, and one of them is voice recognition technology. This technology that offered a human-like interactive feature has featured such as in iPhone Siri and Amazon Alexa. The rising trend of this technology also showed when Amazon has been granted a new patent regarding its virtual assistant, Alexa, in 2018. According to the patent, the device will automatically infer the user's voice to determine their emotion in order to generate targeted advertisements. This patent hence posed a risk of harming the user's autonomy since the user is unable to leave their emotions to go undetected by the device. Therefore, the commodification of emotion could challenge the adequacy of the current legal regimes, in particular, data protection and consumer laws since both have the primary concern to protect the autonomy and dignity of consumers. This research aimed to analyse whether the current European data protection and consumer laws are adequate to mitigate the risks posed by the commodification of emotion to conduct targeted advertising in the voice recognition technology.

ABSTRAK

Teknologi *Artificial Intelligence* (AI) terus dikembangkan dan mulai muncul di beberapa perangkat dan/atau mesin. AI dapat ditanamkan dalam berbagai bentuk, salah satunya adalah teknologi pengenalan suara. Teknologi yang menawarkan fitur interaktif mirip manusia ini sudah diterapkan, misalnya pada iPhone Siri dan Amazon Alexa. Perkembangan tren teknologi ini juga terlihat ketika Amazon mendapatkan hak paten baru terkait asisten virtualnya, Alexa, pada tahun 2018. Berdasarkan paten tersebut, perangkat Alexa dapat secara otomatis mendeteksi suara pengguna untuk menentukan emosi mereka guna mengirimkan iklan bertarget. Paten ini dapat berisiko membahayakan otonomi pengguna karena pengguna tidak dapat mencegah agar emosi mereka tidak terdeteksi oleh perangkat. Oleh karena itu, komodifikasi emosi dapat menguji apakah hukum yang berlaku saat ini telah cukup untuk mengatasi permasalahan tersebut, khususnya hukum perlindungan data pribadi dan perlindungan konsumen dikarenakan keduanya memiliki perhatian utama untuk melindungi otonomi dan martabat konsumen. Penelitian ini bertujuan untuk menganalisis apakah hukum perlindungan data pribadi dan undang-undang perlindungan konsumen di Eropa pada saat ini telah cukup untuk memitigasi risiko yang ditimbulkan oleh komodifikasi emosi untuk melakukan periklanan bertarget dalam teknologi pengenalan suara.

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INTRODUCTION

The development of artificial intelligence (AI) was sown long before the trend of modern computer. Throughout time, AI started to emerge and being deployed in a wide variety of devices and machines to help the humankind. AI could best be defined as a set of techniques aimed at approximating some aspect of human or animal cognition using machines.[1] This technology has the ability to recognize a voice of an already known person by encode a voice and store some representation of it in its memory.[2] The blooming of voice recognition feature has started to expand in personal digital assistant technology such as iPhone Siri and Amazon Alexa.[3] This technology offers a human-like interactive feature as a part of its functions.

In 2018, Amazon has been granted a new patent on its virtual assistant, Alexa. The patent on 'voice-based determination of physical and emotional characteristics of users' could enhance the performance of Alexa, which enables the device to monitor and detect real-time emotional states of the user. At first, the device will store some representation of the voice data and combine it with the user's traits. Afterwards, when the device receives voice input from the user, it will automatically determine the emotional states of the user based on their pitch and the volume of the voice. Moreover, Alexa will be able to present targeted advertising based on the detected emotional state of the user.[4] The patent posed a risk of harming the user's autonomy since the user is unable to leave their emotions to go undetected by the device. It can enhance autonomy when it improves the ability to make informed choices, whereas it can diminish autonomy when it interferes with or pre-empts choices and imposes preferences of the user.[5]

Consumer laws are trying to overcome this power imbalance by protecting the consumer from unfair commercial practices that can threaten their autonomy. Consumers can be considered as weak due to the mental or physical constraints, or because there is a little access to the product information.[6] Due to the nature of collecting, storing, and sharing the data to provide the user with a tailored advertisement, the obligation on the data protection regulatory framework shall be imposed on Amazon. The General Data Protection Regulation (GDPR) gives a wide range of what constitutes personal data. However, emotion is not

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[1] Calo, Ryan, 'AI Policy: A Primer and Roadmap' (August 8, 2017). Available at SSRN: https://ssrn.com/abstract=3015350 or http://dx.doi.org/10.2139/ssrn.3015350.

[2] V. A. Mann, R. Diamond, and S. Carey, 'Development of Voice Recognition: Paralles with Face Recognition' (1979) Journal of Experimental Child Psychology 27 <https://ac.els-cdn.com/0022096579900675/1-s2.0-0022096579900675-main.pdf?_tid=eb89e742-e228-420a-930a-636baa0291f1&acdnat=155240561460b2254f97818d7dcbfd0ff315d7c8f3>153> accessed 8 March 2019.

[3] Smartsheet 'How Voice Assistants Are Changing Our Lives' (Smartsheet, 2019) <https://www.smartsheet.com/voice-assistants-artificial-intelligence> accessed 17 December 2019.

[4] Jin, et.al. 'Voice-Based Determination of Physical and Emotional Characteristics of Users'. Patent No: US 10,096,319 B1, 9th Oct 2018, United States Patent and Trademark Office.

[5] Eliza Mik, 'The Erosion of Autonomy in Online Consumer Transactions' (2016) 8 Law, Innovation and Technology <https://ink.library.smu.edu.sg/sol_research/1736/> accessed 16 December 2019, page 2.

[6] Vanessa Mak, 'The Image(s) of The Consumer In EU Law: Legislation, Free Movement and Competition Law', *The Image(s) of the Consumer in EU Law: Legislation, Free Movement and Competition Law* (Hart Publishing) <https://pure.uvt.nl/ws/portalfiles/portal/21601106/Mak_The_Images_of_the_Consumer_in_EU_Law_16.pdf> accessed 16 December 2019, page 382.

accounted for in the GDPR since in most cases of emotion detection, personal data is not generated to separate one person from the next.[7]

The use of voice in Amazon Alexa emotion recognition may lead to the classification of emotion under the notion of biometric data regulated by Article 9 GDPR. The biometric recognition establishes the person identity based on his inherent physical and/or behavioral traits either in fully automated or semi-automated manner.[8]

The GDPR provides an exhaustive list of exemptions in which processing of sensitive data can still be conducted. Therefore, the processing of data should be analysed in each layer of exemption stated in Article 9 (2) GDPR. However, since the technology may pose some risks from the perspective of human autonomy, one could question the lawfulness of the data processing when it is based on consent. Therefore, if consent as the basis of processing is not valid, there are other processing grounds that need to be considered.

The utilization of emotion embedded in various devices is a rising phenomenon in the development of AI.[9] Combined with machine learning, this sensing facilitates emotional intelligence to detect the emotions, learning the human behaviour, and to respond to it accordingly.[10] Due to the robust popularity of voice recognition, there is a plan to equip the voice recognition device with the ability to detect the user's emotion. One of the embodiments is the patent publication on Amazon Alexa emotion recognition.

There are previous literatures that mainly discuss the development of emotion AI. However, there is no specific literature that address the issue of emotion AI in the form of voice recognition as a marketing tool. It may reveal emotional states of the user, physical condition of the user, or other personal traits such as age and gender. Service providers may build a profile based on these states to target the user with a suitable advertisement.

The commodification of emotion could challenge the adequacy of current legal regimes. Data protection and consumer law both have the primary concern to protect the autonomy and dignity against the negative use of nudge theory, framing and behavioural economics. Therefore, it is crucial to determine whether the current legislations in both regimes are adequate to overcome the issue.[11]

METHODS

The journal will use doctrinal legal research. It aims to identify the law, as well as the development and the implementation in the issue chosen. This is purely theoretical research that consists of either simple research aimed at finding a specific statement of the law, or

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[7]   Andrew McStay, *Privacy and The Media* (SAGE Publications 2017), page 142.

[8]   Anil K Jain, et.al., *Introduction to Biometrics* (Springer-Verlag New York 2011), page 2.

[9]   Andrew McStay, 'The Right to Privacy in The Age of Emotional AI' (2018) Report for the Office of The United Nations High Commissioner for Human Rights <https://www.ohchr.org/Documents/Issues/DigitalAge/ReportPrivacyinDigitalAge/AndrewMcStayProfessor%20of%20Digital%20Life,%20BangorUniversityWalesUK.pdf> accessed 16 December 2019, page 2.

[10]   *ibid.*

[11]   Ranya Aloufi, 'Emotionless: Privacy-Preserving Speech Analysis for Voice Assistants' (2019) arXiv <https://arxiv.org/pdf/1908.03632.pdf> accessed 16 December 2019, page 1.

legal analysis with more complex logic and depth.[12] There will be an analysis on the primary sources of law which include relevant laws, regulations, case laws, and patent publication. However, the analysis will also use secondary sources such as doctrines, literatures, and legal reviews that could support the analysis.

RESULTS AND DISCUSSION

1. The Overview of Targeted Advertising in Amazon Alexa Emotion Recognition

1.1 The Rise of Emotion AI

Emotion itself can best be defined as the physiological response to external stimuli.[13] Furthermore, advertising researchers are learning to measure and evaluate how emotion can influence the overall impact of advertising.[14] The increased study on emotion has leveraged into the field of AI. There is a current trend to develop AI that can comprehend the emotion of a human being, which mostly defined as affective computing. The idea behind active computing is a belief that even though the machine does not feel the emotion, computer science can be designed to process, recognize, interpret, and simulate the human affect to improve the quality of the communication and the intelligence of the computer.[15]

The recognition of emotion can be inferred from speech intonation of a human being. The first step to getting the machine to learn the emotion is by gathering either primary input data or the secondary input data. The primary input can be the recordings of actors which express different emotions by reading the same text, while the secondary input could be using already existing databases, which were developed by other researchers.[16] Furthermore, from the acquired data, a machine can extract the features from a voice to find statistical relationships between particular features and emotional states.[17]

There is also a categorization of emotion, in which the computer will determine the most possible emotional state from the input data. The classification of emotions falls into two categories: discrete form and continuous form. The discrete form only provides emotion types which consists of anger, disgust, fear, joy, sadness, and surprise. Whereas, the

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[12] Salim Ibrahim Ali, et.al., 'Legal Research of Doctrinal and Non Doctrinal' (2017) Volume 4 (1) International Journal of Trend in Research and Development', <https://www.researchgate.net/publication/316895684_Legal_Research_of_Doctrinal_and_Non-Doctrinal/link/5917225a4585152e19a102a3/download> accessed 17 April 2019, page 493.

[13] Gerard J Tellis and Tim Ambler, *The SAGE Handbook of Advertising* (SAGE Publications 2007), page 121.

[14] Abhilasha Mehta and Scott C. Purvis, 'Reconsidering Recall and Emotion in Advertising' (2006) 46 Journal of Advertising Research <http://gandrllc.com/reprints/mehtapurvisreconsideringrecall.pdf> accessed 14 June 2019.

[15] Hernani Costa and Luis Macedo, 'Affective Computing' ATCM State of the Art, Theoretical Report <https://pdfs.semanticscholar.org/f975/956b107b4546570481f12d290ca936bccfef.pdf> accessed 14 June 2019.

[16] Sergej Lugovic, Marko Horvat and Ivan Dunder, 'Techniques and Applications of Emotion Recognition in Speech', 39th International Convention on Information and Communication Technology, Electronics and Microelectronics · MIPRO 2016 (2016) <https://www.researchgate.net/publication/303824219_Techniques_and_Applications_of_Emotion_Recognition_in_Speech> accessed 17 July 2019, page 1553.

[17] *ibid*.

continuous form describes the emotional state in a continuous space with different dimensions.[18]

Emotion AI also started to be implemented in the digital advertising industry to gain an insight into consumer behavior. Large-scale consumer data analysis and prediction will be easily done through emotion AI.[19] Affectiva is one of the businesses that offer emotion AI which combined both face and speech detection in order to gain insights into human expression of emotion for market research and advertising.[20]

1.2 The Process of Targeted Advertising Generated by Emotion in Amazon Alexa Patent Publication

In 2018, Amazon was granted a patent on the 'voice-based determination of physical and emotional characteristics of users' by the United States Patent Office.[21] The patent sought to enhance the skills of Amazon Alexa devices, which will enable Alexa to monitor and detect real- time emotion abnormality from the user. The whole system of Alexa relies on data machine learning which improve the overall service of Alexa and reduce the error in understanding the context of the user's request.[22]

According to the patent, Alexa will be able to give suggestions and recommendations tailored to the current emotional status of the user. These suggestions and recommendations are targeted advertising from third-party advertisers. The patent creates a scenario in which a singer could target the 'tired' or 'bored' users by paying adverts on Alexa to recommend their new album.[23]

To explain in a more detailed manner, the whole process in the patent publication should be outlined. The process consists of five stages which starts when Alexa receives audio input from the user. The recording of the user's request will be sent to the cloud which interprets the recording into commands it understands.[24] Alexa has the ability to detect the trigger

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[18] Weihui Dai, et.al., 'Emotion Recognition and Affective Computing on Vocal Social Media' (2015) 52 Information & Management <https://www.sciencedirect.com/science/article/pii/S037872061500018X> accessed 17 July 2019, page 778.

[19] Rhoda Sell, 'The Future of Advertising: AI & Creativity' (Becoming Human: AI Magazine, 2018) <https://becominghuman.ai/the-future-of-advertising-artificial-intelligence-creativity-522e969d194b> accessed 14 June 2019.

[20] ' Emotion AI Overview: what is it and how does it work?' (Affectiva) <https://www.affectiva.com/emotion-ai-overview/> accessed 14 June 2019.

[21] Jin, et.al. 'Voice-Based Determination of Physical and Emotional Characteristics of Users'. Patent No: US 10,096,319 B1, 9th Oct 2018, United States Patent and Trademark Office.

[22] Brian Barrett, 'The Year Alexa Grew Up' (WIRED, 2018) <https://www.wired.com/story/amazon-alexa-2018-machine-learning/> accessed 19 July 2019.

[23] James Cook, 'Amazon Patents New Alexa Feature That Knows When You're Ill and Offers You Medicine' (The Telegraph, 2018) <https://www.telegraph.co.uk/technology/2018/10/09/amazon-patents-new-alexa-feature-knows-offers-medicine/> accessed 19 July 2019.

[24] Bernard Marr, 'Machine Learning In Practice: How Does Amazon's Alexa Really Work?' (Forbes.com, 2018) <https://www.forbes.com/sites/bernardmarr/2018/10/05/how-does-amazons-alexa-really-work/> accessed 19 July 2019.

words as an indication of the user's request. The trigger words may involve inquiries, requests for information, or requests for suggestions.[25]

1.3 Inferring Voice Into Emotion in Amazon Alexa Emotion Recognition Patent Publication

The whole process of processing audio input to generate targeted advertising will start with Alexa sending the audio input to the cloud. The audio input is converted into texts by analysing the speech pattern such as the pitch and frequency contained in the voice.[26] In this stage as well the emotional states of the user can be inferred to determine the most suitable advertisement as the suggestion and recommendation from Alexa.

Alexa store some representations of the real-time emotional state of the user in its memory. These representations are defined as data tags. The data tags are metadata with one or more labels, text, or other data that can be associated with the voice data in order to indicate the real-time user's status.[27] Combining the voice data with the real-time traits of the user represented in the data tags, the voice processing server in the second stage will be able to determine the current emotional states of the user. The signal processing algorithm will also be applied to the voice data in order to determine the real-time emotional state of the user.

The determination of the user's default state is made possible due to the machine learning technique in which Alexa will improve their service after a certain period of usage. Emotional states may be determined based at least in part of an analysis of pitch, pulse, voicing, jittering, and the harmony of a user's voice, as determined from processing of the voice data.[28]

In the fourth stage, it has been said that the audio content presented to the user is selected based on the winner in the auction process of the advertising slot. The auction involves sending a bid request to the advertisers in order to determine the winning bid.[29] This method is similar to the process in the Google AdWords auction, which determines whether the advertisement is relevant to be shown to the user as well as the position of the advertisement on the page.[30]

Alexa will also implement the auction method to determine the rank of the presented audio content. The audio content server will give scores to each relevant advertisement based on threshold will be set to retain the relevance of the advertisement which delivered to the user. The audio creative quality or bandwidth, relevancy to the user, and the bid price.[31] In Alexa,

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[25] *ibid*, n(21).

[26] Alexandre Gonfalonieri, 'How Amazon Alexa Works? Your Guide to Natural Language Processing (AI)' (Medium, 2018) <https://towardsdatascience.com/how-amazon-alexa-works-your-guide-to-natural-language-processing-ai-7506004709d3> accessed 18 December 2019.

[27] *ibid*, n(21).

[28] *ibid*, n(21).

[29] *ibid*, n(21).

[30] Google Ads Help, 'Ad Rank' <https://support.google.com/google-ads/answer/142918?hl=en> accessed 17 June 2019.

[31] *ibid*, n(21).

the relevance threshold may be in the form of alphanumeric or category-based.[32] According to the patent publication, the examples of targeting criteria might include age, demographic, or browsing history. The candidate audio content will be ranked and if there is a match or partially match with the data tags, it will be selected as the audio content.

2. The Risks and Challenges Posed by Amazon Alexa Emotion Recognition

2.1 Emotion Monetization and the Concept of Consumer Vulnerability

Technological change may have the corresponding advantages and disadvantages since technology could codify the world and influence people to use their minds and their bodies, and how it could disregard our emotional and intellectual tendencies.[33]

The whole scheme in the patent for Amazon Alexa emotion recognition will revolutionize the way advertisers assess the behavior of the user to measure and evaluate the compatibility of their product in the targeted market. Targeted marketing has received criticism due to the perceived harmfulness of the product and the perceived vulnerability of the target.[34] Most explorations of consumer vulnerability address lack of personal control as a primary part of the experience of consumer vulnerability.[35] Therefore, when consumers are unable to control their attention, behavior, or emotions, then their responses are beyond their control, aversive, and part of their experience of vulnerability.[36]

The spectrum of vulnerability may vary for each consumer depending on their demographic or individual states and highly related to their perceptions towards certain stimuli in the marketing context. Vulnerable consumer will more likely to be influenced by the advertisers which can lead to impulsive buying, excessive consumption, and conspicuous consumption.[37]

European Commission set an indicator of what can be categorized as vulnerable consumer based on the socio-demographic characteristics, behavioral characteristics, personal situation, and market environment. Vulnerable consumer can be defined as certain consumer that is being put on a high risk of negative outcomes in the market, has difficulty to obtain or assimilate information, and is more susceptible to certain marketing practices. [38] Therefore, there are two categories of consumer vulnerabilities: vulnerability which relates

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[32] *ibid*, n(21).

[33] Neil Postman, 'Five Things We Need to Know about Technological Change' (UC Davis, 1998) <https://web.cs.ucdavis.edu/~rogaway/classes/188/materials/postman.pdf> accessed 22 June 2019 page 3.

[34] N. Craig Smith, Elizabeth Cooper-Martin, 'Ethics And Target Marketing: The Role of Product Harm and Consumer Vulnerability -, 1997' (SAGE Journals, 1997) <https://journals.sagepub.com/doi/abs/10.1177/002224299706100301> accessed 30 July 2019 page 3.

[35] Stacey Menzel Baker, et.al., 'Building Understanding of The Domain of Consumer Vulnerability' (SAGE Journals, 2005) <https://journals.sagepub.com/doi/abs/10.1177/0276146705280622> accessed 30 July 2019, page 131.

[36] *ibid*, page 131.

[37] Hua Yu Shi, et.al, 'The Concept of Consumer Vulnerability: Scale Development and Validation' (2019) <https://www.researchgate.net/publication/319504498_The_Concept_of_Consumer_Vulnerability_Scale _Developm ent_and_Validation> accessed 27 June 2019.

[38] *ibid*, page 2.

to personal attributes of the consumer, and a wider context that involve the consumers and the traders in particular transactional situations.[39]

The EU consumer laws have the objective to protect the weaker party as well as ensure autonomy and freedom of decision-making of the consumer.[40] The concept of autonomy can be traced back to the work of Immanuel Kant that introduced autonomy as freedom of choice, in which an individual is capable to act rationally and freely exercise his moral reasoning will.[41]

The automation of inferring emotion to conduct targeted advertising aims to assign a customized set of options that has been adjusted to the consumers' preferences to prevent painful tradeoffs or difficult deliberation from the perspectives of consumers.[42] This process can threaten the consumers' autonomy since the consumers are deprived from the chances to introspect their preferences.[43] In the end, the process could result in undetectable personalization that signals a lack of control on the part of consumers.[44] The risks voiced in this regard may involve the mismatch between the actual and inferred preferences, the possibility of lower quality of products/services, and monopolization of distribution channels in a way that the consumers might prefer the products offered by the affiliates or the paying partners.[45]

The risks will be more prominent when it comes to a vulnerable group of consumers.

European consumer policy is based on the standard of rational-acting consumers, hence information asymmetries can become a barrier to enhance the consumers' decision-making process.[46] However, vulnerable consumers are unable to create this kind of decision due to physical or behavioral constraints. Potentially vulnerable consumers such as the elderly,

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[39] European Commission, 'Consumer Vulnerability across Key Markets in The European Union' (2016) <https://ec.europa.eu/info/sites/info/files/consumers-approved-report_en.pdf> accessed 13 August 2019 page 39.

[40] Agnieszka Jabłonowska et.al., 'Consumer Law And AI: Challenges to the EU Consumer Law and Policy Stemming from the Business' Use of AI - Final Report Of The ARTSY Project' (2018) EUI Working Papers Final report of the ARTSY project <https://cadmus.eui.eu/bitstream/handle/1814/57484/WP_2018_01.pdf?sequence=1&isAllowed=y> accessed 11 November 2019, page 8.

[41] Kim Treiger-Bar-Am 'In Defense of Autonomy: An Ethic of Care' (2008) NYU Journal of Law & Liberty <http://www.law.nyu.edu/sites/default/files/ECM_PRO_060976.pdf> accessed 21 December 2019, page 555.

[42] Quentin André, et.al., 'Consumer Choice and Autonomy in The Age of Artificial Intelligence and Big Data' (2017) 5 Customer Needs and Solutions <https://link.springer.com/content/pdf/10.1007%2Fs40547-017-0085-8.pdf> accessed 18 December 2019, page 34.

[43] *ibid*, page 34.

[44] Darren Stevenson, 'Does E-Commerce Personalization Make All Consumers Vulnerable Consumers?' (Cyberlaw.stanford.edu, 2019) <http://cyberlaw.stanford.edu/blog/2015/03/does-e-commerce-personalization-make-all-consumers-vulnerable-consumers> accessed 15 August 2019.

[45] *ibid* n(41), page 562.

[46] Hans-W. Micklitz, Lucia A. Reisch and Kornelia Hagen, 'An Introduction to the Special Issue on "Behavioural Economics, Consumer Policy, and Consumer Law"' (2011) 34 Journal of Consumer Policy <https://link.springer.com/content/pdf/10.1007/s10603-011-9166-5.pdf> accessed 21 December 2019 page 271.

individuals with low educational background, or people who are inexperienced with online shopping, may have lower awareness of personalisation and the risks behind it.[47] Alexa can respond to the user's request with suggestions and recommendations, and most of the time offer to buy.

There is also a degree of manipulation that results in the dependency of the consumer towards the device. Market manipulation theory believes that humans are predictably irrational, hence people do not always behave rationally in their best interest as traditional economic model.[48] However, under certain circumstances such as a long day at work upon making hundredth decision of a day, the willpower will deplete and lead to vulnerabilities.[49] Therefore, companies with the capacity and incentive to exploit a consumer could target the consumer most intensely when the consumers are the most depleted.[50]

2.2 The Utilization of 'Emotion' as Inferred Data in the Light of Data Protection

There is an overlap in data protection law and consumer protection law since the objective of both regimes is to protect the autonomy of the consumers and data subjects.[51] The scope of the GDPR is to protect natural person in regard to the processing of personal data. Over the years, the right to personal data protection has evolved from market-building device into a core fundamental right, and arguably a de facto citizenship right.[52]

The concept of targeted advertising encompasses the compilation of detailed information on consumers and their preferences in using the internet or consuming other media to provide them with the individualized advertisement.[53] The aggregation of data could lead to the creation of profiles. Profiling may pose certain risks due to the utilization of personal data, and companies also have the upper hand since they acquire the abundant amount of individual data in the decision-making process.[54]

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[47] European Commission 'Consumer Market Study on Online Market Segmentation through Personalised Pricing/Offers in the European Union' (2018) <https://ec.europa.eu/info/sites/info/files/aid_development_cooperation_fundamental_rights/aid_and_development_by_topic/documents/synthesis_report_online_personalisation_study_final_0.pdf> accessed 21 December 2019, page 263.

[48] Calo, Ryan, Digital Market Manipulation (August 15, 2013). 82 George Washington Law Review 995 (2014); University of Washington School of Law Research Paper No. 2013-27, page 1000. Available at SSRN: https://ssrn.com/abstract=2309703 or http://dx.doi.org/10.2139/ssrn.2309703.

[49] Roy F Baumeister and John Tierney, *Willpower: Rediscovering Our Greatest Strength* (Penguin UK 2011).

[50] *ibid*, n(48) page 1033.

[51] Michiel Rhoen, 'Beyond Consent: Improving Data Protection through Consumer Protection Law' (2016) 5 Internet Policy Review Journal on Internet Regulation <https://policyreview.info/node/404/pdf> accessed 9 October 2019, page 6.

[52] Marie-Pierre Granger and Kristina Irion, 'The Right to Protection of Personal Data: The New Posterchild of European Union Citizenship?', *Civil Rights and EU Citizenship Challenges at the Crossroads of the European, National and Private Spheres: Interdisciplinary Perspectives on EU Citizenship series* (Edward Elgar 2018), page 281.

[53] Christian Schlee, *Targeted Advertising Technologies in The ICT Space* (Springer-Vieweg 2012) page 1.

[54] Daniel J. Solove, 'A Taxonomy of Privacy' (2006) <https://www.law.upenn.edu/journals/lawreview/articles/volume154/issue3/Solove154U.Pa.L.Rev.477(2006).pdf> accessed 27 June 2019, page 507.

The GDPR protects personal data with no regard to the kind of technology used for the processing of data since the regulation is technology-neutral and can be applied to both automated and manual processing.[55] There are debates on whether emotion can be classified as personal data since the current legal context is that if technologies do not create images of people, identify, individualize, single-out or generate code to treat an individual differently somehow, then the process is not regulated by data protection legislation in Europe.[56]

The potential value and insightfulness of data generated while using digital technologies if often opaque from the perspective of the user.[57] This is also shown from Amazon Alexa emotion recognition since there is further automated processing after the device receives the voice input from the user. The algorithm will automatically combine the voice data and the traits of the user to infer the emotion. Personalisation algorithms, and the underlying practice of analytics, can thus both enhance and undermine the agency of data subjects that also lead to harming the autonomy of the user.[58]

3. The EU Consumer Law and Data Protection on Amazon Alexa Emotion Recognition

3.1 EU Consumer Laws

3.1.1 Autonomy and Vulnerable Consumer from the Perspective of EU Consumer Laws

The Unfair Commercial Practices Directive (UCP Directive) aims to regulate all kinds of commercial practices which may impact on the economic interests of the consumer. The main objective of this Directive is to advance the operation of the internal market towards consumers, by removing the disparate national rules and regulations that harm their access to the intra-Community trade of goods and services.[59]

This Directive emphasizes the autonomy of the consumer, which is the idea that the consumers should be able to make informed choices.[60] However, this Directive also acknowledges that there are certain group of consumers that might have difficulty to make informed choices. This group of consumers is protected under the Article 5(3) UCP

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[55] European Commission, 'What Is Personal Data?' (European Commission, 2019) <https://ec.europa.eu/info/law/law-topic/data-protection/reform/what-personal-data_en> accessed 10 October 2019.

[56] Andrew McStay, 'Empathic Media and Advertising: Industry, Policy, Legal and Citizen Perspectives (The Case for Intimacy)' (2016) 3 Big Data & Society, page 6.

[57] Jose Gonzalez Cabanas, et.al., 'Facebook Use of Sensitive Data for Advertising In Europe' [2018] arXiv <https://arxiv.org/pdf/1802.05030.pdf> accessed 23 December 2019, page 17.

[58] Brent Daniel Mittelstadt, *et.al.*, 'The Ethics of Algorithms: Mapping The Debate' (2016) 3 Big Data & Society <https://journals.sagepub.com/doi/pdf/10.1177/2053951716679679> accessed 23 December 2019, page 9.

[59] Georgios Anagnostaras, 'the Unfair Commercial Practices Directive in Context: From Legal Disparity to Legal Complexity?' (2010) 47 Common Market Law Review, page 147.

[60] Katalin J. Cseres, 'The Regulatory Consumer in EU and National Law? Case Study of The Normative Concept of The Consumer in Hungary and Poland' (2016) 9 (13) Yearbook of Antitrust and Regulatory Studies, page 15.

Directive. According to the European Commission standard, there are certain dimensions in which consumer can face the vulnerabilities. The dimension can range from when the consumers faced with complex marketing material to when the consumer has less access to choose or buy.[61] Therefore, a commercial practice can be considered unfair observed from the perspective of the consumers who are particularly vulnerable to it.[62]

3.1.2 Amazon Alexa Emotion Recognition as 'Goods With Digital Elements'

The EU recently adopted a new directive governing contracts for the supply of digital content and services, which is the Directive 2019/770 (Digital Content Directive).[63] This Directive aims to ensure a high level of protection for consumers paying for a service but also those providing data in exchange for such service, for example, products with a digital element such as smart fridges.[64] Digital Content Directive also attempted to harmonize contract law as part of consumer protection framework.

Amazon Alexa emotion recognition then can be classified as goods with digital elements under Article 2 (3) Digital Content Directive. The notion of goods with digital elements should refer to goods that incorporate or are inter-connected with digital content or a digital service in such a way that the absence of that digital content or digital service would prevent the goods from performing their functions.[65] The absence of digital content in the form of audio input from the user will prevent the voice recognition to function.

3.2 EU Data Protection Framework

3.2.1 Emotion Under the Notion of Personal Data

The scope of the GDPR is to protect natural person in regard to the processing of personal data. There are a lot of elements in the definition of personal data contained in Article 4 (1) GDPR. Article 29 Working Party thereby gives a clarification on the concept of personal data which includes information touching the individual's private and family life, but also information regarding whatever types of activity is undertaken by the individual, like that concerning working relations or the economic or social behaviour of the individual.[66]

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[61] European Commission 'Consumer Vulnerability in the EU: A European Commission Study' <https://ec.europa.eu/info/sites/info/files/consumer-vulnerability-static-infographic_en.pdf> accessed 5 November 2019.

[62] Eleni Tzoulia, 'Imprints of Behavioural Research In EU Consumer Protection Legislation: The 'Average Consumer Test' In The Unfair Commercial Practices Directive' (2017) 6 *Tijdschrift voor Consumentenrecht en handelspraktijken* <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3204676> accessed 24 December 2019, page 260.

[63] Verónica Huertas Cerdeira, 'EU Adopts New Rules on Sales Contracts for Goods and Digital Content' (Consilium.europa.eu, 2019) <https://www.consilium.europa.eu/en/press/press-releases/2019/04/15/eu-adopts-new-rules-on-sales-contracts-for-goods-and-digital-content/> accessed 29 January 2020.

[64] Romain Sadet, 'EU Adopts New Rules on Sales Contracts for Goods and Digital Content' (*Consilium.europa.eu*, 2019) <https://www.consilium.europa.eu/en/press/press-releases/2019/04/15/eu-adopts-new-rules-on-salescontracts-for-goods-and-digital-content/> accessed 5 November 2019.

[65] Recital 21 Digital Content Directive.

[66] Article 29 Working Party, Opinion 4/2007 on the concept of personal data, adopted on 20th June, page 6.

In the previous section, it is mentioned that it remains uncertain whether emotional data could be considered as a specific category of data worth protection.[67] However, it should be noted that the overall process in Amazon Alexa emotion recognition is dependent on the voice input of the user. Therefore, due to the use of voice in the processing of data, the provision on biometric data can be applied for emotion.

The GDPR protects personal data with no regard to the kind of technology used for processing the data since the regulation is technology-neutral and can be applied to both automated and manual processing.[68] The GDPR leaves emotion tracking unregulated so long as the emotion analytics do not allow or confirm the unique identification of an individual since the main criteria for data to be considered as personal data is the identifiability.[69] Therefore, if the data cannot be traced back to an individual, the data will fall out of the scope of personal data under the GDPR.

The use of voice may be governed by the provision of biometric data, however, there is further processing on the voice input of the user that leads to the inferred data of emotion. The term 'inferred data' is inexistent in the GDPR since the focus is mostly on the input data.[70] However, the legal obligations imposed by the GDPR should be applied even in the case of technology that does not aim to seek out the individual, since the processing might still involve personal data.[71]

Article 5 (3) ePrivacy Directive should be understood as any information stored in the terminal equipment of users of electronic communications networks regardless of whether or not it is personal data, to protect users from the risk that hidden identifiers and other similar devices enter those users' terminal equipment without their knowledge.[72] Therefore, emotion can be categorised as personal data based on these precedents.

3.2.2 Legal Grounds of the Processing of Emotion as Personal Data

The processing of voice data is fall under the scope of Article 9 concerning special categories of data. To process special categories of data, controllers must meet one of the conditions

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[67] Hande Ayanoğlu and Emília Duarte, *Emotional Design in Human-Robot Interaction: Theory, Methods, Application* (Springer 2019), page 103.

[68] European Commission, 'What Is Personal Data?' (European Commission, 2019) <https://ec.europa.eu/info/law/law-topic/data-protection/reform/what-personal-data_en> accessed 10 October 2019.

[69] Elaine Sedenberg and John Chuang 'Smile For The Camera: Privacy And Policy Implications Of Emotion AI' (2017) ArXiv <https://www.semanticscholar.org/paper/Smile-for-the-Camera%3A-Privacy-and-Policy-of-Emotion-Sedenberg-Chuang/b4fb356b6f7dcf20995ccfa1063d9cc7b297b82b> accessed 11 November 2019, page 10.

[70] Ibrahim Emre Bayamlıoğlu, *Being Profiled: Cogitas Ergo Sum* (Amsterdam University Press 2018), page 113.

[71] Andrew McStay and Lachlan Urchuhat, 'This Time with Feeling?' Assessing EU Data Governance Implications of Out of Home Appraisal Based Emotional AI' (2019) 24 First Monday <https://firstmonday.org/ojs/index.php/fm/article/view/9457/8146> accessed 10 October 2019.

[72] Judgment of 1st of October 2019, Case C-673/17, Planet49 GmbH, ECLI:EU:C:2019:801, para 70.

set out in Article 9 (2) GDPR, as well as the lawful grounds from Article 6 GDPR.[73] This includes special category data derived or inferred from profiling activity.[74]

In regards to the processing of biometric data and data concerning health, GDPR imposed a stricter requirement of lawfulness, which is that the controller should obtain an explicit and specific consent. Traditionally, explicit consent is given in writing by a hand-written signature to demonstrate the express statement of consent. In the digital or online context, a data subject may be able to issue the required statement by filling in an electronic form, by sending an email, by uploading a scanned document carrying the signature of the data subject, or by using an electronic signature.[75]

However, in the aforementioned section, it is said that the technology will pose a risk in human autonomy, especially in terms of vulnerable consumer. Therefore, if the data processing is based on the explicit consent listed under Article 9 (1) GDPR, the lawfulness of the processing can be questioned since the obtained consent may not satisfy the elements of consent stipulates in Article 4 (11) GDPR. Consent is presumed not to have been freely given if it is bundled up as a non-negotiable part of terms and conditions.[76] The current terms of use of Alexa force the user to consent in order to experience the service. These terms of use are not reflecting the lawfulness of processing in the context of Amazon Alexa emotion recognition.

Article 7 (4) GDPR indicates that bundling the consent with acceptance of terms and conditions to process personal data that are not indispensable for the performance of the contract is considered highly undesirable.[77] On the other hand, the lawful ground of contract contained in Article 6 (1) (b) GDPR can be applied in case the data controller seeks to process personal data that is necessary for the performance of a contract.[78] However, the necessity for performance of contract is not a legal basis for processing special categories of data[79], as applied in the context of Amazon Alexa emotion recognition.

4. Legal Challenges in the Light of Amazon Alexa Emotion Recognition

4.1 The Legal Challenges in the Perspectives of Consumer Laws

4.1.1 Revisiting the Standard of Average Consumer

The average consumer is the benchmark in the UCP Directive. However, the concept of the average consumer, who makes rational decisions in the marketplace, has been challenged

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[73] Article 29 Data Protection Working Party, Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679, Adopted on 3 October 2017, As last Revised and Adopted on 6 February 2018, 17/EN WP251rev.01, page 15.

[74] *ibid*., page 15.

[75] Article 29 Data Protection Working Party Guidelines on consent under Regulation 2016/679, Adopted on 28 November 2017 (as last revised and adopted on 10 April 2018), page 3.

[76] B.B. Duivenvoorde, 'The Consumer Benchmarks in the Unfair Commercial Practices Directive', (PhD thesis, Universiteit van Amsterdam, 2014), page 5.

[77] *ibid*., n(75), page 9.

[78] *ibid*., n(75), page 9.

[79] *ibid*., n(75), page 9.

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from different perspectives due to technological innovations.[80] The UCP Directive initially intended to prohibit commercial practices that could undermine the decision making of the average consumers in order to make an informed decision by preying on their emotions.[81] Therefore, it leaves room for the legislators to take a second look at the standard of average consumer and create a more realistic and unambiguous standard.[82]

Moreover, even though the UCP Directive also aims to protect vulnerable consumers, this concept is superfluous and paternalistic notion that highlight the unrealistic standard of an average consumer instead.[83] There are possible consequences for the legitimacy and acceptance of a consumer policy since labelling and grouping the vulnerable consumers can create a stigmatisation that consumer protection is only intended for the people who are deficient and irresponsible in some way.[84] Therefore, the legislators should not define certain consumers as a group that should be seen as the primary beneficiary of consumer policy.[85]

4.1.2 Information Paradigm and its Challenges

Information was seen as the prime instrument for improving consumer autonomy and hence the position of the consumer in legal, mostly contractual relations.[86] Consumers may have difficulty in making decisions that reflect their true preferences due to the lack of information.[87] Therefore, the law should oblige the traders to provide the consumers with adequate information.

Consumer Rights Directive also drafted with the idea of information paradigm. However, information paradigm receive criticism due to the effectiveness of informing the consumer. In the aforementioned section, it is said that the standard of the average consumer is unrealistic and needs to be revisited. The fact that a consumer meets the requirements of being reasonably circumspect does not mean that he fully understands the information or that he is able to make the right decision, especially when he needs to choose between the

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[80] *ibid.*, n(61) page 23.

[81] Rossella Incardona and Cristina Poncibò, 'The Average Consumer, The Unfair Commercial Practices Directive, and The Cognitive Revolution' (2007) 30 Journal of Consumer Policy <https://link.springer.com/content/pdf/10.1007/s10603-006-9027-9.pdf> accessed 27 December 2019, page 28.

[82] *ibid.*, page 28.

[83] *ibid.*, n(81) page 29.

[84] Thomas Wilhelmsson, 'The Informed Consumer v the Vulnerable Consumer in European Unfair Commercial Practices Law - A Comment', *The Yearbook of Consumer Law 2007* (1st edn, Routledge 2007), page 211.

[85] *ibid.*, n(81) page 212.

[86] Norbert Reich, 'Diverse Approaches to Consumer Protection Philosophy' (1992) 14 Journal of Consumer Policy <https://link.springer.com/content/pdf/10.1007/BF00380900.pdf> accessed 28 December 2019, page 258.

[87] Geraint Howells, The Potential and Limits of Consumer Empowerment by Information' (2005) 32 Journal of Law and Society <https://www.jstor.org/stable/pdf/3557237.pdf?refreqid=excelsior%3A6ff7b89eaca564895abffc81cf6c555b> accessed 28 December 2019, page 355.

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product and no product, or when the information relied upon is manipulated by the provider.[88]

Online services usually provide the information in their terms of use before the user can access the service. The terms of service can also be scrutinised under the UCT Directive to calculate the degree of fairness in the contract. Article 3 (1) UCT Directive stipulates that "*contract terms are regarded as unfair if it is contrary to the requirements of good faith and they cause a significant imbalance in the parties' rights and obligations arising under the contract that could result in the detriment of the consumer*".[89] The concept of good faith is an objective concept linked to the question of whether, in light of its content, the contract term in question is compatible with fair and equitable market practices that take the consumers' legitimate interests sufficiently into account.[90] Therefore, contract terms should be drafted in plain and intelligible language as per Article 5 UCT Directive.

4.1.3 'Passive' Consumers and Personal Data as a Counter-Performance

Digital Content Directive only applies to contracts in which the user is actively provides the data. This is due to the common conception in the contract laws where there should be a form of consideration or value exchange between the parties to form a valid contract.[91] Exempted from this Directive are contracts where the data is not actively provided by the consumer, data that the consumer needs to provide to access the content or that is legally required, and data that is needed to improve the service.[92] This distinction leads to less protection for the consumers who passively provided data, as they will not fall under the DCD.

Referring back to Amazon Alexa emotion recognition, it is unclear whether this Directive could be applicable in this matter. The user may actively provide their personal data such as name, phone, or e-mail by register for an account at Alexa. However, Alexa may also automatically retain the data that are not actively provided by the user for instance such as IP address and voice inputs from the user.[93] The automation in inferring emotion into targeted advertising also fuels the confusion in the scope of this Directive.

There are some concerns that propose the expanding the Directive's scope to include digital content supplied against data that consumers provide passively to strengthen the position of

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[88] Cătălin Gabriel Stănescu, 'The Responsible Consumer in The Digital Age: On The Conceptual Shift From 'Average' to 'Responsible' Consumer and The Inadequacy of The 'Information Paradigm' in Consumer Financial Protection' (2019) 24 Tilburg Law Review, page 15.

[89] Article 3 (1) UCT Directive.

[90] Commission Notice, Guidance on the interpretation and application of Council Directive 93/13/EEC of 5 April 1993 on unfair contract terms in consumer contracts, page 32.

[91] Damian Clifford, 'The Digital Content Directive, the Value of Data and the Privacy and Data Protection Framework - CITIP Blog' (KU Leuven CITIP blog, 2018) <https://www.law.kuleuven.be/citip/blog/the-digital-content-directive-the-value-of-data-and-the-privacy-and-data-protection-framework/> accessed 17 November 2019.

[92] Johanna Hoekstra and Aysem Diker-Vanberg, 'The Proposed Directive For The Supply Of Digital Content: Is It Fit For Purpose?' (2019) 33 International Review of Law, Computers & Technology <https://www.tandfonline.com/doi/pdf/10.1080/13600869.2019.1562638?needAccess=true> accessed 5 November 2019, page 102.

[93] *ibid*., n(80).

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consumers. Excluding 'passive' consumers will be counterproductive in terms of consumer protection since passively collected data should not be considered as less valuable in its scope or importance compared to actively collected data.[94]

4.2 The Legal Challenges in the Perspectives of Data Protection Framework

4.2.1 Inferences from Special Categories of Data

There is a contradiction on the terms 'unique identification' stated in Article 4 (14) GDPR and Recital 51 GDPR. According to Recital 51 GDPR: "the processing of facial images can only be considered as biometric data when processed through a specific technical means which allows the unique identification or authentication of a natural person".[95] Logically, in that definition, 'unique identification' cannot refer to biometric identification as it refer instead to the highest threshold of identification, where individuals are identified (singled out) through their biometric attributes. [96] Therefore, if Recital 51 GDPR defines authentication as identity verification, there will be an inconsistency with the legal definition of biometric data since 'unique identification' can be understood as biometric identification. The term 'unique identification' thereby should refer to the threshold of identification of biometric data and not to 'biometric identification' as a function.[97]

Referring back to Amazon Alexa emotion recognition, the overall process involve in combining physical attributes of the user (voice) and physiological reactions of the user (emotion) that could lead to the user being identified. The analysis on voice abnormalities to infer emotional states of the user may pose a risk in the fundamental rights of data subject. Therefore, the provision of biometric data should be implemented instead of the provision of common personal data.

4.2.2 Contractual Ground in the Processing of Special Categories of Data

As the processing of data in Amazon Alexa emotion recognition involve in the use of biometric characteristics that could lead to an individual, this technology should be subjected to a stricter regime as a safeguard to maintain the rights and freedoms of data subjects. The lawful grounds of processing will be put in scrutiny to analyse the lawful basis under Article 6 (1) GDPR and the requirements listed in Article 9 (2).

The conditions of processing listed in Article 9 (2) GDPR also raises an issue since it does not include the processing being necessary for the conclusion of a contract with the request of the data subject, or for the performance of a contract entered into with the data subject, which are some of the key grounds for the processing of common personal data as per Article

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[94] Axel Metzger, et.al., 'Data-Related Aspects of The Digital Content Directive' (2018) 90 JIPITEC <https://www.jipitec.eu/issues/jipitec-9-1-2018/4682/JIPITEC_9_1_2018_90-109_Metzger_et_al> accessed 17 November 2019, page 96.

[95] Recital 51 GDPR.

[96] Catherine Jasserand, 'Massive Facial Databases and The GDPR the New Data Protection Rules Applicable to Research', Data Protection and Privacy: The Internet of Bodies (Hart Publishing 2018), page 175.

[97] Catherine Jasserand, 'Legal Nature of Biometric Data: From 'Generic' Personal Data to Sensitive Data' (2016) 2 European Data Protection Law Review, page 16.

6 (1) (b) GDPR.[98] Therefore, the controllers that deal with this situation should explore the specific exceptions in Article 9 (2) subparagraphs (b) to (j), and should none of the exceptions (b) to (j) apply, obtaining explicit consent in accordance with the conditions for valid consent in the GDPR remains the only possible lawful exception to process such data.[99] For example, the controller uses biometric data when it is part of the performance of a contract, they still need to obtain explicit consent from the user.[100]

The GDPR should have acknowledged the need of processing under the ground of 'necessary for the performance of a contract'. This will emphasize the autonomy of the user since the user can make an informed choice whether they are aware of the consequences in the emotion analysis.

CONCLUSION

Emotion plays the crucial role in advertising since the decision-making process is heavily relied on the dimension of emotion.[101] Therefore, more companies acknowledge this possibility and implemented emotion AI in the digital advertising industry to gain an insight into consumer behaviour. This pattern also shows from the granted patent on 'voice-based determination of physical and emotional characteristics of users' for Amazon Alexa voice recognition.

The development of this business model has been said to pose some risks in the context of consumer laws and data protection. The objective of consumer laws is to protect the autonomy of the consumer, in which it refers to self-determination where the consumer capable to make a free choice and rational decision.[102] Amazon Alexa emotion recognition could harm the autonomy of the user since the device will automatically discern the emotional status when there is a voice input from the user. On the other hand, Amazon Alexa emotion recognition could threaten the fundamental right in the perspective of data protection. This is due to the fact that inferred data is not clearly protected under the current regulatory framework on data protection.

In mitigating the risks posed by the technology, the notion of average consumer is the legal benchmark under the UCP Directive in which it assumes that the consumer is "*reasonably well-informed and reasonably observant and circumspect*".[103] The practice of Amazon Alexa emotion recognition can be counted as unfair commercial practice since the practice

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[98] Mariusz Krzysztofek, *GDPR : General Data Protection Regulation (EU) 2016/679: Post-Reform Personal Data Protection In The European Union* (Kluwer Law International 2018).

[99] Eleni Kosta, Consent in European Data Protection Law (Nijhoff 2013), page 19.

[100] *ibid*., n(97).

[101] Chethana Achar, et.al., 'What We Feel And Why We Buy: The Influence Of Emotions On Consumer Decision-Making' (2016) 10 Current Opinion in Psychology <https://www.researchgate.net/publication/293801220_What_We_Feel_and_Why_We_Buy_The_Influence_of_Emotions_on_Consumer_Decision-Making> accessed 29 December 2019, page 3.

[102] *ibid*., n(61) page 15.

[103] Dorota Leczykiewicz and Stephen Weatherill, *The Images of The Consumer in EU Law: Legislation, Free Movement, and Competition Law* (Hart Publishing 2016), page 435-436.

could impair the decision-making process and likely cause the consumer to take a transactional decision that he would not have taken otherwise.[104]

However, there are some challenges faced by both consumer laws and data protection law in mitigating the risk in Amazon Alexa emotion recognition. Consumer laws are facing the challenges on the issue of the average consumer as a benchmark, the effectiveness of information paradigm, the significant imbalance in the terms of use, contracts in which the user is 'passively' provides the data, and personal data as a counter-performance of the contract. Whereas, in the data protection perspective, there is a challenge of regulating inferred data under the notion of personal data and the need for contractual basis as the lawful ground of special categories of data. In conclusion, both regimes show some insufficiencies in overcoming the risks.

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[104] Article 7 (1) Directive 2005/29/EC on Unfair Commercial Practices.

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